SUMMARY

[0003a] According to an aspect, the present disclosure refers to a computer-implemented method for use in responding to attribute queries related to identifying information for a user, based on a digital identity of the user, the method comprising: receiving, by an identity host computing device, a request for an identity code for a user from a user computing device associated with the user, the user associated with identifying information and the identifying information including multiple attributes of the user; in response to the request for the identity code, generating, by the identity host computing device, the identity code for the user and transmitting the identity code to the user computing device, thereby permitting the user to present the identity code to a requesting party, and wherein the identity code (i) includes an identification specific to the requesting party, (ii) is a one-time code and (iii) does not include identifying information of the user; receiving, at the identity host computing device, an identity request from the requesting party including at least one query specific to at least one of the multiple attributes of the user and including the identity code for the user; in response to the identity request: identifying, by the identity host computing device, the user based on the identity code; verifying, by the identity host computing device, that the identification of the requesting party is specific to the requesting party based on the identity code; and compiling, by the identity host computing device, a response to the at least one query of the identity request, the response including an answer to the at least one query based on the at least one of the multiple attributes of the user included in the identifying information of the user from at least one attribute provider, wherein the response excludes the at least one of the multiple attributes of the user; and transmitting the response to the requesting party, thereby permitting the requesting party to be informed about the identity of the user based on the answer to the at least one query, without revealing the identifying information of the user to the requesting party.

[0003b] According to another aspect, the present disclosure refers to a system for use in responding to attribute queries related to identifying information for a user, the system comprising: an identity host computing device configured to: receive a request for an identity code for a user, the user associated with identifying information including multiple attributes; in response to the request for the identity code, generate the identity code for the user and transmit

the identity code to the user at a communication device associated with the user, wherein the identity code is a one-time code and does not include identifying information of the user; receive an identity request from a requesting party including the identity code and at least a first query specific to at least one of the multiple attributes of the user; in response to the identity request: submit the first query to a first attribute provider; receive an attribute response from the first attribute provider; compile a response to the identity request received from the requesting party, wherein the response to the identity request includes an answer to the first query, the answer indicative of the at least one of the multiple attributes and based on the attribute response from the first attribute provider, wherein the response to the identity request excludes the at least one of the multiple attributes of the user; and transmit, to the requesting party, the response to the identity request, thereby permitting the requesting party to be informed about an identity of the user by the answer to the first query, without revealing the identifying information of the user to the requesting party; and then in response to at least one subsequent identity request: reject a query of one of the at least one subsequent identity request when the query of the one of the at least one subsequent identity request is different than the first query of the identity request, but specific to a same one of the multiple attributes included in the first query of the identity request.

[0003c] According to another aspect, the present disclosure refers to a non-transitory computer readable storage medium including computer-executable instructions for responding to attribute queries related to identifying information for a user, which, when executed by at least one processor of an identity host computing device, cause the at least one processor to: receive a request for an identity code for a user, from a mobile device of the user, the user associated with identifying information and the identifying information including multiple attributes of the user; in response to the request for the identity code, generate the identity code for the user and transmit the identity code to the user at the mobile device of the user, thereby permitting the user to present the identity code to a requesting party, and wherein the identity code is a one-time code and does not include identifying information of the user; receive an identity request from the requesting party, the identity request including the identity code and a first query related to identifying information associated with the user; and in response to the identity request: submit the first query to a first attribute provider having at least a portion of the identifying information for the user, where the at least a portion of the identifying

information is indicative of an answer to the first query; and compile, and transmit to the requesting party, a response to the identity request, the response including the answer to the first query based on an attribute response from the first attribute provider, wherein the response to the identity request excludes the portion of the identifying information indicative of the answer to the first query, thereby permitting the requesting party to be informed about the identity of the user by the answer to the first query, without revealing the identifying information of the user to the requesting party; and then in response to at least one subsequent identity request, reject a query of the at least one subsequent identity request based on an input from the user and/or when the query of the at least one subsequent identity request is different than the first query of the identity request but is related to a same portion of identifying information included in the first query of the identity request.

DRAWINGS

[0004] The drawings described herein are for illustrative purposes only of selected embodiments and not all possible implementations, and are not intended to limit the scope of the present disclosure.

[0005] FIG. 1 illustrates an exemplary system of the present disclosure suitable for use in responding to inquiries related to a user based on a digital identity associated with the user;

[0006] FIG. 2 is a block diagram of a computing device that may be used in the exemplary system of FIG. 1; and

[0007] FIG. 3 is a flow diagram of an exemplary method, which may be implemented in connection with the system of FIG. 1, for responding to inquiries related to a user based on a digital identity associated with the user.

[0008] Corresponding reference numerals indicate corresponding parts throughout the several views of the drawings.

DETAILED DESCRIPTION

[0009] Exemplary embodiments will now be described more fully with reference to the accompanying drawings. The description and specific examples included herein are intended for purposes of illustration only and are not intended to limit the scope of the present disclosure.

[0010] Users often interact with businesses to apply for accounts such as, for example, banking accounts, investment accounts, insurance accounts, payment accounts, etc., or otherwise interact with the businesses, where the businesses, or other entities, in turn seek to verify identities of the users and/or attributes of the users. The businesses may, for example, solicit physical documents from the users, such as drivers' licenses or passports, to verify the identities of the users. In addition, the businesses may solicit other data, which may be verified by physical documents, or not, and which is usable by the businesses in interacting with the users. In turn, the users then provide the requested data to the businesses. That said, the physical documents may reveal additional information about the users, which is not needed and/or requested by the businesses or other entities. For example, a casino business may request an individual to verify his/her age (*e.g.,* as being 21 years of age or older, etc.) by presenting a physical document including a birthday of the person (*e.g.*, a driver's license, etc.). Often,

CLAIMS

What is claimed is:

1. A computer-implemented method for use in responding to attribute queries related to identifying information for a user, based on a digital identity of the user, the method comprising:

receiving, by an identity host computing device, a request for an identity code for a user from a user computing device associated with the user, the user associated with identifying information and the identifying information including multiple attributes of the user;

in response to the request for the identity code, generating, by the identity host computing device, the identity code for the user and transmitting the identity code for the user to the user at a user computing device associated with the user, thereby permitting the user to present the identity code to a requesting party;, and wherein the identity code (i) includes an identification specific to the requesting party, (ii) is a one-time code and (iii) does not include identifying information of the user;

receiving, at a processorthe identity host computing device, an identity request from the requesting party including at least one query relatedspecific to at least one of the multiple attributes of the user and including the identity code for the user;

in response to the identity request:

identifying, by the processoridentity host computing device, the user based on the identity code;

verifying, by the identity host computing device, that the identification of the requesting party is specific to the requesting party based on the identity code; and

compiling, by the processoridentity host computing device, a response to the at least one query of the identity request based on the , the response including an answer to the at least one query based on the at least one of the multiple attributes of the user included in the identifying information of the user from at least one attribute provider; and , wherein the response excludes the at least one of the multiple attributes of the user; and

transmitting the response to the requesting party, thereby permitting the requesting party to be informed about the identity of the user based on the answer to the at least one query, without revealing the identifying information of the user to the requesting party.

2. The computer-implemented method of claim 1, further comprising authenticating the user prior to receiving the request for the identity code for the user.

3. The computer implement method of claim 1, further comprising seeking, by the ~~processor~~identity host computing device, confirmation of the identity request from the user associated with the identity request, prior to compiling the response to the identity request.

4. The computer-implemented method of claim 1, further comprising:

identifying, by the ~~processor~~identity host computing device, the at least one attribute provider based on at least one attribute identified in the at least one query;

submitting, by the ~~processor~~identity host computing device, the at least one query to the identified at least one attribute provider; and

receiving an attribute response from the at least one attribute provider to the at least one query; and

wherein compiling the response to the at least one query of the request includes compiling the response based on the attribute response from the at least one attribute provider.

5. The computer-implemented method of claim 1, wherein the at least one query includes at least a first query and a second query and wherein the at least one attribute provider includes a first attribute provider and a second attribute provider; and

wherein the method further comprises:

submitting the first query to the first attribute provider;

receiving a first attribute response from the first attribute provider, the first attribute response including a response to the first query;

submitting the second query to the second attribute provider; and

receiving a second attribute response from the second attribute provider, the second attribute response including a response to the second query; and

wherein compiling the response to the at least one query of the identity request includes compiling the response based on the first attribute response and the second attribute response.

6. The computer-implemented method of claim 5, further comprising identifying, by the ~~processor~~identity host computing device, the first attribute provider based on the first query, prior to submitting the first query to the first attribute provider.

~~7. The computer-implemented method of claim 1, wherein generating the identity code includes associating the identity code with the requesting party based on the request for the identity code from the user, the request for the identity code including an identification of the requesting party; and~~

~~wherein the method further comprises verifying that the identity code is associated with the requesting party prior to transmitting the response to the requesting party.~~

~~8~~7. The computer-implemented method of claim 1, further comprising storing a digital identity for the user in memory coupled to the ~~processor~~identity host computing device; and

wherein identifying the user based on the identity code includes identifying the user to the digital identity in the memory based on the identity code.

~~9~~8. The computer-implemented method of claim 1, further comprising ~~restricting the response to the requesting party based on at least one prior~~rejecting a query of a subsequent identity request ~~from the requesting party~~ when the query of the subsequent identity request ~~and~~is different than the at least one ~~prior~~query of the identity request ~~relate~~but is specific to a same one of the multiple attributes of the user included in the at least one query of the identity request.

~~10~~9. A system for use in responding to attribute queries related to identifying information for a user, the system comprising:

an identity host computing device configured to:

receive a request for an identity code for a user, the user associated with identifying information including multiple attributes;

in response to the request for the identity code, generate the identity code for the user and transmit the identity code to the user at a communication device associated with

the user~~;~~, wherein the identity code is a one-time code and does not include identifying information of the user;

receive an identity request from a requesting party including the identity code and at least a first query specific to at least one of the multiple attributes of the user;

in response to the identity request:

submit the first query to a first attribute provider;

receive ~~a~~an attribute response from the ~~at least one~~first attribute provider;

compile a response to the identity request received from the requesting party~~-~~, wherein the response to the identity request includes an answer to the first query, the answer indicative of the at least one of the multiple attributes and based on the attribute response from the ~~at least one~~first attribute provider~~; and~~ , wherein the response to the identity request excludes the at least one of the multiple attributes of the user; and

transmit, to the requesting party, the response to the identity request, thereby permitting the requesting party to be informed about ~~the identity of the user.~~an identity of the user by the answer to the first query, without revealing the identifying information of the user to the requesting party; and then in response to at least one subsequent identity request:

~~11~~reject a query of one of the at least one subsequent identity request when the query of the one of the at least one subsequent identity request is different than the first query of the identity request, but specific to a same one of the multiple attributes included in the first query of the identity request.

10. The system of claim ~~10~~9, wherein the identity host computing device is further configured to authenticate the user prior to generating the identity code in response to the request for the identity code.

~~12. The system of claim 10, wherein the identity host computing device is further configured to restrict at least a response to the identity request from the requesting party based on one or more prior identity requests, when the at least one prior identity request and the identity request received from the requesting party are related to a same one of the multiple attributes.~~

~~13. The system of claim 10~~11. The system of claim 9, wherein the identity host computing device is further configured to identify the user based on the identity code and to identify the ~~at least one~~first attribute provider based on the user and at least one attribute indicated by the ~~at least one~~first query.

~~14~~12. The system of claim ~~10~~9, wherein the at least one of the multiple attributes of the user includes at least one of an age, a prior purchase, and an insurance coverage of the user.

~~15~~13. The system of claim ~~10~~9, wherein the ~~at least one~~first query includes a query directed to an age of the user relative to an age threshold.

~~16~~14. The system of claim ~~10~~9, wherein the identity host computing device is further configured to submit a second query, included in the identity request and specific to at least another one of the multiple attributes of the user, to a second attribute provider; and

wherein the response to the identity request is further based on a second attribute response received from the second attribute provider in response to the second query.

~~17~~15. A non-transitory computer readable storage ~~media~~medium including computer-executable instructions for responding to attribute queries related to identifying information for a user, which, when executed by at least one processor of an identity host computing device, cause the at least one processor to:

receive a request for an identity code for a user, from a mobile device of the user, the user associated with identifying information and the identifying information including multiple attributes of the user;

in response to the request for the identity code, generate the identity code for the user and transmit the identity code to the user at ~~a communication~~the mobile device ~~associated with~~of the user, thereby permitting the user to present the identity code to a requesting party~~;~~, and wherein the identity code is a one-time code and does not include identifying information of the user;

receive an identity request from the requesting party, the identity request including the identity code and a first query related to identifying information associated with the user; and

in response to the identity request:

submit the first query to ~~an~~a first attribute provider having at least a portion of the identifying information for the user, where the at least a portion of the identifying information is indicative of an answer to the first query; and

compile, and transmit to the requesting party, a response to the identity request, the response including the answer to the first query based on an attribute response from the first attribute provider, wherein the response to the identity request excludes the portion of the identifying information indicative of the answer to the first query, thereby permitting the requesting party to be informed about the identity of the user~~.~~ by the answer to the first query, without revealing the identifying information of the user to the requesting party; and then

~~18~~in response to at least one subsequent identity request, reject a query of the at least one subsequent identity request based on an input from the user and/or when the query of the at least one subsequent identity request is different than the first query of the identity request but is related to a same portion of identifying information included in the first query of the identity request.

16. The non-transitory computer readable storage ~~media~~medium of claim ~~17~~15, wherein the identity request includes a second query;

wherein the computer-executable instructions, when executed by the at least one processor, further cause the at least one processor to submit the second query to a second attribute provider having at least a second portion of the identifying information for the user, where the second portion of the identifying information is different from the portion of the identifying information at the first attribute provider and is indicative of an answer to the second query; and

wherein the response to the identity request includes the answer to the second query, based on a second attribute response from the second attribute provider, and wherein the response to the identity request excludes the second portion of the identifying information indicative of the answer to the second query, thereby further permitting the requesting party to be informed about the identity of the user by the answer to the second query without revealing the identifying information of the user to the requesting party.

~~19~~17. The ~~non-transitory~~ computer~~-readable storage media~~-implemented method of claim ~~18~~1, wherein the ~~computer-executable instructions, when executed by the~~ at least one ~~processor, further cause~~of the multiple attributes is a government identification number, and wherein the answer to the at least one ~~processor to restrict the response to~~query includes only a portion of the ~~identity request received from the requesting party based on an input from the user and/or a prior identity request from the requesting party~~government identification number.