

**SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR MERCHANT
NAME PREDICTION DURING A PUSH PAYMENT**BACKGROUND1. Field

[0001] This disclosure relates generally to predicting a merchant name and, in some non-limiting embodiments or aspects, to systems, methods, and computer program products for predicting a merchant name during a push payment transaction.

2. Technical Considerations

[0002] Users may initiate push payment transactions with merchants via payment devices (e.g., mobile devices, smart phones, smart watches, and/or other like devices) by entering codes associated with the merchants via the payment devices. The codes associated with the merchants may be displayed by the merchants at a point-of-sale (POS), online, via a software application, etc. For example, users may initiate push payment transactions with merchants by scanning Quick Response (QR) codes displayed by merchants. The merchant identification codes may include data, such as a merchant identifiers, that may be used to identify merchants associated with push payment transactions.

[0003] In some cases, the merchant identification codes may be registered under a name other than the merchant name (e.g., a store owner's name, the name of an employee, etc.). For example, a merchant identifier may be associated with an account of a store owner and the merchant name may include a handle associated with the account of the store owner. As such, it may be difficult for a transaction processing system to identify a merchant name of a merchant associated with a push payment transaction (e.g., the merchant name) based on a merchant identification code.

SUMMARY

[0004] Accordingly, systems, methods, and/or computer program products for predicting a merchant name during a push payment transaction are disclosed that overcome some or all of the deficiencies identified above.

[0005] According to non-limiting embodiments or aspects, provided is a computer-implemented method for predicting a merchant name during a push payment transaction. In some non-limiting embodiments or aspects, the method may include receiving, by at least one processor, an account identifier and image data in response

to a user initiating a push payment transaction with a user device. In some non-limiting embodiments or aspects, the method may further include determining, by at least one processor, a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database. In some non-limiting embodiments or aspects, the method may further include updating, by at least one processor, the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.

[0006] In some non-limiting embodiments or aspects, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the method may further include receiving a single payload comprising the account identifier and the image data.

[0007] In some non-limiting embodiments or aspects, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the method may further include receiving a single payload comprising the account identifier; in response to receiving the single payload, communicating at least one prompt to the user device; and in response to sending the at least one prompt, receiving, from the user device, at least one response message comprising the image data.

[0008] In some non-limiting embodiments or aspects, the method may further include receiving at least one geographic identifier in response to the user initiating the push payment transaction with a user device.

[0009] In some non-limiting embodiments or aspects, the method may further include associating the account identifier with the image data in an image database; and automatically aggregating, in the image database, additional image data received from a plurality of users based on the account identifier.

[0010] In some non-limiting embodiments or aspects, the method may further include, in response to receiving the account identifier and the image data, communicating at least one prompt to the user device; and receiving, from the user device, at least one response message comprising a registered merchant name.

[0011] In some non-limiting embodiments or aspects, the method may further include matching the image data to the registered merchant name; and storing the image data matched to the registered merchant name in the merchant name database.

[0012] According to non-limiting embodiments or aspects, provided is a system for predicting a merchant name during a push payment transaction. In some non-limiting embodiments or aspects, the system may include at least one processor programmed or configured to receive an account identifier and image data in response to a user initiating a push payment transaction with a user device. In some non-limiting embodiments or aspects, the at least one processor may be further programmed or configured to determine a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database. In some non-limiting embodiments or aspects, the at least one processor may be further programmed or configured to update the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.

[0013] In some non-limiting embodiments or aspects, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the at least one processor may be further programmed or configured to receive a single payload comprising the account identifier and the image data.

[0014] In some non-limiting embodiments or aspects, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the at least one processor may be further programmed or configured to: receive a single payload comprising the account identifier; in response to receiving the single payload, communicate at least one prompt to the user device; and in response to sending the at least one prompt, receive, from the user device, at least one response message comprising the image data.

[0015] In some non-limiting embodiments or aspects, the at least one processor may be further programmed or configured to receive at least one geographic identifier in response to the user initiating the push payment transaction with a user device.

[0016] In some non-limiting embodiments or aspects, the at least one processor may be further programmed or configured to: associate the account identifier with the image data in an image database; and automatically aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

[0017] In some non-limiting embodiments or aspects, the at least one processor may be further programmed or configured to: in response to receiving the account

identifier and the image data, communicate at least one prompt to the user device; and receive, from the user device, at least one response message comprising a registered merchant name.

[0018] In some non-limiting embodiments or aspects, the at least one processor may be further programmed or configured to: match the image data to the registered merchant name; and store the image data matched to the registered merchant name in the merchant name database.

[0019] According to non-limiting embodiments or aspects, provided is a computer program product for predicting a merchant name during a push payment transaction. In some non-limiting embodiments or aspects, the computer program product may include at least one non-transitory computer-readable medium including program instructions that, when executed by at least one processor, cause the at least one processor to receive an account identifier and image data in response to a user initiating a push payment transaction with a user device. In some non-limiting embodiments or aspects, the one or more instructions may further cause the at least one processor to determine a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database. In some non-limiting embodiments or aspects, the one or more instructions may further cause the at least one processor to update the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.

[0020] In some non-limiting embodiments or aspects, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the one or more instructions may further cause the at least one processor to receive a single payload comprising the account identifier and the image data.

[0021] In some non-limiting embodiments or aspects, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the one or more instructions may further cause the at least one processor to: receive a single payload comprising the account identifier; in response to receiving the single payload, communicate at least one prompt to the user device; and in response to sending the at least one prompt, receive, from the user device, at least one response message comprising the image data.

[0022] In some non-limiting embodiments or aspects, the one or more instructions may further cause the at least one processor to receive at least one geographic identifier in response to the user initiating the push payment transaction with a user device.

[0023] In some non-limiting embodiments or aspects, the one or more instructions may further cause the at least one processor to: associate the account identifier with the image data in an image database; and automatically aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

[0024] In some non-limiting embodiments or aspects, the one or more instructions may further cause the at least one processor to: in response to receiving the account identifier and the image data, communicate at least one prompt to the user device; and receive, from the user device, at least one response message comprising a registered merchant name.

[0025] In some non-limiting embodiments or aspects, the one or more instructions may further cause the at least one processor to: match the image data to the registered merchant name; and store the image data matched to the registered merchant name in the merchant name database.

[0026] Other non-limiting embodiments or aspects will be set forth in the following numbered clauses:

[0027] Clause 1: A method, comprising: receiving, by at least one processor, an account identifier and image data in response to a user initiating a push payment transaction with a user device; determining, by at least one processor, a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database; and updating, by at least one processor, the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.

[0028] Clause 2: The method of clause 1, wherein receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device comprises: receiving a single payload comprising the account identifier and the image data.

[0029] Clause 3: The method of clause 1 or 2, wherein receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device comprises: receiving a single payload comprising the

account identifier; in response to receiving the single payload, communicating at least one prompt to the user device; and in response to sending the at least one prompt, receiving, from the user device, at least one response message comprising the image data.

[0030] Clause 4: The method of any of clauses 1-3, further comprising: receiving at least one geographic identifier in response to the user initiating the push payment transaction with a user device.

[0031] Clause 5: The method of any of clauses 1-4, further comprising: associating the account identifier with the image data in an image database; and automatically aggregating, in the image database, additional image data received from a plurality of users based on the account identifier.

[0032] Clause 6: The method of any of clauses 1-5, further comprising: in response to receiving the account identifier and the image data, communicating at least one prompt to the user device; and receiving, from the user device, at least one response message comprising a registered merchant name.

[0033] Clause 7: The method of any of clauses 1-6, further comprising: matching the image data to the registered merchant name; and storing the image data matched to the registered merchant name in the merchant name database.

[0034] Clause 8: A system comprising a least one processor, the at least one processor programmed or configured to: receive an account identifier and image data in response to a user initiating a push payment transaction with a user device; determine a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database; and update the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.

[0035] Clause 9: The system of clause 8, wherein, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the at least one processor is further programmed or configured to: receive a single payload comprising the account identifier and the image data.

[0036] Clause 10: The system of clause 8 or 9, wherein, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the at least one processor is further programmed or configured to: receive a single payload comprising the account identifier; in response

to receiving the single payload, communicate at least one prompt to the user device; and in response to sending the at least one prompt, receive, from the user device, at least one response message comprising the image data.

[0037] Clause 11: The system of any of clauses 8-10, wherein the at least one processor is further programmed or configured to: receive at least one geographic identifier in response to the user initiating the push payment transaction with a user device.

[0038] Clause 12: The system of any of clauses 8-11, wherein the at least one processor is further programmed or configured to: associate the account identifier with the image data in an image database; and automatically aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

[0039] Clause 13: The system of any of clauses 8-12, wherein the at least one processor is further programmed or configured to: in response to receiving the account identifier and the image data, communicate at least one prompt to the user device; and receive, from the user device, at least one response message comprising a registered merchant name.

[0040] Clause 14: The system of any of clauses 8-13, wherein the at least one processor is further programmed or configured to: match the image data to the registered merchant name; and store the image data matched to the registered merchant name in the merchant name database.

[0041] Clause 15: A computer program product comprising at least one non-transitory computer-readable medium including program instructions that, when executed by at least one processor, cause the at least one processor to: receive an account identifier and image data in response to a user initiating a push payment transaction with a user device; determine a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database; and update the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.

[0042] Clause 16: The computer program product of clause 15, wherein, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the one or more instructions further

cause the at least one processor to: receive a single payload comprising the account identifier and the image data.

[0043] Clause 17: The computer program product of clause 15 or 16, wherein, when receiving the account identifier and the image data in response to a user initiating the push payment transaction with the user device, the one or more instructions further cause the at least one processor to: receive a single payload comprising the account identifier; in response to receiving the single payload, communicate at least one prompt to the user device; and in response to sending the at least one prompt, receive, from the user device, at least one response message comprising the image data.

[0044] Clause 18: The computer program product of any of clauses 15-17, wherein the one or more instructions further cause the at least one processor to: receive at least one geographic identifier in response to the user initiating the push payment transaction with a user device.

[0045] Clause 19: The computer program product of any of clauses 15-18, wherein the one or more instructions further cause the at least one processor to: associate the account identifier with the image data in an image database; and automatically aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

[0046] Clause 20: The computer program product of any of clauses 15-19, wherein the one or more instructions further cause the at least one processor to: in response to receiving the account identifier and the image data, communicate at least one prompt to the user device; and receive, from the user device, at least one response message comprising a registered merchant name.

[0047] Clause 21: The computer program product of any of clauses 15-20, wherein the one or more instructions further cause the at least one processor to: match the image data to the registered merchant name; and store the image data matched to the registered merchant name in the merchant name database.

[0048] These and other features and characteristics of the present disclosure, as well as the methods of operation and functions of the related elements of structures and the combination of parts and economies of manufacture, will become more apparent upon consideration of the following description and the appended claims with reference to the accompanying drawings, all of which form a part of this specification, wherein like reference numerals designate corresponding parts in the various figures. It is to be expressly understood, however, that the drawings are for the purpose of

illustration and description only and are not intended as a definition of the limits of the disclosed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0049] Additional advantages and details are explained in greater detail below with reference to the non-limiting, exemplary embodiments that are illustrated in the accompanying schematic figures, in which:

[0050] FIG. 1 is a diagram of an exemplary environment in which methods, systems, and/or computer program products, described herein, may be implemented according to some non-limiting embodiments or aspects;

[0051] FIG. 2 is a schematic diagram of example components of one or more devices of FIG. 1 according to some non-limiting embodiments or aspects;

[0052] FIG. 3 is a flow diagram of a process for predicting a merchant name during a push payment transaction according to some non-limiting embodiments or aspects; and

[0053] FIGS. 4A-4C are diagrams of non-limiting embodiments or aspects of an implementation of a process for predicting a merchant name during a push payment transaction according to some non-limiting embodiments or aspects.

DETAILED DESCRIPTION

[0054] For purposes of the description hereinafter, the terms “end,” “upper,” “lower,” “right,” “left,” “vertical,” “horizontal,” “top,” “bottom,” “lateral,” “longitudinal,” and derivatives thereof shall relate to the embodiments as they are oriented in the drawing figures. However, it is to be understood that the embodiments may assume various alternative variations and step sequences, except where expressly specified to the contrary. It is also to be understood that the specific devices and processes illustrated in the attached drawings and described in the following specification, are simply exemplary embodiments or aspects of the disclosed subject matter. Hence, specific dimensions and other physical characteristics related to the embodiments or aspects disclosed herein are not to be considered as limiting.

[0055] No aspect, component, element, structure, act, step, function, instruction, and/or the like used herein should be construed as critical or essential unless explicitly described as such. Also, as used herein, the articles “a” and “an” are intended to include one or more items and may be used interchangeably with “one or more” and “at least one.” Furthermore, as used herein, the term “set” is intended to include one or more items (e.g., related items, unrelated items, a combination of related and

unrelated items, and/or the like) and may be used interchangeably with “one or more” or “at least one.” Where only one item is intended, the term “one” or similar language is used. Also, as used herein, the terms “has,” “have,” “having,” or the like are intended to be open-ended terms. Further, the phrase “based on” is intended to mean “based at least partially on” unless explicitly stated otherwise.

[0056] As used herein, the term “acquirer institution” may refer to an entity licensed and/or approved by a transaction service provider to originate transactions (e.g., payment transactions) using a payment device associated with the transaction service provider. The transactions the acquirer institution may originate may include payment transactions (e.g., purchases, original credit transactions (OCTs), account funding transactions (AFTs), and/or the like). In some non-limiting embodiments or aspects, an acquirer institution may be a financial institution, such as a bank. As used herein, the term “acquirer system” may refer to one or more computing devices operated by or on behalf of an acquirer institution, such as a server computer executing one or more software applications.

[0057] As used herein, the term “account identifier” may include one or more primary account numbers (PANs), tokens, or other identifiers associated with a customer account. The term “token” may refer to an identifier that is used as a substitute or replacement identifier for an original account identifier, such as a PAN. Account identifiers may be alphanumeric or any combination of characters and/or symbols. Tokens may be associated with a PAN or other original account identifier in one or more data structures (e.g., one or more databases, and/or the like) such that they may be used to conduct a transaction without directly using the original account identifier. In some examples, an original account identifier, such as a PAN, may be associated with a plurality of tokens for different individuals or purposes.

[0058] As used herein, the term “communication” may refer to the reception, receipt, transmission, transfer, provision, and/or the like of data (e.g., information, signals, messages, instructions, commands, and/or the like). For one unit (e.g., a device, a system, a component of a device or system, combinations thereof, and/or the like) to be in communication with another unit means that the one unit is able to directly or indirectly receive information from and/or transmit information to the other unit. This may refer to a direct or indirect connection (e.g., a direct communication connection, an indirect communication connection, and/or the like) that is wired and/or wireless in nature. Additionally, two units may be in communication with each other

even though the information transmitted may be modified, processed, relayed, and/or routed between the first and second unit. For example, a first unit may be in communication with a second unit even though the first unit passively receives information and does not actively transmit information to the second unit. As another example, a first unit may be in communication with a second unit if at least one intermediary unit processes information received from the first unit and communicates the processed information to the second unit.

[0059] As used herein, the term “computing device” may refer to one or more electronic devices configured to process data. A computing device may, in some examples, include the necessary components to receive, process, and output data, such as a processor, a display, a memory, an input device, a network interface, and/or the like. A computing device may be a mobile device. As an example, a mobile device may include a cellular phone (e.g., a smartphone or standard cellular phone), a portable computer, a wearable device (e.g., watches, glasses, lenses, clothing, and/or the like), a personal digital assistant (PDA), and/or other like devices. A computing device may also be a desktop computer or other form of non-mobile computer.

[0060] As used herein, the terms “electronic wallet” and “electronic wallet application” refer to one or more electronic devices and/or software applications configured to initiate and/or conduct payment transactions. For example, an electronic wallet may include a mobile device executing an electronic wallet application, and may further include server-side software and/or databases for maintaining and providing transaction data to the mobile device. An “electronic wallet provider” may include an entity that provides and/or maintains an electronic wallet for a customer, such as Google Pay®, Android Pay®, Apple Pay®, Samsung Pay®, and/or other like electronic payment systems. In some non-limiting examples, an issuer bank may be an electronic wallet provider.

[0061] As used herein, the term “issuer institution” may refer to one or more entities, such as a bank, that provide accounts to customers for conducting transactions (e.g., payment transactions), such as initiating credit and/or debit payments. For example, an issuer institution may provide an account identifier, such as a PAN, to a customer that uniquely identifies one or more accounts associated with that customer. The account identifier may be embodied on a payment device, such as a physical financial instrument, e.g., a payment card, and/or may be electronic and used for electronic payments. The term “issuer system” refers to one or more computer devices operated

by or on behalf of an issuer institution, such as a server computer executing one or more software applications. For example, an issuer system may include one or more authorization servers for authorizing a transaction.

[0062] As used herein, the term “merchant” may refer to an individual or entity that provides goods and/or services, or access to goods and/or services, to customers based on a transaction, such as a payment transaction. The term “merchant” or “merchant system” may also refer to one or more computer systems operated by or on behalf of a merchant, such as a server computer executing one or more software applications.

[0063] As used herein, a “point-of-sale (POS) device” may refer to one or more devices, which may be used by a merchant to conduct a transaction (e.g., a payment transaction) and/or process a transaction. For example, a POS device may include one or more client devices. Additionally or alternatively, a POS device may include peripheral devices, card readers, scanning devices (e.g., code scanners), Bluetooth® communication receivers, near-field communication (NFC) receivers, radio frequency identification (RFID) receivers, and/or other contactless transceivers or receivers, contact-based receivers, payment terminals, and/or the like. As used herein, a “point-of-sale (POS) system” may refer to one or more client devices and/or peripheral devices used by a merchant to conduct a transaction. For example, a POS system may include one or more POS devices and/or other like devices that may be used to conduct a payment transaction. In some non-limiting embodiments or aspects, a POS system (e.g., a merchant POS system) may include one or more server computers programmed or configured to process online payment transactions through webpages, mobile applications, and/or the like.

[0064] As used herein, the terms “client” and “client device” may refer to one or more client-side devices or systems (e.g., remote from a transaction service provider) used to initiate or facilitate a transaction (e.g., a payment transaction). As an example, a “client device” may refer to one or more POS devices used by a merchant, one or more acquirer host computers used by an acquirer, one or more mobile devices used by a user, and/or the like. In some non-limiting embodiments or aspects, a client device may be an electronic device configured to communicate with one or more networks and initiate or facilitate transactions. For example, a client device may include one or more computers, portable computers, laptop computers, tablet computers, mobile devices, cellular phones, wearable devices (e.g., watches, glasses,

lenses, clothing, and/or the like), PDAs, and/or the like. Moreover, a “client” may also refer to an entity (e.g., a merchant, an acquirer, and/or the like) that owns, utilizes, and/or operates a client device for initiating transactions (e.g., for initiating transactions with a transaction service provider).

[0065] As used herein, the term “payment device” may refer to a payment card (e.g., a credit or debit card), a gift card, a smartcard, smart media, a payroll card, a healthcare card, a wristband, a machine-readable medium containing account information, a keychain device or fob, an RFID transponder, a retailer discount or loyalty card, a cellular phone, an electronic wallet mobile application, a PDA, a pager, a security card, a computing device, an access card, a wireless terminal, a transponder, and/or the like. In some non-limiting embodiments or aspects, the payment device may include volatile or non-volatile memory to store information (e.g., an account identifier, a name of the account holder, and/or the like).

[0066] As used herein, the term “payment gateway” may refer to an entity and/or a payment processing system operated by or on behalf of such an entity (e.g., a merchant service provider, a payment service provider, a payment facilitator, a payment facilitator that contracts with an acquirer, a payment aggregator, and/or the like), which provides payment services (e.g., transaction service provider payment services, payment processing services, and/or the like) to one or more merchants. The payment services may be associated with the use of payment devices managed by a transaction service provider. As used herein, the term “payment gateway system” may refer to one or more computer systems, computer devices, servers, groups of servers, and/or the like, operated by or on behalf of a payment gateway.

[0067] As used herein, the term “server” may refer to or include one or more computing devices that are operated by or facilitate communication and processing for multiple parties in a network environment, such as the Internet, although it will be appreciated that communication may be facilitated over one or more public or private network environments and that various other arrangements are possible. Further, multiple computing devices (e.g., servers, POS devices, mobile devices, etc.) directly or indirectly communicating in the network environment may constitute a “system.” Reference to “a server” or “a processor,” as used herein, may refer to a previously-recited server and/or processor that is recited as performing a previous step or function, a different server and/or processor, and/or a combination of servers and/or processors. For example, as used in the specification and the claims, a first server

and/or a first processor that is recited as performing a first step or function may refer to the same or different server and/or a processor recited as performing a second step or function.

[0068] As used herein, the term “transaction service provider” may refer to an entity that receives transaction authorization requests from merchants or other entities and provides guarantees of payment, in some cases through an agreement between the transaction service provider and an issuer institution. For example, a transaction service provider may include a payment network such as Visa® or any other entity that processes transactions. The term “transaction processing system” may refer to one or more computer systems operated by or on behalf of a transaction service provider, such as a transaction processing server executing one or more software applications. A transaction processing server may include one or more processors and, in some non-limiting embodiments or aspects, may be operated by or on behalf of a transaction service provider.

[0069] Non-limiting embodiments or aspects of the disclosed subject matter are directed to systems, methods, and computer program products for predicting a merchant name during a push payment transaction. The non-limiting embodiments described in the present disclosure provide a merchant name database and a system for interacting with such a database that improves over time, thereby improving the efficiency of future processes (e.g., merchant name matching) and avoiding redundant or unnecessary processing. Additionally, the non-limiting embodiments described in the present disclosure enable users to send and/or receive data (e.g., image data) that is not included with existing push payment transactions. In some non-limiting embodiments or aspects, the standardized merchant name may replace a current merchant name in the database, thereby further improving the database and, in turn, the efficiency of future processes (e.g., merchant name matching) and avoiding redundant or unnecessary processing.

[0070] Referring now to FIG. 1, shown is a diagram of a non-limiting embodiment or aspect of an exemplary system 100 for predicting a merchant name during a push payment transaction. As shown in FIG. 1, system 100 may include transaction service provider system 102, merchant system 104, user device 106, push payment request message 108, and/or database 110. Transaction processing system 102, merchant system 104, user device 106, and/or database 110 may interconnect (e.g., establish

a connection to communicate) via wired connections, wireless connections, or a combination of wired and wireless connections.

[0071] Transaction service provider system 102 may include one or more devices capable of receiving information from and/or communicating information to merchant system 104, user device 106, and/or database 110 via a communication network (not shown). For example, transaction service provider system 102 may include a computing device, such as a server (e.g., a transaction processing server), a group of servers, and/or other like devices. In some non-limiting embodiments or aspects, transaction service provider system 102 may include a processor and/or a memory, as described herein. In some non-limiting embodiments or aspects, transaction service provider system 102 may include one or more software instructions (e.g., one or more software applications) executing on a server (e.g., a single server), a group of servers, a computing device (e.g., a single computing device), a group of computing devices, and/or other like devices. In some non-limiting embodiments or aspects, transaction service provider system 102 may be associated with a transaction service provider system, as described herein. In some non-limiting embodiments or aspects, transaction service provider system 102 may be in communication with a data storage device, which may be local or remote to transaction service provider system 102. In some non-limiting embodiments or aspects, transaction service provider system 102 may be capable of receiving information from, storing information in, transmitting information to, and/or searching information stored in the data storage device.

[0072] In some non-limiting embodiments or aspects, transaction service provider system 102 may include a machine learning model. For example transaction service provider system 102 may generate (e.g., train, validate, re-train) a machine learning model. The machine learning model may be trained to perform a task, for example, to make a prediction.

[0073] Merchant system 104 may include one or more devices capable of receiving information from and/or communicating information to transaction service provider system 102, user device 106, and/or database 110 via the communication network (not shown). Merchant system 104 may also include a device capable of receiving information from user device 106 via the communication network, a communication connection (e.g., an NFC communication connection, an RFID communication connection, a Bluetooth® communication connection, a Zigbee® communication connection, and/or the like) with user device 106 and/or the like, and/or communicating

information to user device 106 via the communication network, the communication connection, and/or the like. In some non-limiting embodiments or aspects, merchant system 104 may include a computing device, such as a server, a group of servers, a client device, a group of client devices, and/or other like devices. In some non-limiting embodiments or aspects, merchant system 104 may be associated with a merchant as described herein. In some non-limiting embodiments or aspects, merchant system 104 may include one or more client devices. For example, merchant system 104 may include a client device that allows a merchant to communicate information to transaction service provider system 102. In some non-limiting embodiments or aspects, merchant system 104 may include one or more devices, such as computers, computer systems, and/or peripheral devices capable of being used by a merchant to conduct a transaction with a user. For example, merchant system 104 may include a POS device and/or a POS system.

[0074] User device 106 may include one or more devices capable of receiving information from and/or communicating information to transaction service provider system 102, merchant system 104, and/or database 110 via the communication network (not shown). For example, user device 106 may include a computing device, such as a desktop computer, a portable computer (e.g., tablet computer, a laptop computer, and/or the like), a mobile device (e.g., a cellular phone, a smartphone, a PDA, a wearable device, and/or the like), and/or other like devices. In some non-limiting embodiments or aspects, user device 106 may be associated with a user (e.g., an individual operating the user device).

[0075] Push payment request message 108 may include one or more fields. For example, push payment request message 108 may comprise one or more fields comprising transaction data, merchant identification data, user identification data, and/or the like. In some non-limiting embodiments or aspects, the merchant identification data may include a merchant code and/or an account identifier associated with the merchant. In some non-limiting embodiments or aspects, push payment request message 108 may include image data (e.g., as a payload to the message). In some non-limiting embodiments or aspects, push payment request message 108 may be generated by user device 106 and communicated to transaction service provider system 102. In some non-limiting embodiments or aspects, the image data may also be sent as a separate message (not shown in FIG. 1).

[0076] Database 110 may include one or more devices configured to communicate with transaction service provider system 102 and/or user device 106 via a wired or wireless connection. For example, database 110 may include a computing device, such as a server, a group of servers, and/or other like devices. In some non-limiting embodiments or aspects, database 110 may be associated with a transaction processing system as discussed herein. In some non-limiting embodiments or aspects, database 110 may be internal or external to transaction service provider system 102. For example, transaction service provider system 102 may include database 110. In some non-limiting embodiments or aspects, database 110 may include a plurality of databases. For example, database 110 may include a merchant name database (e.g., such as a Global Merchant Repository or the like) and/or an image database. For example, database 110 may include a plurality of merchant names associated with a plurality of merchants and/or a plurality of images associated with a plurality of merchants. The plurality of images associated with the plurality of merchants may include a plurality of merchant logos, merchant trademarks, store signs, store fronts, and/or the like that are displayed by the merchant. In some non-limiting embodiments or aspects, database 110 may include one or more third-party databases, such as trademark registries, industry directories, and/or other resources that can provide standard, registered business names. For example, one or more APIs may be used to query a remote database 110 to obtain a standard merchant name. As another example, one or more web-based agents may crawl and/or parse webpages or other documents for the information.

[0077] In some non-limiting embodiments or aspects, user device 106 may communicate with merchant system 104. For example, user device 106 may initiate a push payment transaction with merchant system 104. In some non-limiting embodiments or aspects, user device 106 may initiate the push payment transaction by scanning a code (e.g., a two-dimensional barcode, such as a quick response (QR) code, or other machine-readable code) presented by merchant system 104. In some non-limiting embodiments or aspects, the QR code may be a static code or a dynamic code. In some non-limiting embodiments or aspects, the QR code may include transaction data. In some non-limiting embodiments or aspects, a dynamic QR code may comprise transaction data that is unique to the push payment transaction between a user of user device 106 and a merchant of merchant system 104. In some non-limiting embodiments or aspects, transaction data may be entered by the user on the

user device 106 if it is not included in the code. In some non-limiting embodiments or aspects, the user device 106 may additionally or alternatively receive encoded data from the merchant system 104 via Bluetooth®, NFC, and/or the like.

[0078] In some non-limiting embodiments or aspects, user device 106 may extract data from the QR code in response to initiating the push payment transaction. The data extracted from the QR code may include transaction data such as an account identifier associated with the merchant. The account identifier may be any identifier used to identify the merchant. In some non-limiting embodiments or aspects, the merchant code and/or account identifier may be associated with a registered merchant name. The registered merchant name may be associated with a standard merchant name (e.g., standardized name) or a non-standard merchant name (e.g., a name of an owner, a name of an employee, a name of an associated business, etc.). In some non-limiting embodiments or aspects, a standard merchant name may be a merchant name stored in a third-party database such as a trademark registry and/or a directory that may provide a standard registered business name.

[0079] In some non-limiting embodiments or aspects, user device 106 may be configured to capture and/or send image data. For example, user device 106 may capture image data associated with the merchant (e.g., merchant logo, merchant trademark, merchant store front, etc.).

[0080] In some non-limiting embodiments or aspects, user device 106 may communicate the account identifier and/or the image data to transaction service provider system 102 directly or via another system (e.g., a payment gateway system or the like). The account identifier may be sent separately from the image data or the account identifier and the image data may be sent in a single message. In some non-limiting embodiments or aspects, user device 106 may generate push payment request message 108 and communicate push payment request message 108 to transaction service provider system 102. In some non-limiting embodiments or aspects, push payment request message 108 may include at least the account identifier and/or the image data.

[0081] In some non-limiting embodiments or aspects, user device 106 may generate and send a single message including the account identifier and the image data to transaction service provider system 102. Alternatively, user device 106 may generate and send a first message including the account identifier and a second message including the image data. For example, in response to receiving the first

message including the account identifier, transaction service provider system 102 may communicate a prompt to user device 106, the prompt including data prompting the user to capture and/or send the image data. User device 106 may send a response message including the image data in response to receiving the prompt from transaction service provider system 102. The second message may include the response message including the image data.

[0082] In some non-limiting embodiments or aspects, transaction service provider system 102 may receive the account identifier and/or the image data from user device 106 in response to the user initiating the push payment transaction. In some non-limiting embodiments or aspects, transaction service provider system 102 may extract the account identifier and/or image data from push payment request message 108 and/or a separate message in response to receiving push payment request message 108 from user device 106.

[0083] In some non-limiting embodiments or aspects, transaction service provider system 102 may associate the account identifier with the image data in an image database. Transaction service provider system may store the account identifier associated with the image data in the image database. In some non-limiting embodiments or aspects, transaction service provider system 102 may automatically aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

[0084] In some non-limiting embodiments or aspects, transaction service provider system 102 may communicate a second prompt to user device 106, directly or through another system such as a payment gateway system, the second prompt including data prompting the user to send a merchant name for the merchant. Transaction service provider system 102 may communicate the second prompt to user device 106 in response to receiving the account identifier and the image data. In some non-limiting embodiments or aspects, transaction service provider system 102 may receive at least one second response message comprising the registered merchant name, in response to communicating the second prompt. In some non-limiting embodiments or aspects, the registered merchant name may include a name of the owner, a name of a business, or any other name associated with the merchant. The registered merchant name may be a standard merchant name or a non-standard merchant name. In some non-limiting embodiments or aspects, the registered merchant name may be displayed via a display of user device 106 once the transaction is initiated.

[0085] In some non-limiting embodiments or aspects, transaction service provider system 102 may match the image data to the registered merchant name and/or store the image data matched to the registered merchant name in a merchant name database.

[0086] In some non-limiting embodiments or aspects, transaction service provider system 102 may determine whether the registered merchant name is a standard merchant name for the merchant associated with the account identifier. In some non-limiting embodiments or aspects, the standard merchant name may be a merchant name stored in database 110 (e.g., the merchant name database). For example, “McDonald’s” may be stored in the merchant name database as the standard merchant name for “McDonald’s Corporation.”

[0087] In some non-limiting embodiments or aspects, transaction service provider system 102 may determine a predicted merchant name for the merchant associated with the account identifier based at least partially on the image data, the registered merchant name, and/or the merchant name database. For example, one or more machine learning models of transaction service provider system 102 may predict the merchant name for the merchant associated with the account identifier. In some non-limiting embodiments or aspects, transaction service provider system 102 may provide the predicted merchant name in response to receiving the image data.

[0088] In some non-limiting embodiments or aspects, transaction service provider system 102 may determine whether the registered merchant name and/or the predicted merchant name is a standard merchant name. In a case where transaction service provider system 102 determines the registered merchant name and/or the predicted merchant name is a standard merchant name, transaction service provider system 102 may send a communication to user device 106. The communication may include a verification that the registered merchant name associated with the merchant is a standard merchant name. Additionally or alternatively, the communication may include the predicted merchant name. In some non-limiting embodiments or aspects, user device 106 may modify the transaction data to include the predicted merchant name in response to receiving the predicted merchant name. For example, user device 106 may modify the transaction data by removing an existing merchant name and/or adding the predicted merchant name in response to receiving the predicted merchant name from transaction service provider system 102. This may be performed by a user, automatically by a mobile application, and/or the like.

[0089] In a case where transaction service provider system 102 determines the registered merchant name and/or the predicted merchant name is not a standard merchant name, transaction service provider system 102 may store the image data in database 110.

[0090] In some non-limiting embodiments or aspects, transaction service provider system 102 may aggregate the image data stored in database 110.

[0091] In some non-limiting embodiments or aspects, transaction service provider system 102 may determine if an aggregate count satisfies a threshold value.

[0092] In some non-limiting embodiments or aspects, if the aggregate count satisfies the threshold value, transaction service provider system 102 may update (e.g., automatically) the merchant name database based on the registered merchant name and/or the predicted merchant name for the merchant associated with the push payment transaction.

[0093] In some non-limiting embodiments or aspects, the communication network (not shown) may include one or more wired and/or wireless networks. For example, the communication network may include a cellular network (e.g., a long-term evolution (LTE®) network, a third generation (3G) network, a fourth generation (4G) network, a fifth generation (5G) network, a code division multiple access (CDMA) network, and/or the like), a public land mobile network (PLMN), a local area network (LAN), a wide area network (WAN), a metropolitan area network (MAN), a telephone network (e.g., the public switched telephone network (PSTN)), a private network (e.g., a private network associated with a transaction service provider), an ad hoc network, an intranet, the Internet, a fiber optic-based network, a cloud computing network, and/or the like, and/or a combination of these or other types of networks.

[0094] The number and arrangement of systems, devices, and/or networks shown in FIG. 1 are provided as an example. There may be additional systems, devices, and/or networks; fewer systems, devices, and/or networks; different systems, devices, and/or networks; and/or differently arranged systems, devices, and/or networks than those shown in FIG. 1. Furthermore, two or more systems or devices shown in FIG. 1 may be implemented within a single system or device, or a single system or device shown in FIG. 1 may be implemented as multiple, distributed systems or devices. Additionally or alternatively, a set of systems (e.g., one or more systems) or a set of devices (e.g., one or more devices) of system 100 may perform one or more functions

described as being performed by another set of systems or another set of devices of system 100.

[0095] Referring now to FIG. 2, shown is a diagram of example components of a device 200. Device 200 may correspond to transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102), merchant system 104 (e.g., one or more devices of merchant system 104), user device 106, and/or database 110. In some non-limiting embodiments or aspects, transaction service provider system 102, merchant system 104, user device 106, and/or database 110 may include at least one device 200 and/or at least one component of device 200. As shown in FIG. 2, device 200 may include bus 202, processor 204, memory 206, storage component 208, input component 210, output component 212, and communication interface 214.

[0096] Bus 202 may include a component that permits communication among the components of device 200. In some non-limiting embodiments or aspects, processor 204 may be implemented in hardware, software, or a combination of hardware and software. For example, processor 204 may include a processor (e.g., a central processing unit (CPU), a graphics processing unit (GPU), an accelerated processing unit (APU), etc.), a microprocessor, a digital signal processor (DSP), and/or any processing component (e.g., a field-programmable gate array (FPGA), an application-specific integrated circuit (ASIC), etc.) that can be programmed to perform a function. Memory 206 may include random access memory (RAM), read-only memory (ROM), and/or another type of dynamic or static storage memory (e.g., flash memory, magnetic memory, optical memory, etc.) that stores information and/or instructions for use by processor 204.

[0097] Storage component 208 may store information and/or software related to the operation and use of device 200. For example, storage component 208 may include a hard disk (e.g., a magnetic disk, an optical disk, a magneto-optic disk, a solid state disk, etc.), a compact disc (CD), a digital versatile disc (DVD), a floppy disk, a cartridge, a magnetic tape, and/or another type of computer-readable medium, along with a corresponding drive.

[0098] Input component 210 may include a component that permits device 200 to receive information, such as via user input (e.g., a touch screen display, a keyboard, a keypad, a mouse, a button, a switch, a microphone, etc.). Additionally or alternatively, input component 210 may include a sensor for sensing information (e.g.,

a global positioning system (GPS) component, an accelerometer, a gyroscope, an actuator, etc.). Output component 212 may include a component that provides output information from device 200 (e.g., a display, a speaker, one or more light-emitting diodes (LEDs), etc.).

[0099] Communication interface 214 may include a transceiver-like component (e.g., a transceiver, a separate receiver and transmitter, etc.) that enables device 200 to communicate with other devices, such as via a wired connection, a wireless connection, or a combination of wired and wireless connections. Communication interface 214 may permit device 200 to receive information from another device and/or provide information to another device. For example, communication interface 214 may include an Ethernet interface, an optical interface, a coaxial interface, an infrared interface, a radio frequency (RF) interface, a universal serial bus (USB) interface, a Wi-Fi® interface, a cellular network interface, and/or the like.

[0100] Device 200 may perform one or more processes described herein. Device 200 may perform these processes based on processor 204 executing software instructions stored by a computer-readable medium, such as memory 206 and/or storage component 208. A computer-readable medium (e.g., a non-transitory computer-readable medium) is defined herein as a non-transitory memory device. A non-transitory memory device includes memory space located inside of a single physical storage device or memory space spread across multiple physical storage devices.

[0101] Software instructions may be read into memory 206 and/or storage component 208 from another computer-readable medium or from another device via communication interface 214. When executed, software instructions stored in memory 206 and/or storage component 208 may cause processor 204 to perform one or more processes described herein. Additionally or alternatively, hardwired circuitry may be used in place of or in combination with software instructions to perform one or more processes described herein. Thus, embodiments or aspects described herein are not limited to any specific combination of hardware circuitry and software.

[0102] The number and arrangement of components shown in FIG. 2 are provided as an example. In some non-limiting embodiments or aspects, device 200 may include additional components, fewer components, different components, or differently arranged components than those shown in FIG. 2. Additionally or alternatively, a set of components (e.g., one or more components) of device 200 may perform one or

more functions described as being performed by another set of components of device 200.

[0103] Referring now to FIG. 3, shown is a flowchart of a non-limiting embodiment or aspect of a process 300 for predicting a merchant name during a push payment transaction. In some non-limiting embodiments or aspects, one or more steps of process 300 may be performed (e.g., completely, partially, etc.) by transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments or aspects, one or more steps of process 300 may be performed (e.g., completely, partially, etc.) by another device or group of devices separate from or including transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102), merchant system 104 (e.g., one or more devices of merchant system 104), user device 106, and/or database 110 (e.g., one or more devices of database 110). In some non-limiting embodiments or aspects, one or more steps shown in FIG. 3 may be performed automatically in response to the performance and/or completion of a previous step.

[0104] As shown in FIG. 3, at step 302, process 300 includes receiving an account identifier and image data. For example, transaction service provider system 102 may receive push payment request message 108 comprising the account identifier and/or image data from user device 106 in response to a user initiating a push payment transaction.

[0105] In some non-limiting embodiments or aspects, the user may initiate the push payment transaction with a merchant associated with merchant system 104 via user device 106. Initiating the push payment transaction may include receiving, by user device 106, an input from the user. The input may comprise transaction data (e.g., a transaction amount, a transaction date, a transaction time, etc.), account data associated with an account of the user (e.g., an account identifier associated with a user account of the user, a PAN, etc.), account data associated with the merchant (e.g., an account identifier associated with a merchant account of the merchant), image data, and/or any combination thereof. In some non-limiting embodiments or aspects, user device 106 may execute a software application for completing the push payment transaction hosted by an issuer system (not shown). The user may initiate the transaction by entering the input into an interactive graphical user interface (GUI) of the software application.

[0106] In some non-limiting embodiments or aspects, user device 106 may receive, as an input, the account identifier and/or image data from the user and/or merchant system 104. For example, user device 106 may receive the account identifier and/or image data from a merchant POS device.

[0107] In some non-limiting embodiments or aspects, user device 106 may receive data from the merchant. For example, user device 106 may receive a merchant code including the account identifier. In some non-limiting embodiments or aspects, user device 106 may receive the code as an input from the user. In some non-limiting embodiments or aspects, user device 106 may be configured to scan the code. For example, the code may include a QR code, a bar code (one or two-dimensional), a string of numbers, letters, and/or the like. The code may include the merchant code, the account identifier, transaction data, and/or a geographic identifier. For example, user device 106 may extract the account identifier from the QR code.

[0108] In some non-limiting embodiments or aspects, the account identifier may be any identifier related to a merchant. For example, the account identifier may include at least a merchant identification code.

[0109] In some non-limiting embodiments or aspects, user device 106 may be configured to receive (e.g., capture) image data associated with the merchant (e.g., a merchant logo, merchant signage, merchant trademark, etc.) as an input. For example, the user may take a picture of a merchant sign or merchant logo using user device 106. In some non-limiting embodiments or aspects, the image data may be stored in a database of images and/or used to identify the merchant associated with the push payment transaction and/or determine a standardized merchant name for the merchant associated with the push payment transaction.

[0110] In some non-limiting embodiments or aspects, the image data may include a merchant name, a merchant logo, a merchant trademark, and/or other data which may be used to identify the merchant.

[0111] In some non-limiting embodiments or aspects, user device 106 may communicate the account identifier and image data to transaction service provider system 102. In some non-limiting embodiments or aspects, user device 106 may generate push payment request message 108 including the account identifier and/or the image data. In some non-limiting embodiments or aspects, user device 106 may communicate push payment request message 108 to transaction service provider system 102. In some non-limiting embodiments or aspects, receiving, by transaction

service provider system 102, the account identifier and/or image data may include receiving a single message comprising the account identifier and/or image data. In some non-limiting embodiments or aspects, user device 106 may generate and/or communicate a plurality of messages.

[0112] In some non-limiting embodiments or aspects, user device 106 may generate a first message including the account identifier and communicate the first message to transaction service provider system 102. In some non-limiting embodiments or aspects, receiving the account identifier and/or image data may include receiving the first message including the account identifier and, in response to receiving the first message, communicating at least one prompt to user device 106. In some non-limiting embodiments or aspects, the at least one prompt may include a message prompting the user to send the image data and/or a registered merchant name. In some non-limiting embodiments or aspects, transaction service provider system 102 may receive at least one response message from user device 106 in response to sending the at least one prompt. The response message may include a second message generated by user device 106, including the image data and/or the registered merchant name, or an indication that the user declines to send the image data and/or registered merchant name.

[0113] In some non-limiting embodiments or aspects, transaction service provider system 102 may receive geographic data. For example, transaction service provider system 102 may receive the geographic data in response to the user initiating the push payment transaction with user device 106. The geographic data may include GPS data, a geographic identifier, location coordinates, a country identifier, a state identifier, a city identifier, a street address, and/or the like. The geographic data may be associated with a location of the merchant associated with the push payment transaction. For example, the geographic data may include the address of a physical store associated with the merchant associated with the push payment transaction.

[0114] As shown in FIG. 3, at step 304, process 300 includes recognizing a merchant name. For example, transaction service provider system 102 may determine whether or not the registered merchant name is recognized based on the image data.

[0115] In some non-limiting embodiments or aspects, transaction service provider system 102 may predict a merchant name. For example, transaction service provider system 102 may determine a predicted merchant name for the merchant associated

with the account identifier and/or image data in response to receiving the registered merchant name, account identifier, and/or the image data. In some non-limiting embodiments or aspects, transaction service provider system 102 may determine the predicted merchant name for the merchant associated with the account identifier based at least partially on the registered merchant name, the image data, and/or the merchant name database.

[0116] In some non-limiting embodiments or aspects, transaction service provider system may include at least one machine learning model. For example, transaction service provider system 102 may generate (e.g., train, validate, re-train, and/or the like), store, and/or implement one or more machine learning models. In some non-limiting embodiments or aspects, the at least one machine learning model is configured to perform a task including predicting the merchant name for the merchant associated with the account identifier and/or image data. In some non-limiting embodiments or aspects, transaction service provider system 102 may input the registered merchant name, the account identifier, and/or image data into the at least one machine learning model and receive an output. The output may be a score which may be used to determine the predicted merchant name for the merchant associated with the account identifier.

[0117] As shown in FIG. 3, at step 306, process 300 includes determining whether a merchant name is a standard merchant name. For example, transaction service provider system 102 may determine whether or not the merchant name associated with the account identifier (e.g., the registered merchant name and/or the predicted merchant name) is a standard merchant name based on a merchant name database. In some non-limiting embodiments or aspects, in a case where transaction service provider system 102 determines the merchant name associated with the account identifier is a standard merchant name, process 300 may proceed to step 316. In some non-limiting embodiments or aspects, in a case where transaction service provider system 102 determines the merchant name associated with the account identifier is not a standard merchant name, process 300 may proceed to step 308.

[0118] As shown in FIG. 3, at step 308, process 300 includes storing image data. For example, transaction service provider system 102 may store the account identifier and/or image data in a database. For example, transaction service provider system 102 may store the image data against the account identifier and/or the registered merchant name in a database.

[0119] In some non-limiting embodiments or aspects, transaction service provider system 102 may store the at least one geographic identifier in a database.

[0120] In some non-limiting embodiments or aspects, transaction service provider system 102 may store the registered merchant name in the merchant name database. In some non-limiting embodiments or aspects, transaction service provider system 102 may match the image data to the registered merchant name. In some non-limiting embodiments or aspects, transaction service provider system may store the image data matched to the registered merchant name in the merchant name database.

[0121] In some non-limiting embodiments or aspects, transaction service provider system 102 may store the image data in an image database. In some non-limiting embodiments or aspects, transaction service provider system 102 may associate the account identifier with the image data and store the account identifier and the image data in the image database.

[0122] As shown in FIG. 3, at step 310, process 300 includes aggregating the image data. For example, transaction service provider system 102 may aggregate the image data. In some non-limiting embodiments or aspects, transaction service provider system 102 may receive a plurality of image data associated with the account identifier from a plurality of users. In some non-limiting embodiments or aspects, transaction service provider system 102 may aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

[0123] As shown in FIG. 3, at step 312, process 300 includes determining if an aggregate count exceeds a threshold. For example, transaction service provider system 102 may determine whether the aggregate count exceeds (e.g., satisfies) a threshold value. The aggregate count may include a number of the plurality of images aggregated in the image database. In some non-limiting embodiments or aspects, where transaction service provider system 102 determines that the aggregate count exceeds the threshold value, process 300 may proceed to step 314.

[0124] As shown in FIG. 3 at step 314, process 300 includes updating the merchant name database. For example, transaction service provider system 102 may update the merchant name database in response to determining the predicted merchant name for the merchant associated with the push payment transaction.

[0125] In some non-limiting embodiments or aspects, transaction service provider system 102 may update the merchant name database in response to determining the merchant name is a standard merchant name.

[0126] In some non-limiting embodiments or aspects, updating the merchant name database may include modifying a merchant name in the merchant name database, adding a merchant name to the merchant name database, and/or removing a merchant name from the merchant name database.

[0127] As shown in FIG. 3 at step 316, transaction service provider system 102 may communicate a message to user device 106. For example, transaction service provider system 102 may communicate a message to user device 106, the message including the standard merchant name and/or a verification that the image data matches the standard merchant name, in response to determining the merchant name is a standard merchant name.

[0128] Referring now to FIGS. 4A-4C, shown are diagrams of non-limiting embodiments or aspects of an implementation of a process for predicting a merchant name during a push payment transaction. In some non-limiting embodiments or aspects, transaction service provider system 402 may be the same as, similar to, and/or part of transaction service provider system 102. In some non-limiting embodiments or aspects, user device 406 may be the same as, similar to, and/or part of user device 106. In some non-limiting embodiments or aspects, database 410 may be part of transaction service provider system 402 or remote from transaction service provider system 402. In some non-limiting embodiments or aspects, database 410 may include a merchant name database and/or an image database.

[0129] As shown in FIG. 4A, a user may initiate a push payment transaction with a merchant via user device 406. In some non-limiting embodiments or aspects, a software application hosted by an issuer system may be installed on user device 406. When initiating the push payment transaction, the user may enter an input (such as a code) associated with the merchant via the software application. In some non-limiting embodiments or aspects, user device 406 may receive a prompt from the software application, prompting the user to enter the input associated with the merchant. In some non-limiting embodiments or aspects, user device 406 may be configured to receive an input from a user to initiate the push payment transaction. For example, user device 406 may be configured to scan a code (e.g., QR code 404) to initiate the push payment transaction with a merchant. In some non-limiting embodiments or aspects, the code (e.g., QR code 404) may be a static QR code or a dynamic QR code. For example, the code may be a static image presented to the user by the merchant or the code may be a dynamic image generated based on a transaction

between the user and the merchant. A dynamic code may be automatically generated by a merchant POS device and contain transaction data associated with the push payment transaction between the user and the merchant.

[0130] In some non-limiting embodiments or aspects, QR code 404 may include a merchant code and/or an account identifier associated with the merchant. The account identifier may be any identifier related to the merchant. In some non-limiting embodiments or aspects, QR code 404 may include transaction data. For example, the QR code 404 may include transaction data (e.g., a transaction date, a transaction time, a transaction amount, and/or the like) associated with the push payment transaction between the user and the merchant. In some non-limiting embodiments or aspects, QR code 404 may include the at least one geographic identifier.

[0131] In some non-limiting embodiments or aspects, user device 406 may be configured to extract the transaction data, the merchant code, the account identifier, and/or the geographic identifier from QR code 404.

[0132] As shown in FIG. 4B, user device 406 may receive image data 412 associated with the merchant as an input. For example, user device 406 may be configured to receive image data associated with the merchant via a camera of user device 406. In some non-limiting embodiments or aspects, image data 412 may include a merchant logo, merchant trademark, merchant store sign, and/or the like associated with the merchant.

[0133] In some non-limiting embodiments or aspects, in response to initiating the push payment transaction, user device 406 may receive a message from transaction service provider system 402 prompting the user to send image data 412. In some non-limiting embodiments or aspects, user device 406 may display data associated with the message via a display of user device 406.

[0134] As shown in FIG. 4C, user device 406 may communicate account identifier 414 and/or image data 412 to transaction service provider system 402. For example, user device 406 may generate a message including account identifier 414 and/or image data 412 and send the message to transaction service provider system 402.

[0135] In some non-limiting embodiments or aspects, user device 406 may generate and send a single message including account identifier 414 and/or image data 412 to transaction service provider system 402. Alternatively, transaction service provider system 402 may generate and send a first message including account identifier 414 and a second message, separate from the first message, including

image data 412. User device 406 may send the first message including account identifier 414 to transaction service provider system 402. In response to sending the first message, user device 406 may receive a prompt, from transaction service provider system 402, prompting the user to send image data 412. User device 406 may generate and send a response message including image data 412 in response to receiving the prompt.

[0136] In some non-limiting embodiments or aspects, the first message and/or the second message may include the geographic data.

[0137] In some non-limiting embodiments or aspects, in response to receiving account identifier 414 associated with the merchant and image data 412, transaction service provider system 402 may send a second prompt to user device 406. The second prompt may include data prompting the user to send a registered merchant name associated with the merchant. In some non-limiting embodiments or aspects, in response to receiving the second prompt, user device 406 may send at least one response message including the registered merchant name associated with the merchant to transaction service provider system 402.

[0138] In some non-limiting embodiments or aspects, transaction service provider system 402 may determine whether the registered merchant name is a recognized merchant name. In some non-limiting embodiments or aspects, transaction service provider system 402 may match image data 412 and the registered merchant name in response to receiving the registered merchant name.

[0139] In some non-limiting embodiments or aspects, transaction service provider system 402 may determine whether the registered merchant name is a standard merchant name.

[0140] In some non-limiting embodiments or aspects, transaction service provider system 402 may determine a predicted merchant name for the merchant associated with the account identifier based at least partially on image data 412 and a merchant name database. In some non-limiting embodiments or aspects, transaction service provider system 402 may input image data 412 and/or merchant name data from the merchant name database into a machine learning model. The machine learning model may output a predicted merchant name for the merchant associated with the account identifier.

[0141] In some non-limiting embodiments or aspects, transaction service provider system 402 may determine whether or not the merchant name (e.g., a merchant logo,

a merchant sign, merchant store design, and/or the like) is recognizable from image data 412. For example, transaction service provider system may compare image data 412 received from user device 406 to other image data stored in the image database to determine if the data matches. In some non-limiting embodiments or aspects, based on determining that image data 412 matches other image data stored in the image database, transaction service provider system 402 may determine a standard merchant name exists for the merchant associated with the push payment transaction. In some non-limiting embodiments or aspects, based on (e.g., in response to) determining that image data 412 does not match other image data stored in the image database, transaction service provider system 402 may automatically store image data 412 against the QR code and/or the registered merchant name received from the user.

[0142] In some non-limiting embodiments or aspects, transaction service provider system 402 may associate the account identifier with image data 412 in database 410. In some non-limiting embodiments or aspects, transaction service provider system 402 may automatically aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

[0143] In some non-limiting embodiments or aspects, transaction service provider system 402 may verify the merchant name of the merchant associated with the push payment transaction. In some non-limiting embodiments or aspects, verifying the merchant name may include comparing a number of images corresponding to an account identifier to a threshold value, determining if the number of images corresponding to the account identifier satisfies the threshold value, and/or verifying the merchant name based on the number of images corresponding to the account identifier satisfying the threshold value.

[0144] In some non-limiting embodiments or aspects, transaction service provider system 402 may update the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction. In some non-limiting embodiments or aspects, updating the merchant name database may include adding a merchant name to the merchant name database, removing a merchant name from the merchant name database, and/or modifying a merchant name in the merchant name database.

[0145] In some non-limiting embodiments or aspects, transaction service provider system 402 may update the merchant name in response to verifying the merchant name.

[0146] Although embodiments have been described in detail for the purpose of illustration, it is to be understood that such detail is solely for that purpose and that the disclosure is not limited to the disclosed embodiments or aspects, but, on the contrary, is intended to cover modifications and equivalent arrangements that are within the spirit and scope of the appended claims. For example, it is to be understood that the present disclosure contemplates that, to the extent possible, one or more features of any embodiment or aspect can be combined with one or more features of any other embodiment or aspect.

WHAT IS CLAIMED IS:

1. A method, comprising:
 - receiving, by at least one processor, an account identifier and image data in response to a user initiating a push payment transaction with a user device;
 - determining, by at least one processor, a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database; and
 - updating, by at least one processor, the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.
2. The method of claim 1, wherein receiving the account identifier and the image data in response to the user initiating the push payment transaction with the user device comprises:
 - receiving a single payload comprising the account identifier and the image data.
3. The method of claim 1, wherein receiving the account identifier and the image data in response to the user initiating the push payment transaction with the user device comprises:
 - receiving a single payload comprising the account identifier;
 - in response to receiving the single payload, communicating at least one prompt to the user device; and
 - in response to sending the at least one prompt, receiving, from the user device, at least one response message comprising the image data.
4. The method of claim 1, further comprising:
 - receiving at least one geographic identifier in response to the user initiating the push payment transaction with the user device.
5. The method of claim 1, further comprising:
 - associating the account identifier with the image data in an image database; and

automatically aggregating, in the image database, additional image data received from a plurality of users based on the account identifier.

6. The method of claim 1, further comprising:
in response to receiving the account identifier and the image data, communicating at least one prompt to the user device; and
receiving, from the user device, at least one response message comprising a registered merchant name.

7. The method of claim 6, further comprising:
matching the image data to the registered merchant name; and
storing the image data matched to the registered merchant name in the merchant name database.

8. A system comprising a least one processor, the at least one processor programmed or configured to:
receive an account identifier and image data in response to a user initiating a push payment transaction with a user device;
determine a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database; and
update the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.

9. The system of claim 8, wherein, when receiving the account identifier and the image data in response to the user initiating the push payment transaction with the user device, the at least one processor is further programmed or configured to:
receive a single payload comprising the account identifier and the image data.

10. The system of claim 8, wherein, when receiving the account identifier and the image data in response to the user initiating the push payment

transaction with the user device, the at least one processor is further programmed or configured to:

- receive a single payload comprising the account identifier;
- in response to receiving the single payload, communicate at least one prompt to the user device; and
- in response to sending the at least one prompt, receive, from the user device, at least one response message comprising the image data.

11. The system of claim 8, wherein the at least one processor is further programmed or configured to:

- receive at least one geographic identifier in response to the user initiating the push payment transaction with the user device.

12. The system of claim 8, wherein the at least one processor is further programmed or configured to:

- associate the account identifier with the image data in an image database; and
- automatically aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

13. The system of claim 8, wherein the at least one processor is further programmed or configured to:

- in response to receiving the account identifier and the image data, communicate at least one prompt to the user device; and
- receive, from the user device, at least one response message comprising a registered merchant name.

14. The system of claim 13, wherein the at least one processor is further programmed or configured to:

- match the image data to the registered merchant name; and
- store the image data matched to the registered merchant name in the merchant name database.

15. A computer program product comprising at least one non-transitory computer-readable medium including program instructions that, when executed by at least one processor, cause the at least one processor to:

receive an account identifier and image data in response to a user initiating a push payment transaction with a user device;

determine a predicted merchant name for a merchant associated with the account identifier based at least partially on the image data and a merchant name database; and

update the merchant name database based on the predicted merchant name for the merchant associated with the push payment transaction.

16. The computer program product of claim 15, wherein, when receiving the account identifier and the image data in response to the user initiating the push payment transaction with the user device, the instructions further cause the at least one processor to:

receive a single payload comprising the account identifier and the image data.

17. The computer program product of claim 15, wherein, when receiving the account identifier and the image data in response to the user initiating the push payment transaction with the user device, the instructions further cause the at least one processor to:

receive a single payload comprising the account identifier;

in response to receiving the single payload, communicate at least one prompt to the user device; and

in response to sending the at least one prompt, receive, from the user device, at least one response message comprising the image data.

18. The computer program product of claim 15, wherein the instructions further cause the at least one processor to:

receive at least one geographic identifier in response to the user initiating the push payment transaction with the user device.

19. The computer program product of claim 15, wherein the instructions further cause the at least one processor to:

associate the account identifier with the image data in an image database; and

automatically aggregate, in the image database, additional image data received from a plurality of users based on the account identifier.

20. The computer program product of claim 15, wherein the instructions further cause the at least one processor to:

in response to receiving the account identifier and the image data, communicate at least one prompt to the user device;

receive, from the user device, at least one response message comprising a registered merchant name;

match the image data to the registered merchant name; and

store the image data matched to the registered merchant name in the merchant name database.