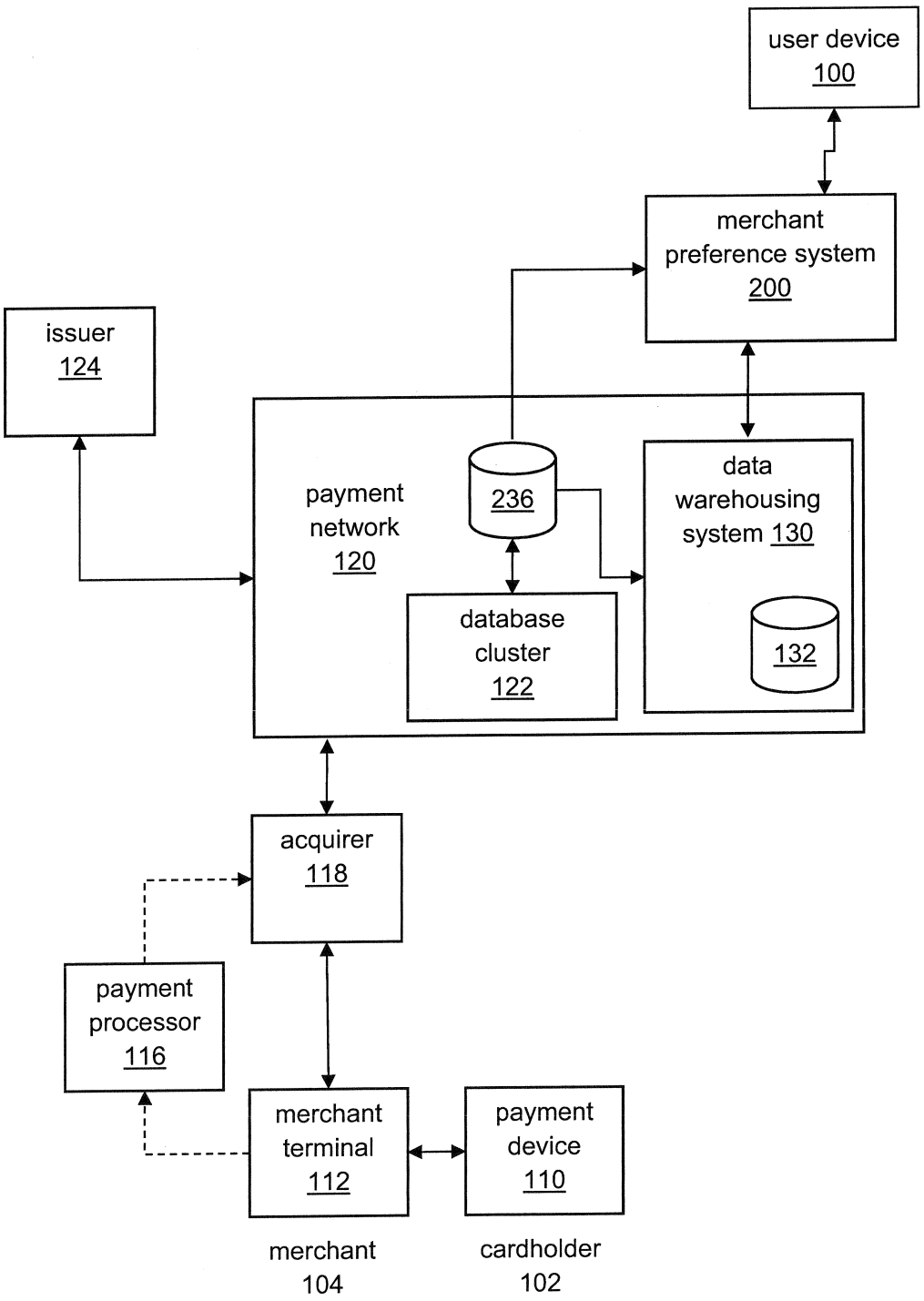
user device
100
merchant
preference system
200
issuer
124
payment
network
120
236
data
warehousing
system 130
132
database
cluster
122
acquirer
118
payment
processor
116
merchant
terminal
112
payment
device
110
merchant
104
cardholder
102

FIG. 1

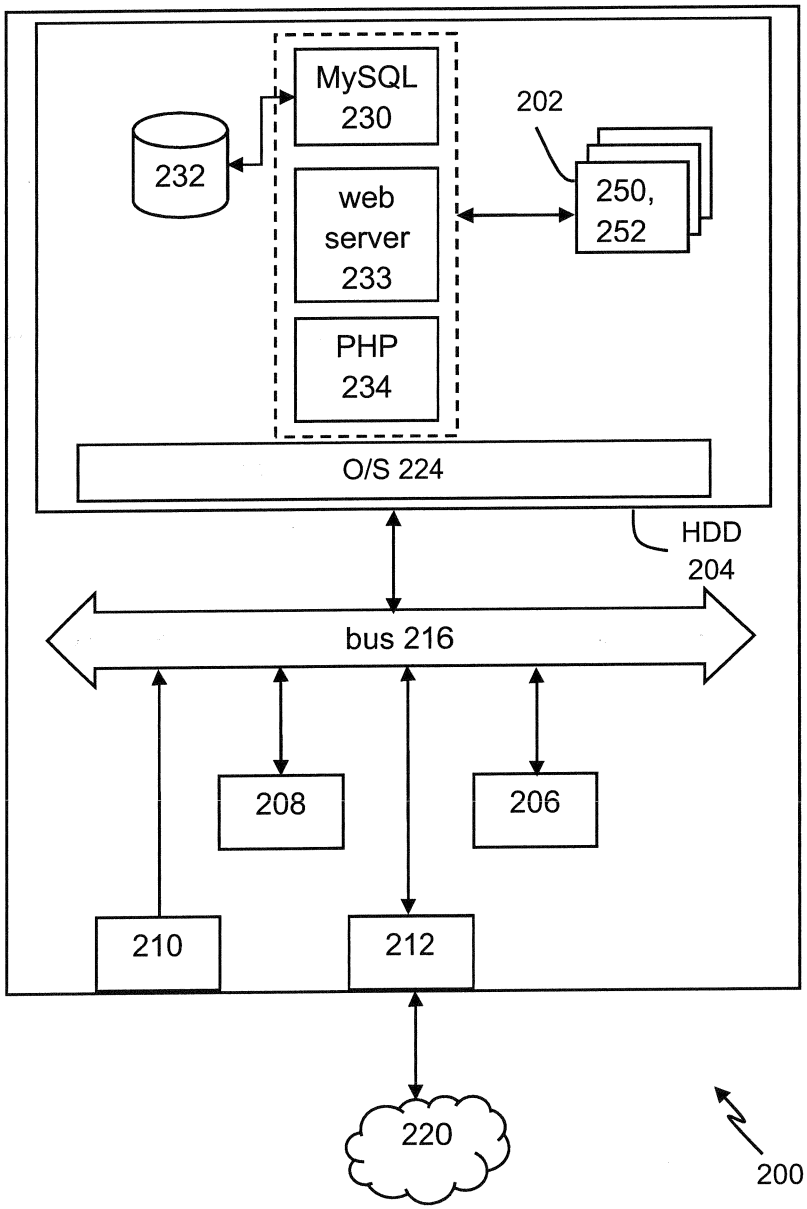
MySQL
230
232
web
server
233
PHP
234
202
250,
252
O/S 224
HDD
204
bus 216
208
206
210
212
220
200

FIG. 2

| Debit Cards Data | | | | | |
|---|---|---|---|---|---|
| | | Merchant Outlets | | | |
| | | Starbucks Bedok MRT | Starbucks Changi | Starbucks Suntec City | McDonalds Bugis Jn |
| Merchant Outlets | Starbucks Bedok MRT | | | | |
| | Starbucks Changi | | | | |
| | Starbucks Suntec City | | | | |
| | McDonalds Bugis Jn | | | | |

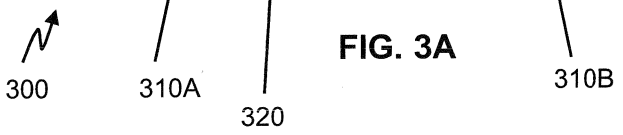


FIG. 3A

| Trasaction Data Aggregated at Merchant Outlet-Time | | | | | | | |
|---|---|---|---|---|---|---|---|
| Merchant Name | Outlet Name | Card type | Date | Time Slot | Index_Cards | Index_transactions | Index_Spend |
| Starbucks | Starbucks Bedok MRT | Debit | 1-Jan-13 | 00:00 to 03:00 | 1.1 | 1.8 | 0.3 |
| Starbucks | Starbucks Changi | Credit | 1-Jan-13 | 00:00 to 03:00 | 1.2 | 1.5 | 2.2 |
| Starbucks | Starbucks Suntec City | Prepaid | 1-Jan-13 | 00:00 to 03:00 | 0.6 | 0.3 | 0.5 |
| McDonalds | McDonalds Bugis Jn | Credit | 1-Jan-13 | 00:00 to 03:00 | 0.0 | 1.6 | 0.7 |

Merchant Outlet (to be same as Mechant Outlet in Card level aggregated data

Day of the year - Data needed for last 365 days

Time of the day - to be divided into 8 slots of 3 hrs each

FIG. 3B

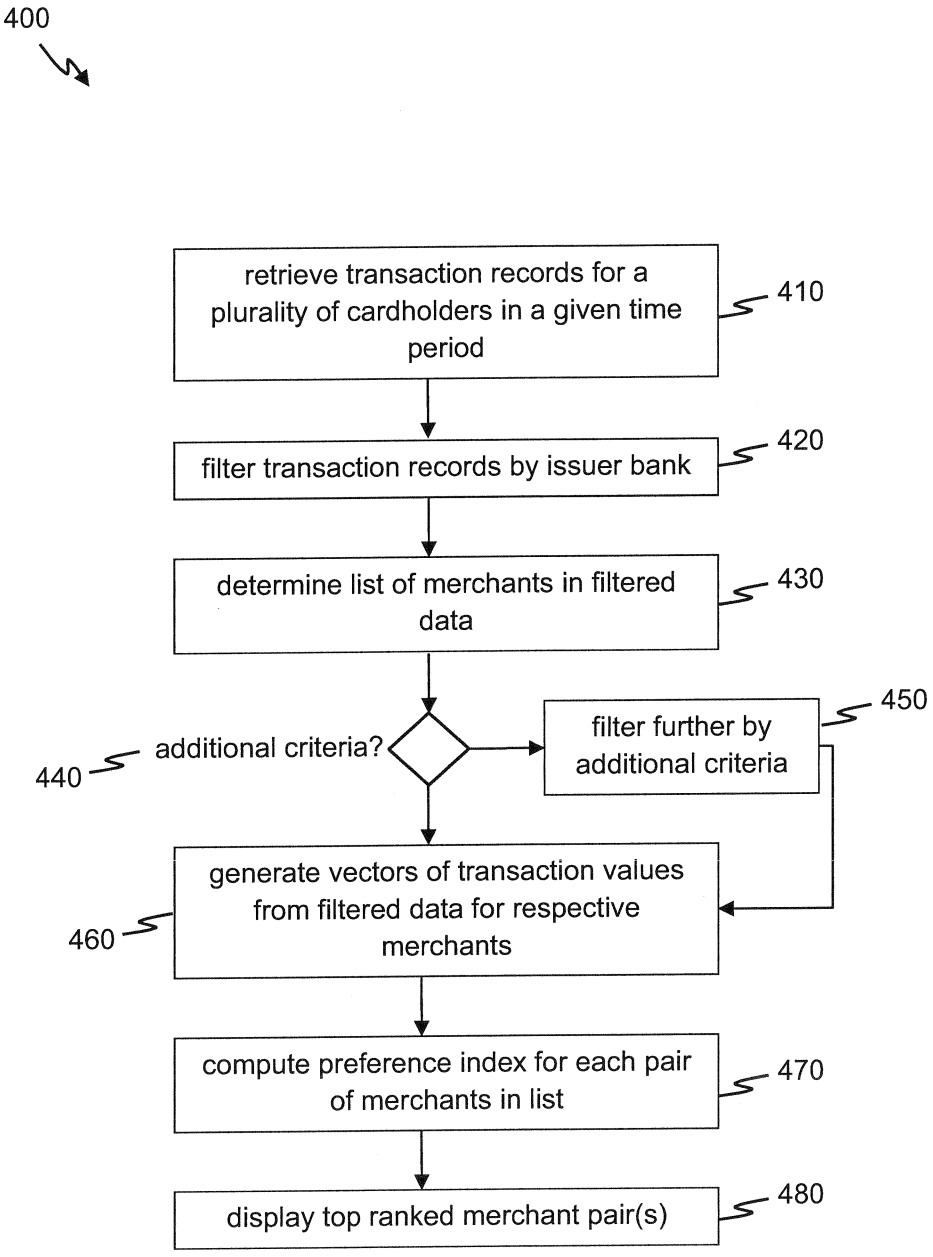
400
retrieve transaction records for a plurality of cardholders in a given time period
410
filter transaction records by issuer bank
420
determine list of merchants in filtered data
430
additional criteria?
440
filter further by additional criteria
450
generate vectors of transaction values from filtered data for respective merchants
460
compute preference index for each pair of merchants in list
470
display top ranked merchant pair(s)
480

FIG. 4

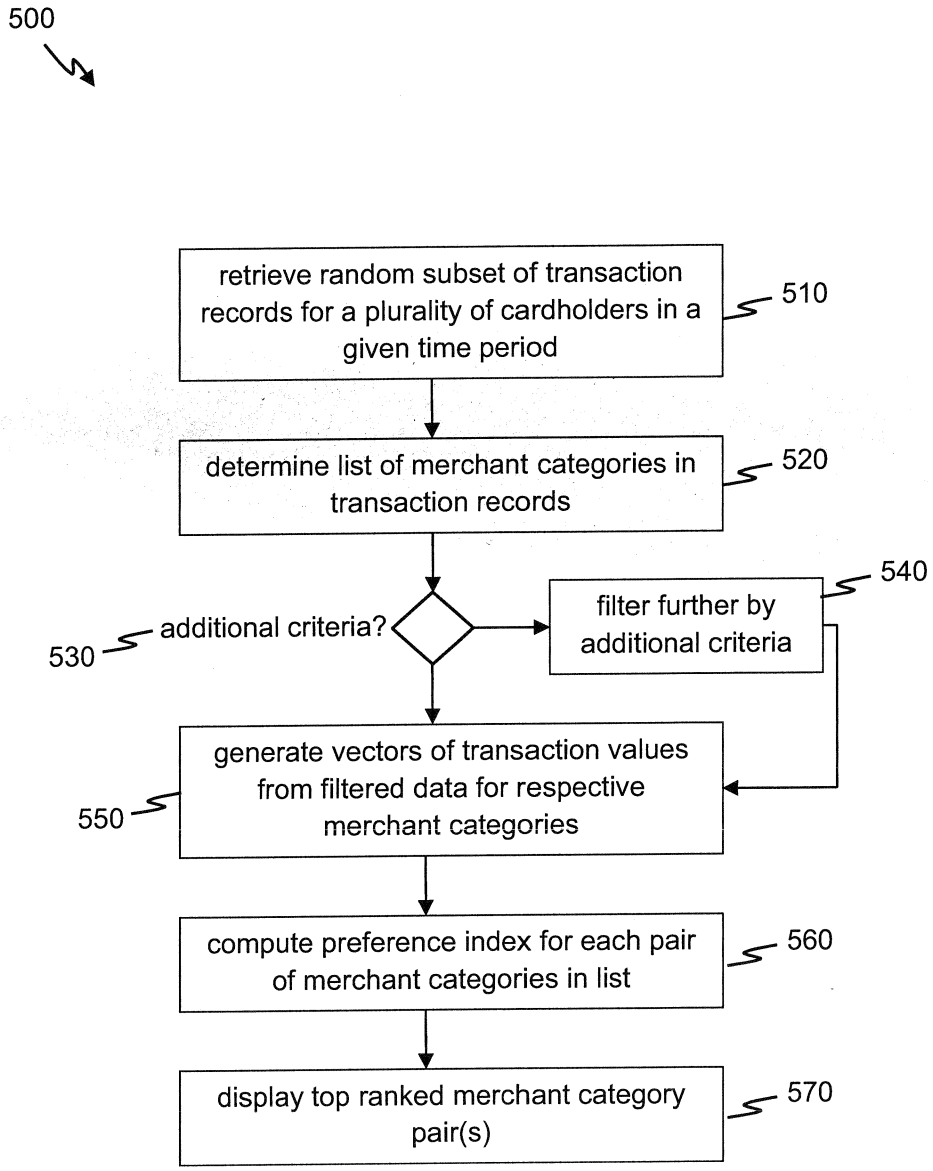
500
retrieve random subset of transaction records for a plurality of cardholders in a given time period
510
determine list of merchant categories in transaction records
520
additional criteria?
530
filter further by additional criteria
540
generate vectors of transaction values from filtered data for respective merchant categories
550
compute preference index for each pair of merchant categories in list
560
display top ranked merchant category pair(s)
570

FIG. 5

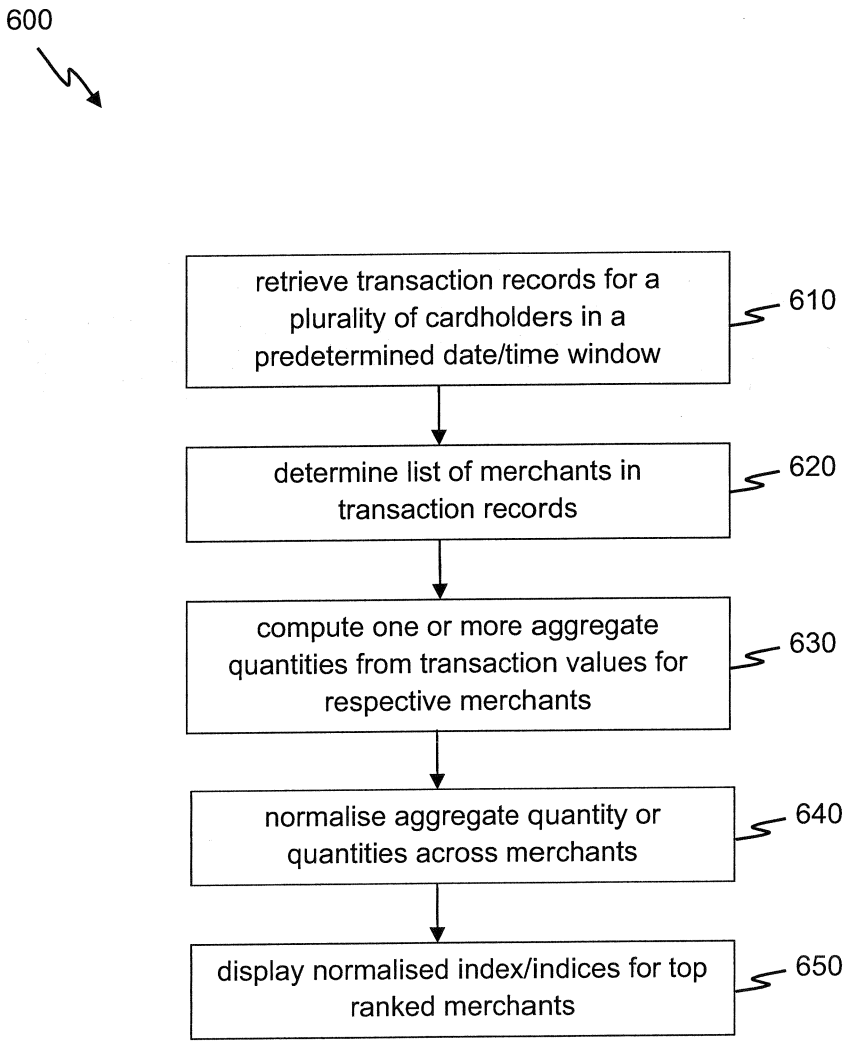
600
retrieve transaction records for a plurality of cardholders in a predetermined date/time window
610
determine list of merchants in transaction records
620
compute one or more aggregate quantities from transaction values for respective merchants
630
normalise aggregate quantity or quantities across merchants
640
display normalised index/indices for top ranked merchants
650

FIG. 6