As per the problem statement the programs were written with some assumptions as below:

**Server Status Dashboard: Java and UNIX:**

1.      Maximum instance for a server assumed is 3. If more than 3 instances are written in SERVER\_STATUS.txt file, Error message is displayed.

2. File name for Input file (SERVER\_STATUS.txt) and time interval is read from a config file to increase flexibility.

3.      SERVER\_STATUS.txt file is not appended and is overwritten at the same frequency as check\_status.ksh (check\_status.java in case of java program).

4. Time in conf file is in seconds.

**Swap numbers:**

1. Inputs for swapping the numbers is taken from the code(No user defined input).

**Problem 4:**

1. Database used is MYSQL.
2. Table and records are already present in testing environment.
3. As per problem statement, query was written for finding sum of amount between 15:00 to 15:59 hours, 16:00 to 16:59 hours, 17:00 to 17:59 hours. The output was displayed in columns for timestamp 15:00 hours, 16:00 hours, 17:00 hours (split between hours).

**How to Execute:**

**Java Program for Server Status Dashboard:**

Class file and all required files (conf file and input file) for check\_status.java are placed in JAVA folder. To execute the program, execute below statement on command prompt from the same directory.

Java check\_status.java

**Swap numbers:**

Class file is placed in JAVA folder. To execute the program, execute below statement on command prompt from the same directory.

Java swap

**UNIX script for Server Status Dashboard:**

All required files for the script are kept in the UNIX folder. Execute below command in in UNIX box where all files from source folder are copied.

check\_status.ksh

**Problem 4:**

Execute the query.sql file from Database folder on MYSQL database OR execute the below query(same query as query.sql) on MYSQL database command window:

**select** T\_TimeStamp\_15to16, amount\_15to16, T\_TimeStamp\_16to17, amount\_16to17, T\_TimeStamp\_17to18, amount\_17to18 **FROM**

(**SELECT** *date\_format*(Barclays.**T\_TimeStamp**, **'%H:00 hrs'**) **as** T\_TimeStamp\_15to16,*sum*(**Amount**) **as** amount\_15to16 **from** Barclays **WHERE T\_TimeStamp between '2017-03-09 15:00:00' and '2017-03-09 16:00:00'**) data\_15to16,

(**SELECT** *date\_format*(Barclays.**T\_TimeStamp**, **'%H:00 hrs'**) **as** T\_TimeStamp\_16to17,*sum*(**Amount**) **as** amount\_16to17 **from** Barclays **WHERE T\_TimeStamp between '2017-03-09 16:00:00' and '2017-03-09 17:00:00'**) data\_16to17,

(**SELECT** *date\_format*(Barclays.**T\_TimeStamp**, **'%H:00 hrs'**) **as** T\_TimeStamp\_17to18,*sum*(**Amount**) **as** amount\_17to18 **from** Barclays **WHERE T\_TimeStamp between '2017-03-09 17:00:00' and '2017-03-09 18:00:00'**) data\_17to18;