To build a mobile application that reduces service time

Objective

The objective of this project is to reduce the long queues at Walmart stores during peak hours. In this project, I will be creating a mobile application that could be used by a customer to scan the products he wants to buy at the store. By doing so, the products need not be scanned at the billing counter. This will save a considerable amount of time at the billing counters thus reducing the average waiting time in the queue.

Project Plan

Currently, the project is in its initial stages and here is an explanation on how it works:

Intially, say we have a database that carries Product_ID (1, 2, 3 ... , 10), Product_Name, Product_Price similar to that of a Walmart database shown below:

```
mysql> select * from ok;
+----+------+------+-------+
| id | sno  | Prod | Price |
+----+------+------+-------+
|  1 |    1 | bat  | 10.99 |
|  2 |    2 | bal  |   1.9 |
|  3 |    3 | dal  |    51 |
|  4 |    4 | gal  |  0.99 |
|  5 |    5 | ral  |     1 |
|  6 |    6 | fal  |    23 |
|  7 |    7 | tal  | 14.99 |
|  8 |    8 | mal  | 24.66 |
|  9 |    9 | aal  |     3 |
| 10 |   10 | yal  |  5.99 |
+----+------+------+-------+
10 rows in set (0.00 sec)
```

Now, as we already have a barcode on every product we will be using it to identify and retrieve the product's price by scanning this barcode on the phone.

Suppose if a customer wants to buy products with ID = {1, 2, 5} i.e 'bat', 'bal', and 'ral', he will scan the barcodes of these products using his smart-phone using this application at the store.

By doing so a list of the selected items with their prices will be generated in his phone as shown below:

```
mysql> SELECT * FROM ok WHERE sno = '1' OR sno = '2' OR sno = '5';
+----+------+------+-------+
| id | sno  | Prod | Price |
+----+------+------+-------+
|  1 |    1 | bat  | 10.99 |
|  2 |    2 | bal  |   1.9 |
|  5 |    5 | ral  |     1 |
+----+------+------+-------+
```

Also this application can generate the sum of the prices of the selected products as shown below:

```
mysql> SELECT sum(Price) as sum FROM ok WHERE sno = '1' OR sno = '2' OR sno = '5';
+--------------------+
| sum                |
+--------------------+
| 13.889999747276306 |
+--------------------+
```

The tax for this transaction will also be displayed as follows: (Assuming tax to be 10%)

```
mysql> select sum(Price)*0.1 as tax from ok where sno = '1' OR sno= '2' OR sno = '5';
+--------------------+
| tax                |
+--------------------+
| 1.3889999747276307 |
+--------------------+
```

Now the application will sum the tax and the sum of prices of the selected products thus showing the total amount of the purchase as show below:

```
mysql> select sum(Price)+sum(Price)*0.1 as total from ok where sno = '1' OR sno= '2' OR sno = '5';
+-------------------+
| total             |
+-------------------+
| 15.278999722003936 |
+-------------------+
```

Thus, the total amount including the tax is generated in the customer's phone by using this application.

For effective verification, we can generate a barcode for this list of items in the customer's phone using the application. This barcode is then scanned by the service personnel at the billing counter which would then display the list of selected products, sum of their prices, tax information and the total amount on the LCD-screen of the service personnel. So instead of scanning each and every product, the service personnel has to scan the barcode generated on customer's smartphone.

Disadvantage

Only disadvantage is for products that are to be billed by weight cannot be used for this application. So these products must be manually scanned at the billing counter.

Conclusion

This application will surely reduce the average service time and thus preserves service quality. If this application works well, we can eliminate few of the billing counters as the service rate is now increased. Thus, by doing so we save plenty of space that could be used for other products that are to be displayed.

Future Scope

The application is in its developing stage and will be presented once it is completed successfully.