

CLAIMS

1. A transaction data processing system for estimating a geolocation of a target merchant, the data processing system comprising: a processor, and a data storage device, data storage device storing computer program instructions operable to cause the processor to:

extract target merchant transaction data indicative of a set of transactions made at the target merchant from a transaction database;

for each transaction of the target merchant transaction data, identify a payment card associated with the respective transaction and thereby identifying a set of payment cards used by customers at the target merchant;

for each payment card of the set of payment cards used by customers of the target merchant, identify transactions within a time period including the respective transaction made at the target merchant, and thereby identifying transactions made as part of a customer journey including the target merchant;

for each transaction made as part of a customer journey including the target merchant, identify a geolocation associated with the corresponding transaction and thereby identify a set of potentially neighboring merchant geolocations in relation to the geolocation of the target merchant; and

estimate the geolocation of the target merchant using geolocations from the set of potentially neighboring geolocations by identifying a centroid of merchant locations from the set of potentially neighboring merchant geolocations.

2. A data processing system according to claim 1, wherein the data storage device stores instructions operable to cause the processor to iteratively remove geolocations from the set of potentially neighboring merchant geolocations based on a distance between a centroid of geolocations of the set of potentially neighboring merchant geolocations and respective geolocations of the set of potentially neighboring merchant geolocations.

3. A data processing system according to claim 2, wherein the data storage device stores instructions operable to cause the processor to cease the iterative removal of geolocations if a change in the centroid of set of potentially neighboring merchant geolocations between iterations is less than a threshold.

4. A data processing system according to any preceding claim, wherein the set of transactions made at the target merchant from a transaction database correspond to transactions having a transaction time within a time window.

5. A data processing system according to any preceding claim, wherein the data storage device stores instructions operable to cause the processor to identify transactions made as part of a customer journey including the target merchant by identifying physical transactions.

6. A data processing system according to claim 5, wherein the data storage device stores instructions operable to cause the processor to identify physical transactions using a physical transaction flag in transaction data.

7. A data processing system according to any preceding claim, wherein the data storage device stores instructions operable to cause the processor to store the estimated target merchant geolocation in a merchant database.

8. A data processing system according to any preceding claim, wherein the data storage device instructions operable to cause the processor to use the estimated target merchant geolocation in a transaction authorization process.

9. A data processing method for estimating a geolocation of a target merchant using transaction data, the method comprising:

- extracting target merchant transaction data indicative of a set of transactions made at the target merchant from a transaction database;

- for each transaction of the target merchant transaction data, identifying a payment card associated with the respective transaction and thereby identifying a set of payment cards used by customers at the target merchant;

- for each payment card of the set of payment cards used by customers of the target merchant, identifying transactions within a time period including the respective transaction made at the target merchant, and thereby identifying transactions made as part of a customer journey including the target merchant;

- for each transaction made as part of a customer journey including the target merchant, identifying a geolocation associated with the corresponding transaction and thereby identifying a set of potentially neighboring merchant geolocations in relation to the geolocation of the target merchant; and

- estimating the geolocation of the target merchant using geolocations from the set of potentially neighboring geolocations by identifying a centroid of merchant locations from the set of potentially neighboring merchant geolocations.

10. A data processing method according to claim 9 further comprising iteratively removing geolocations from the set of potentially neighboring merchant geolocations based on a distance between a centroid of geolocations of the set of potentially neighboring merchant geolocations and respective geolocations of the set of potentially neighboring merchant geolocations.

11. A data processing method according to claim 10, further comprising ceasing the iterative removal of geolocations if a change in the centroid of set of potentially neighboring merchant geolocations between iterations is less than a threshold.

12. A data processing method according to any one of claims 9 to 11, wherein the set of transactions made at the target merchant from a transaction database correspond to transactions having a transaction time within a time window.

13. A data processing method according to any one of claims 9 to 12, wherein identifying transactions made as part of a customer journey including the target merchant by comprises identifying physical transactions.

14. A data processing method according to claim 13 wherein identifying physical transactions comprises using a physical transaction flag in transaction data.

15. A data processing method according to any one of claims 9 to 14, further comprising storing the estimated target merchant geolocation in a merchant database.

16. A data processing method according to any one of claims 9 to 15, further comprising using the estimated target merchant geolocation in a transaction authorization process.

17. A non-transitory computer readable medium carrying computer executable instructions which when executed on at least one processor cause the at least one processor to carry out a method according to any one of claims 9 to 16.