**Coursework 1**

**Instructions**

1. Do the work in groups of not more than 4 people ( any extra member shall be deleted from the group)
2. Submit the work on muele by **31st May 2017 11:50 PM**
3. No assignments shall be received via email
4. Indicate your names and registration numbers
5. Submit things including your code and SQL file showing the structure of your database but without data

**Question**

Jack has mobile money kiosks (Warid Pesa and MTN mobile money) around Kampala. Each kiosk is identified by a name and simcards used to transact and are unique. The kiosk attendants may either deposit or withdraw money for MTN and Warid customers. At any point in time, Jack may check how much cash a given kiosk has or float (Non-physical cash). A deposit to a customer reduces the amount of float while cash increases for that kiosk. On the other hand, a withdraw transaction reduces available cash and increases the float. If a kiosk attendant wants to send sales information, they should log in with a username which was given by Jack. Note that only Jack has the right to add new users to the system and he is able to do so using the web interface. The kiosk attendants should submit their transactions using the command line interface (Socket program), which is installed for them. In order to optimize the bandwidth, the kiosk attendants may commit to the repository/database up to 3 transactions instead of committing a transaction at a time Using command

***commit deposit number\_from1 amount1 agent\_number, withdraw number\_from2 amount2 agent\_number, deposit number\_from3 amount3 agent\_number3***

Each stored transaction must indicate the kiosk phone number, customer number, date and time, who has committed it, amount and type of transaction. Some of the data may NOT appear in the commit transaction command but may be extracted from the login information.

Airtel supports transactions as much as Ugx 5,000,000 well as MTN ends at Ugx 4,000,000 and as such the transactions above the limit should not be accepted by the system.

You are required to design two interfaces. That is, the console (Socket client and Server) and web interfaces to assist Jack in managing his business. The command line interface shall only be charged with sending transactions. In case a customer needs to deposit or send more money than is available at a kiosk, the kiosk attendant may request another kiosk to use the system to transact on their behalf by providing the number and the amount, a request to a kiosk which has a sufficient amount. After responding to the request, the request is marked as served as opposed to pending if not served. This exchange in transactions must be seen at the web interface by Jack. Also, the two kiosk attendants should be able to use commands to check status of their requests.

The kiosks make profits in form of commission from the respective telecom companies. MTN however, won’t give you commission for transactions less than Ugx 5,000 while Airtel gives you about Ugx 150. When a kiosk receives their commission from the mobile money company, it increases their float. Ie No cash is paid out by the telecom company in form of commissions. Only Jack can enter the commissions received. At any given time, jack wants to know the following

1. Total in commissions by
   1. Specific Kiosk
   2. Kiosk and MTN
   3. Kiosk and Warid Pesa
   4. All kiosks for the entire period
   5. How much commission has not yet been paid
   6. How much at a given kiosk was paid
2. How many transfers were made, showing the status (Pending/Served)

Below are the commission fees for each of the companies

| MTN Uganda Mobile Money Agent Commission fees | | |
| --- | --- | --- |
|  | Deposit | Withdraw cash from |
| Min Max |  | Agent |
| 500-2,500 | 0 | 100 |
| 2,501-5,000 | 0 | 125 |
| 5,001-15,000 | 285 | 450 |
| 15,001-30,000 | 285 | 500 |
| 30,001-45,000 | 285 | 525 |
| 45,001-60,000 | 285 | 575 |
| 60,001-125,000 | 440 | 700 |
| 125,001-250,000 | 520 | 1,300 |
| 250,001-500,000 | 850 | 2,600 |
| 500,001-1,000,1000 | 2,500 | 5,000 |
| 1,000,001-2,000,000 | 4,500 | 7,500 |
| 2,000,001-4,000,000 | 8,000 | 12,500 |

| Airtel Uganda Airtel Money/Warid Pesa Agent Commission fees | | |
| --- | --- | --- |
| Transaction Tiers | Cash In (Deposit) | Cash Out(Withdraw) |
| 500-2,500 | 150 | 100 |
| 2,501-5,000 | 150 | 125 |
| 5,001-15,000 | 285 | 450 |
| 15,001-30,000 | 285 | 500 |
| 30,001-45,000 | 285 | 525 |
| 45,001-60,000 | 285 | 575 |
| 60,001-125,000 | 440 | 700 |
| 125,001-250,000 | 520 | 1,300 |
| 250,001-500,000 | 850 | 2,600 |
| 500,001-1,000,1000 | 2,500 | 5,000 |
| 1,000,001-2,000,000 | 4,500 | 7,500 |
| 2,000,001-3,000,000 | 8,000 | 12,500 |
| 3,000,001-4,000,000 | 8,000 | 12,500 |
| 4,001,000-5,000,000 | 9,000 | 15,000 |

In order to make designing as little technical as possible, you will not use database queries. Instead, you are required to use JSTL to interact with the database. That is, when inserting, retrieving data ***e.t.c***

***(You may use servlets, Javascript, css, JSP, HTML and java )***