USER GUIDE

REQUIREMENTS

RECOMMENDED BROWSERS

Supports the following Web Browsers:

- Firefox 53 and 52 ESR and above
- Google Chrome Version 59 and above

Environment Setup

- ISS-VM (Comes with OpenJDK 1.8.0_191-8u191-b12-0ubuntu0.16.04.1-b12) (Runtime)
- Apache Tomcat 8 (Server
- MySQL Server + MySQL Workbench GUI
- Initialize MySQL tables
- Deploy Project WAR File (Compiled Source)
- Start the Tomcat Service
- **SUDO password: iss-user**

INSTALLATION

1. Apache Tomcat 8 (Repo Installation)

a. In Terminal, type sudo apt install tomcat8
Sudo password: iss-user

```
iss-user@iss-vm:~$ sudo apt install tomcat8
[sudo] password for iss-user:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.15.0-36 linux-headers-4.15.0-36-generic
  linux-headers-4.15.0-38 linux-headers-4.15.0-38-generic
  linux-image-4.15.0-36-generic linux-image-4.15.0-38-generic
  linux-modules-4.15.0-36-generic linux-modules-4.15.0-38-generic
  linux-modules-extra-4.15.0-36-generic linux-modules-extra-4.15.0-38-generic
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  authbind libcommons-collections3-java libcommons-dbcp-java
  libcommons-pool-java libecj-java libtomcat8-java tomcat8-common
Suggested packages:
  libcommons-collections3-java-doc libcommons-dbcp-java-doc
  libgeronimo-jta-1.1-spec-java ecj libecj-java-gcj libtcnative-1
  tomcat8-admin tomcat8-docs tomcat8-examples tomcat8-user
The following NEW packages will be installed:
  authbind libcommons-collections3-java libcommons-dbcp-java
  libcommons-pool-java libecj-java libtomcat8-java tomcat8 tomcat8-common
0 upgraded, 8 newly installed, 0 to remove and 319 not upgraded.
Need to get 7,266 kB of archives
```

b. Verify tomcat status with sudo service tomcat8 status (it will be running)

```
iss-user@iss-vm:~$ sudo service tomcat8 status
● tomcat8.service - LSB: Start Tomcat.
   Loaded: loaded (/etc/init.d/tomcat8; bad; vendor preset: enabled)
   Active: active (running) since Sun 2019-06-09 12:12:16 +08; 2min 44s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 6453 ExecStop=/etc/init.d/tomcat8 stop (code=exited, status=0/SUCCESS
  Process: 6534 ExecStart=/etc/init.d/tomcat8 start (code=exited, status=0/SUCCE
    Tasks: 20
   Memory: 92.2M
      CPU: 2.450s
   CGroup: /system.slice/tomcat8.service
           └─6574 /usr/lib/jvm/default-java/bin/java -Djava.util.logging.config.

Jun 09 12:12:11 iss-vm systemd[1]: Starting LSB: Start Tomcat....
Jun 09 12:12:11 iss-vm tomcat8[6534]:  * Starting Tomcat servlet engine tomcat8
Jun 09 12:12:16 iss-vm tomcat8[6534]:    ...done.
Jun 09 12:12:16 iss-vm systemd[1]: Started LSB: Start Tomcat..
```

c. Control-C to exit the thread, then do sudo service tomcat8 stop (We want to stop the service first, and start after we set up everything)

```
iss-user@iss-vm:~$ sudo service tomcat8 stop
[sudo] password for iss-user:
iss-user@iss-vm:~$ sudo service tomcat8 status
● tomcat8.service - LSB: Start Tomcat.
   Loaded: loaded (/etc/init.d/tomcat8; bad; vendor preset: enabled)
   Active: inactive (dead) since Sun 2019-06-09 20:18:22 +08; 5s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 6760 ExecStop=/etc/init.d/tomcat8 stop (code=exited, status=0/SUCCESS
  Process: 6534 ExecStart=/etc/init.d/tomcat8 start (code=exited, status=0/SUCCE
```

2. MySQL Server

a. In Terminal, type sudo apt-get install mysql-server

```
iss-user@iss-vm:~$ sudo apt-get install mysql-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.15.0-36 linux-headers-4.15.0-36-generic
  linux-headers-4.15.0-38 linux-headers-4.15.0-38-generic
  linux-image-4.15.0-36-generic linux-image-4.15.0-38-generic
  linux-modules-4.15.0-36-generic linux-modules-4.15.0-38-generic
  linux-modules-extra-4.15.0-36-generic linux-modules-extra-4.15.0-38-generic
Use 'sudo apt autoremove' to remove them.
The following packages will be upgraded:
  mysql-server
1 upgraded, 0 newly installed, 0 to remove and 318 not upgraded.
Need to get 10.8 kB of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 http://sg.archive.ubuntu.com/ubuntu xenial-updates/main amd64 mysql-server
 all 5.7.26-0ubuntu0.16.04.1 [10.8 kB]
Fetched 10.8 kB in 0s (11.9 kB/s)
(Reading database ... 387706 files and directories currently installed.)
Preparing to unpack .../mysql-server_5.7.26-0ubuntu0.16.04.1_all.deb ...
Unpacking mysql-server (5.7.26-0ubuntu0.16.04.1) over (5.7.24-0ubuntu0.16.04.1)
...
Setting up mysql-server (5.7.26-0ubuntu0.16.04.1) ...
```

b. Check Server Status with sudo service mysql status

```
iss-user@iss-vm:~$ sudo service mysql status
● mysql.service - MySQL Community Server
   Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: en
   Active: active (running) since Sun 2019-06-09 11:19:17 +08; 9h ago
 Main PID: 1252 (mysqld)
    Tasks: 28
   Memory: 161.9M
      CPU: 1.003s
   CGroup: /system.slice/mysql.service
           └─1252 /usr/sbin/mysqld

Jun 09 11:19:01 iss-vm systemd[1]: Starting MySQL Community Server...
Jun 09 11:19:17 iss-vm systemd[1]: Started MySQL Community Server.
```

c. Open MySQL Server Terminal with sudo mysql -u root -p

```
iss-user@iss-vm:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 5
Server version: 5.7.24-0ubuntu0.16.04.1 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

d. Initialize password for root by typing SQL query line by line

```
USE mysql;

UPDATE user SET plugin='mysql_native_password'

WHERE User='root';

FLUSH PRIVILEGES;

exit;
```

```
mysql> USE mysql;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> UPDATE user SET plugin='mysql_native_password'
    -> WHERE User='root';
Query OK, 0 rows affected (0.04 sec)
Rows matched: 1  Changed: 0  Warnings: 0

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.07 sec)

mysql> exit;
```

e. Restart Mysql Service with `sudo systemctl restart mysql.service`

```
iss-user@iss-vm:~$ sudo systemctl restart mysql.service
```

f. Set up root password with `sudo mysql_secure_installation`

Enter Root Password for ubuntu: iss-user

```
iss-user@iss-vm:~$ sudo mysql_secure_installation

Securing the MySQL server deployment.

Enter password for user root:

VALIDATE PASSWORD PLUGIN can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD plugin?

Press y|Y for Yes, any other key for No: y

There are three levels of password validation policy:

LOW    Length >= 8
MEDIUM Length >= 8, numeric, mixed case, and special characters
STRONG Length >= 8, numeric, mixed case, special characters and dictionary                  file

Please enter 0 = LOW, 1 = MEDIUM and 2 = STRONG: 0
Using existing password for root.

Estimated strength of the password: 50
Change the password for root ? ((Press y|Y for Yes, any other key for No) : y

New password:

Re-enter new password:

Estimated strength of the password: 25
Do you wish to continue with the password provided?(Press y|Y for Yes, any other key for No) : y
 ... Failed! Error: Your password does not satisfy the current policy requirements

New password:

Re-enter new password:
```

Enter Y for VALIDATE PASSWORD.

Enter 0 for LOW

Enter mySQL new root password: “rootroot” (temp, cannot change to root due to password policy)

Press y for everything else.

```
New password:

Re-enter new password:

Estimated strength of the password: 50
Do you wish to continue with the password provided?(Press y|Y for Yes, any other key for No) : y
By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y|Y for Yes, any other key for No) : y
Success.


Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y|Y for Yes, any other key for No) : y
Success.

By default, MySQL comes with a database named 'test' that
anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.


Remove test database and access to it? (Press y|Y for Yes, any other key for No) : y
 - Dropping test database...
Success.

 - Removing privileges on test database...
Success.

Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.

Reload privilege tables now? (Press y|Y for Yes, any other key for No) : y
Success.

All done!
```

g. Log in again using sudo mysql -u root -p with new password “rootroot” and do Query line by line again

SHOW VARIABLES LIKE 'validate_password%';

SET GLOBAL validate_password_length = 4;

```
mysql> SHOW VARIABLES LIKE 'validate_password%';
+--------------------------------------+-------+
| Variable_name                        | Value |
+--------------------------------------+-------+
| validate_password_check_user_name    | OFF   |
| validate_password_dictionary_file    |       |
| validate_password_length             | 8     |
| validate_password_mixed_case_count   | 1     |
| validate_password_number_count       | 1     |
| validate_password_policy             | LOW   |
| validate_password_special_char_count | 1     |
+--------------------------------------+-------+
7 rows in set (0.01 sec)

mysql> SET GLOBAL validate_password_length = 4;
Query OK, 0 rows affected (0.00 sec)

mysql> SHOW VARIABLES LIKE 'validate_password%';
+--------------------------------------+-------+
| Variable_name                        | Value |
+--------------------------------------+-------+
| validate_password_check_user_name    | OFF   |
| validate_password_dictionary_file    |       |
| validate_password_length             | 4     |
| validate_password_mixed_case_count   | 1     |
| validate_password_number_count       | 1     |
| validate_password_policy             | LOW   |
| validate_password_special_char_count | 1     |
+--------------------------------------+-------+
7 rows in set (0.00 sec)
```

Followed by this (to change password to “root”):

```
use mysql;

update user set authentication_string=PASSWORD("root") where
User='root';

flush privileges;

quit
```

```
mysql> use mysql;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> update user set authentication_string=PASSWORD("root") where User='root';
Query OK, 1 row affected, 1 warning (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 1

mysql> flush privileges;
Query OK, 0 rows affected (0.00 sec)

mysql> quit
Bye
```

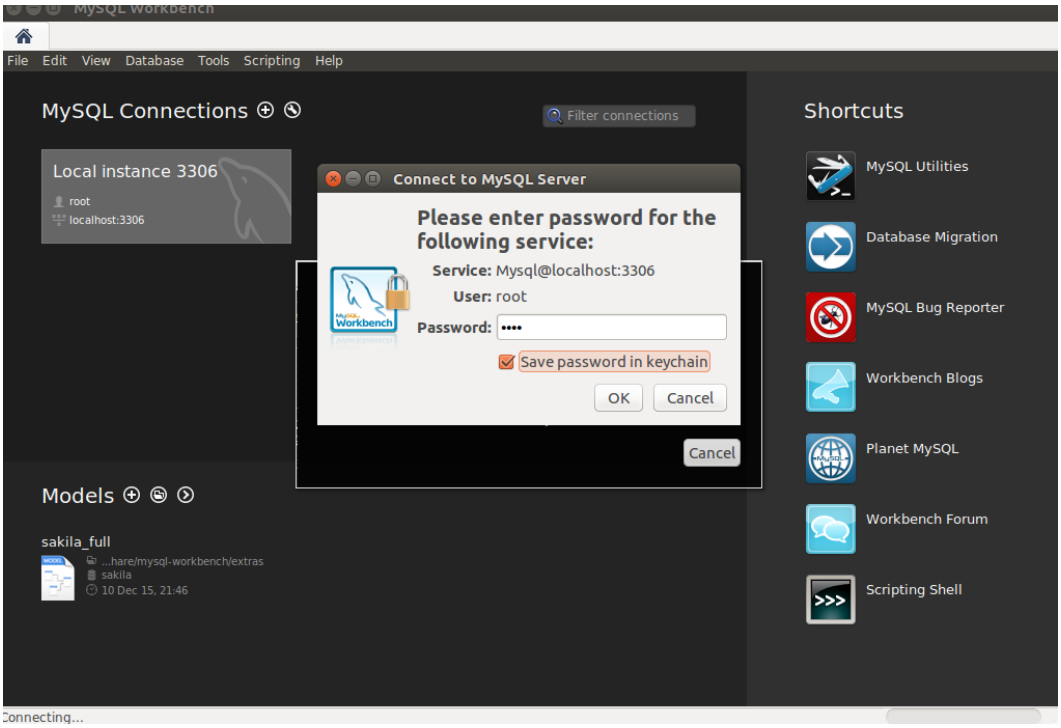
h. Install MySQL Workbench

`sudo apt-get install mysql-workbench`

```
iss-user@iss-vm:~$ sudo apt-get install mysql-workbench
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.15.0-36 linux-headers-4.15.0-36-generic linux-headers-4.15.0-3
  linux-headers-4.15.0-38-generic linux-image-4.15.0-36-generic
  linux-image-4.15.0-38-generic linux-modules-4.15.0-36-generic
  linux-modules-4.15.0-38-generic linux-modules-extra-4.15.0-36-generic
  linux-modules-extra-4.15.0-38-generic
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libctemplate2v5 libgtkmm-2.4-1v5 libmysqlcppconn7v5 libvsqlitepp3v5 libzip4
  mysql-utilities mysql-workbench-data python-mysql.connector python-pexpect
  python-ptyprocess python-pyodbc python-pysqlite2
Suggested packages:
  python-pexpect-doc python-pysqlite2-doc python-pysqlite2-dbg
The following NEW packages will be installed:
  libctemplate2v5 libgtkmm-2.4-1v5 libmysqlcppconn7v5 libvsqlitepp3v5 libzip4
  mysql-utilities mysql-workbench mysql-workbench-data python-mysql.connector
  python-pexpect python-ptyprocess python-pyodbc python-pysqlite2
0 upgraded, 13 newly installed, 0 to remove and 318 not upgraded.
Need to get 11.4 MB of archives.
After this operation, 106 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://sg.archive.ubuntu.com/ubuntu xenial/universe amd64 libctemplate2v5 a
2-5ubuntu1 [144 kB]
Get:2 http://sg.archive.ubuntu.com/ubuntu xenial/main amd64 libgtkmm-2.4-1v5 amd
4.4-2 [671 kB]
Get:3 http://sg.archive.ubuntu.com/ubuntu xenial/universe amd64 libmysqlcppconn7
 1.1.7-0ubuntu1 [226 kB]
Get:4 http://sg.archive.ubuntu.com/ubuntu xenial/universe amd64 libvsqlitepp3v5 a
```

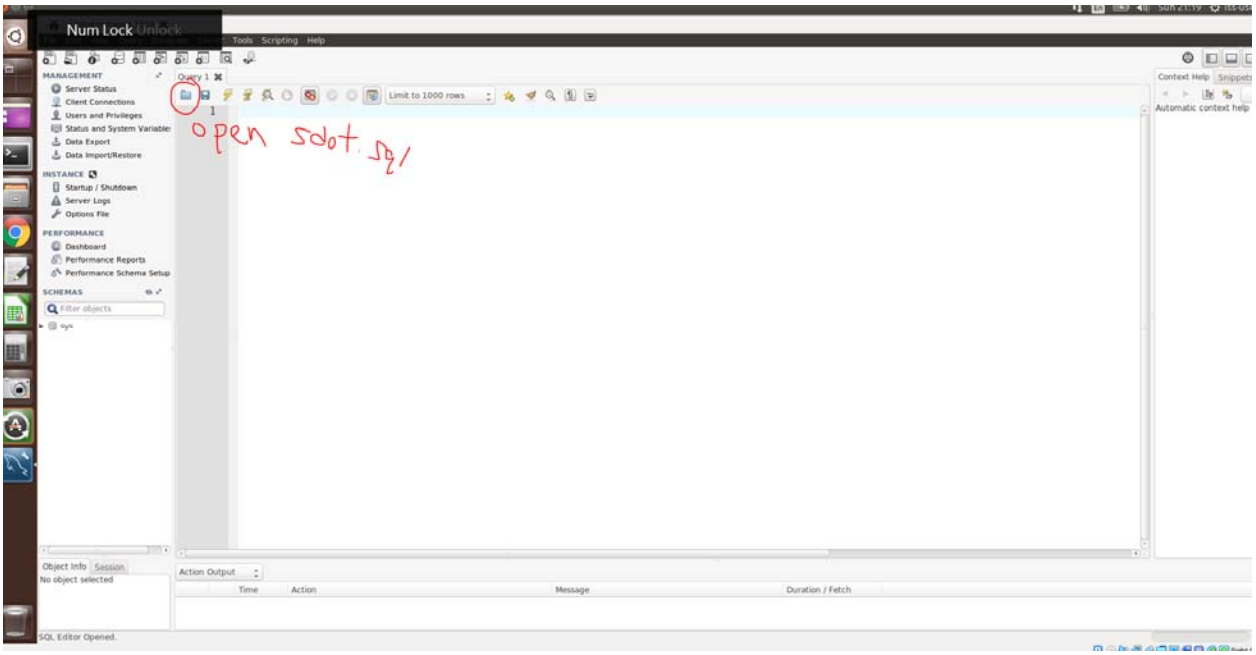
i. Run Workbench

j. Log in to 'root' server with 'root' as password

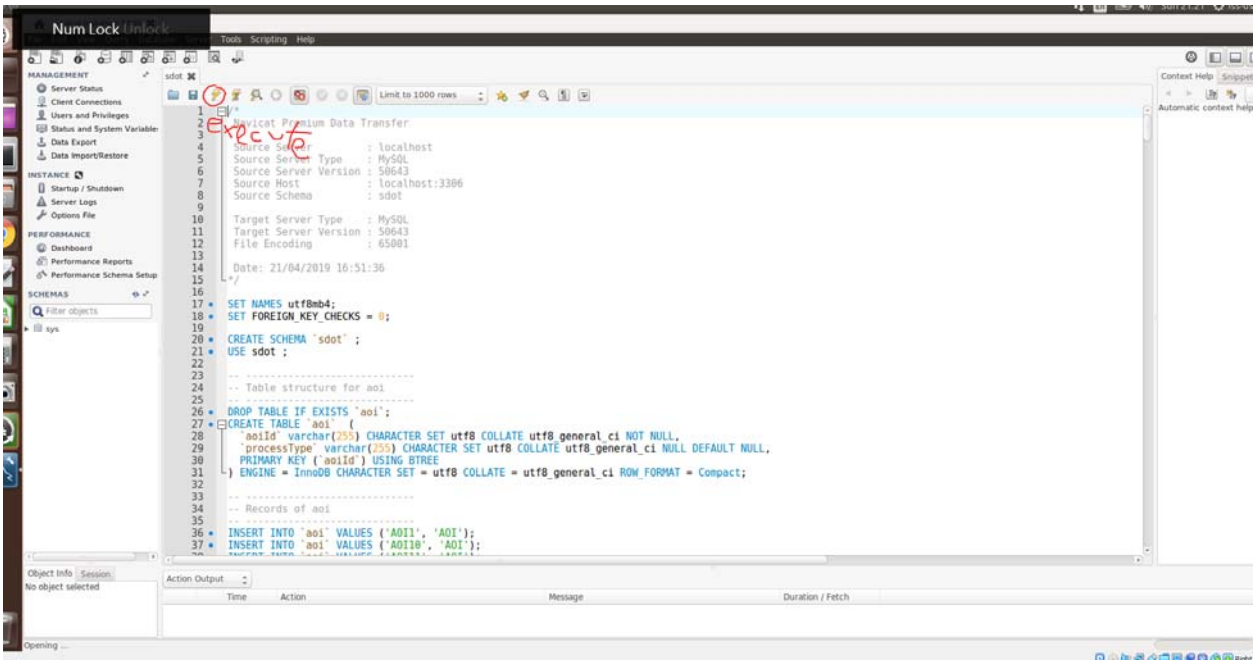


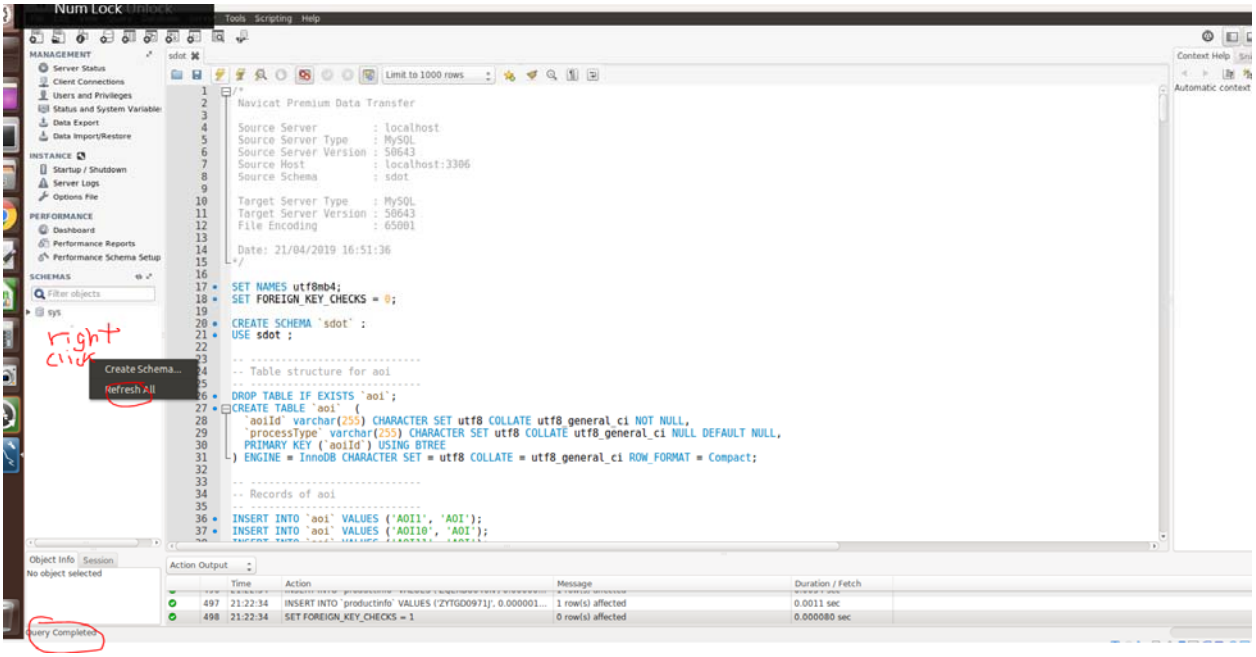
3. Initialize the DB Tables

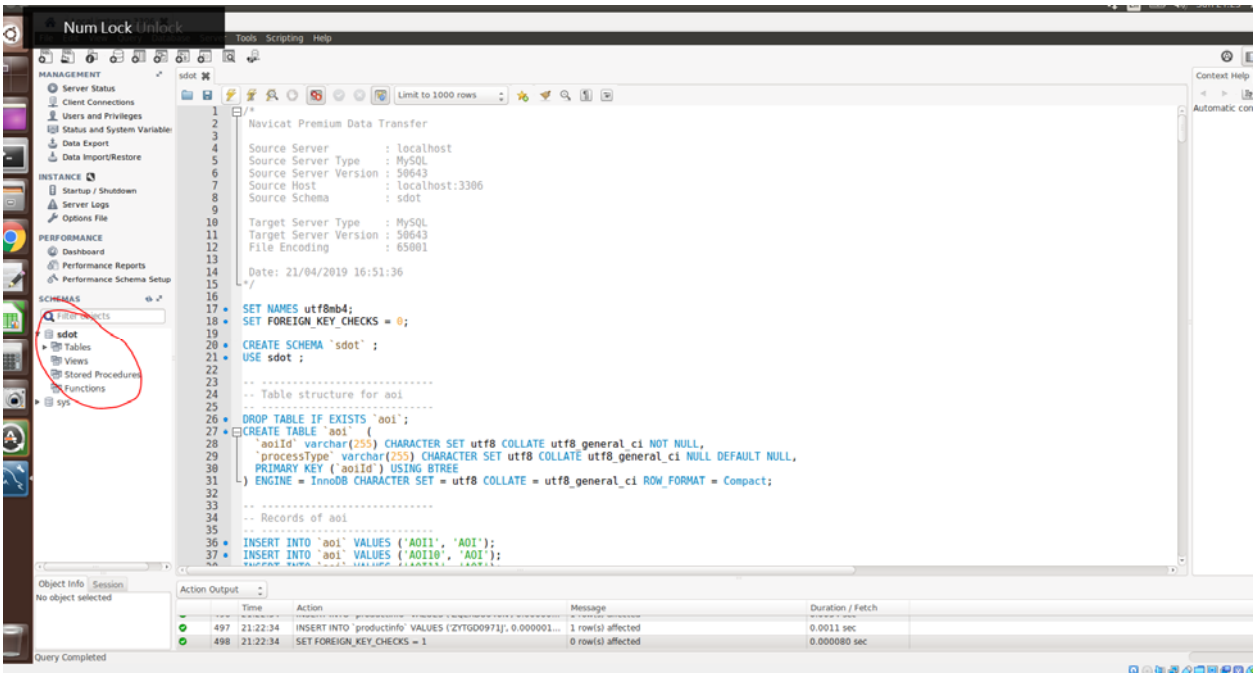
a. Open MySQL Workbench and SQL script



b. Execute the Script



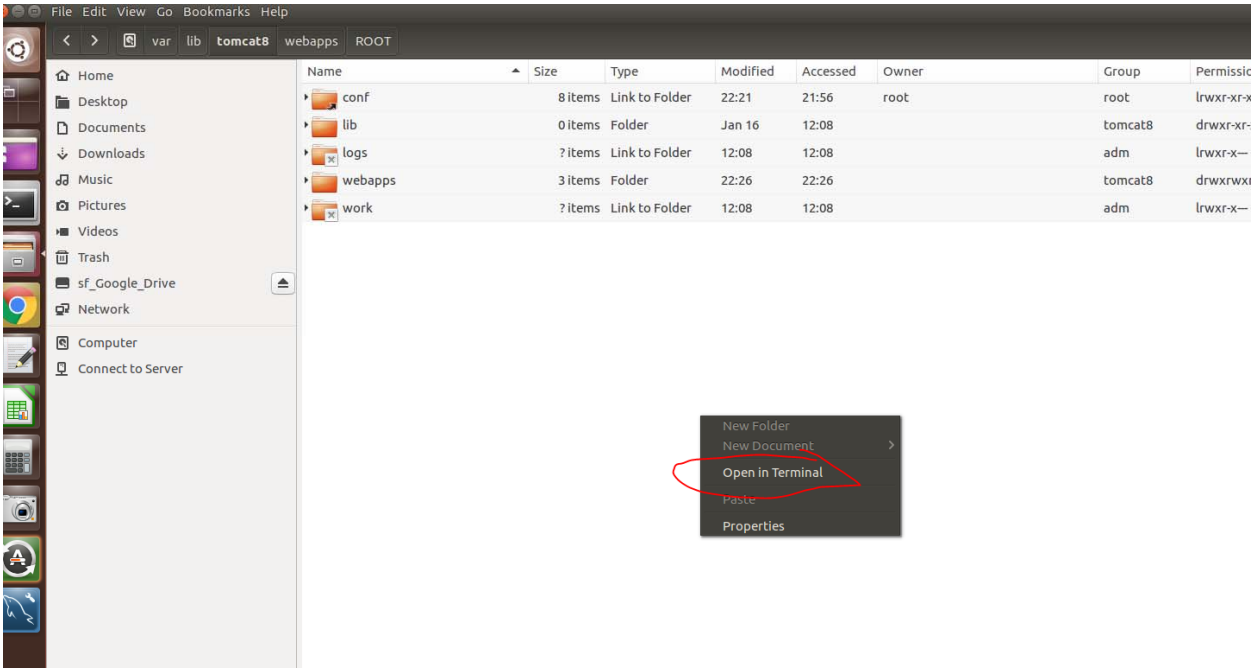

Num Lock Unlock
right click
Create Schema...
Refresh All


Num Lock Unlock

4. Deploy the Project Package WAR

a. Grant tomcat8 user (created from repo installation) necessary permissions

Go to /var/lib/tomcat8/ rightclick and Open in Terminal, then run the following commands




```
sudo chgrp -R tomcat8 webapps
sudo chmod g+rwx webapps
sudo chmod g+r webapps/*
```

```
iss-user@iss-vm:/var/lib/tomcat8$ sudo chgrp -R tomcat8 webapps
iss-user@iss-vm:/var/lib/tomcat8$ sudo chmod g+rwx webapps
iss-user@iss-vm:/var/lib/tomcat8$ sudo chmod g+r webapps/*
```

b. Copy Sdot.WAR into war /var/lib/tomcat8/webapps/ using the command

sudo cp /path/to/Sdot/War/File.war /var/lib/tomcat8/webapps/Sdot.war

(For my case I am copying from my google drive cloud)

```
iss-user@iss-vm:~$ sudo cp /media/sf_Google_Drive/Sdot.war /var/lib/tomcat8/weba
pps/Sdot.war
```

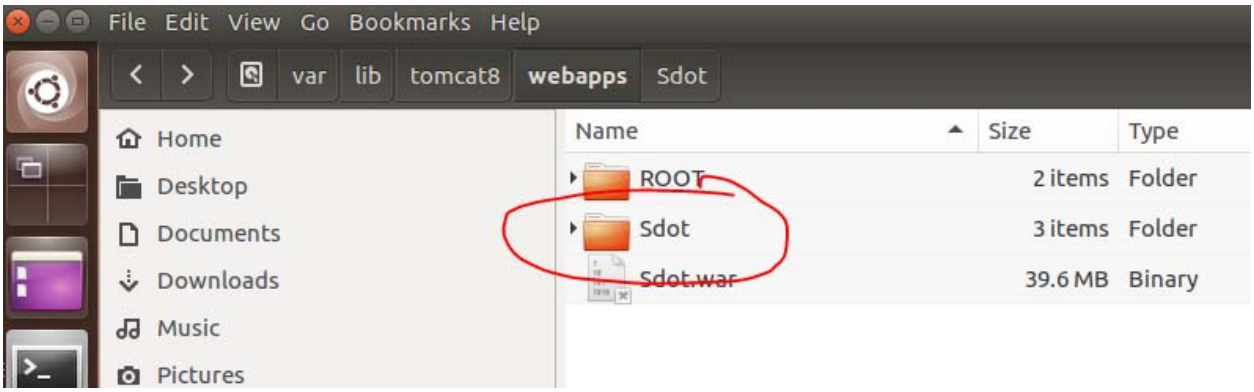
5. Start the Service

a. Run the command

sudo service tomcat8 start

```
iss-user@iss-vm:/var/lib/tomcat8$ sudo service tomcat8 start
```

Then verify If the war file was deployed in /var/lib/tomcat8/webapps



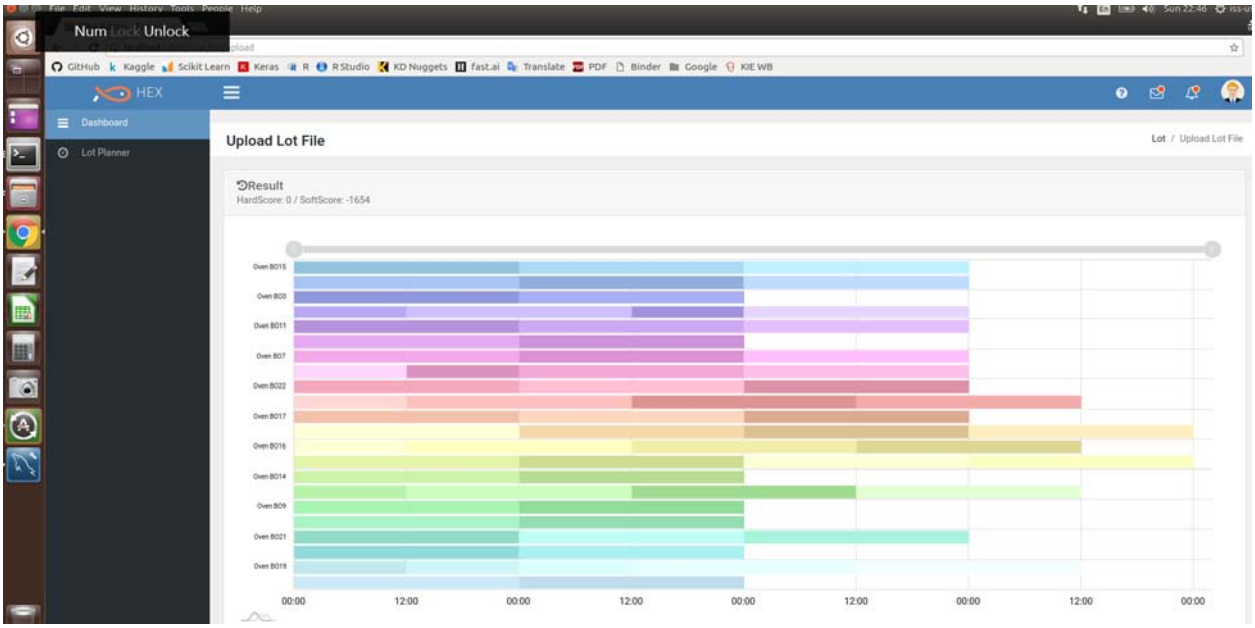
sudo service tomcat8 status

```
iss-user@iss-vm:/var/lib/tomcat8$ sudo service tomcat8 status
● tomcat8.service - LSB: Start Tomcat.
   Loaded: loaded (/etc/init.d/tomcat8; bad; vendor preset: enabled)
   Active: active (running) since Sun 2019-06-09 22:27:01 +08; 2min 12s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 12790 ExecStop=/etc/init.d/tomcat8 stop (code=exited, status=0/SUCCESS)
  Process: 12905 ExecStart=/etc/init.d/tomcat8 start (code=exited, status=0/SUCCESS)
    Tasks: 21
   Memory: 301.9M
      CPU: 13.077s
   CGroup: /system.slice/tomcat8.service
           └─12945 /usr/lib/jvm/default-java/bin/java -Djava.util.logging.config.file=/var/lib/tomcat8/conf/log

Jun 09 22:26:56 iss-vm systemd[1]: Starting LSB: Start Tomcat....
Jun 09 22:26:56 iss-vm tomcat8[12905]:  * Starting Tomcat servlet engine tomcat8
Jun 09 22:27:01 iss-vm tomcat8[12905]:    ...done.
Jun 09 22:27:01 iss-vm systemd[1]: Started LSB: Start Tomcat..
```

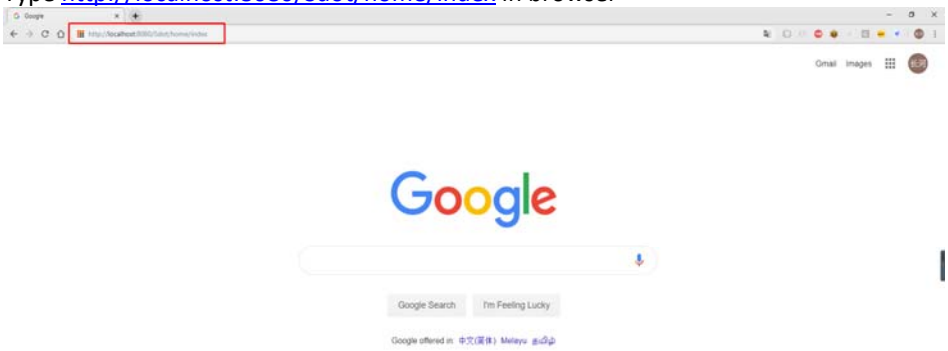
Control-C to exit the status thread.

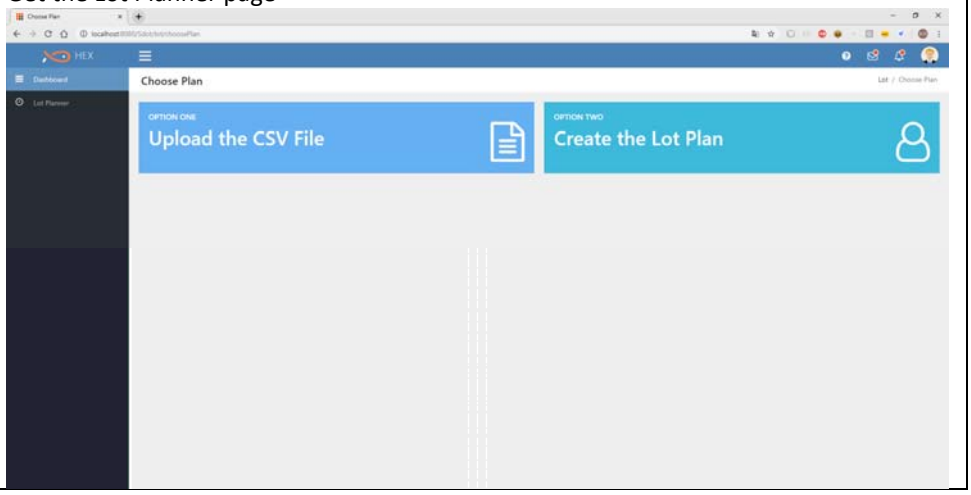
b. Wait for about 5 minutes, than go to this link using chrome: http://localhost:8080/Sdot/lot/choosePlan

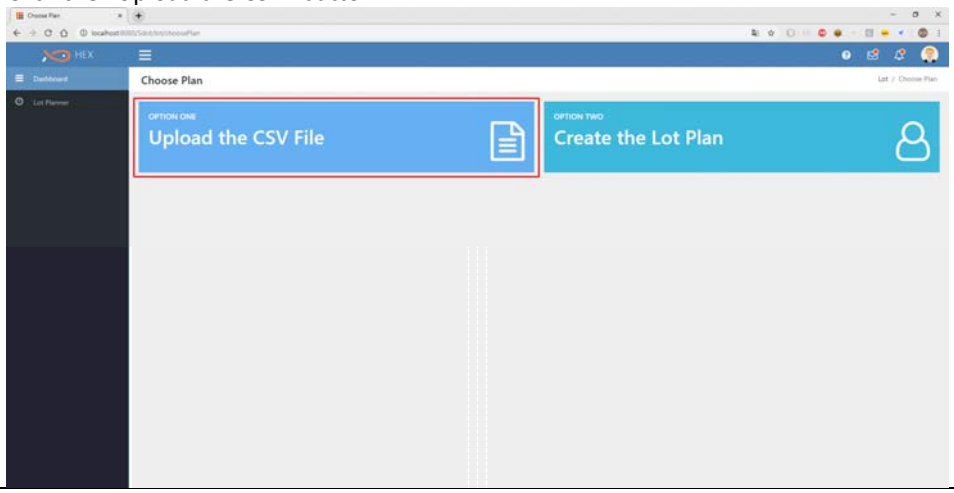
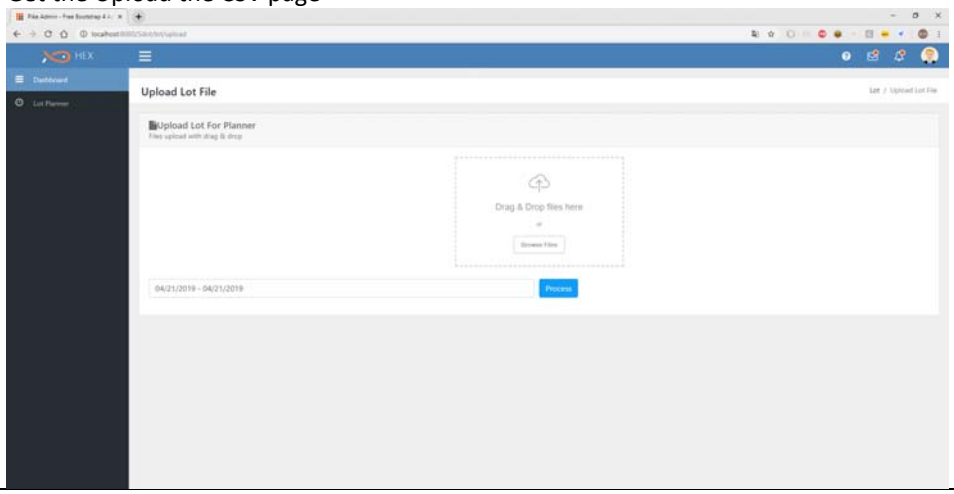


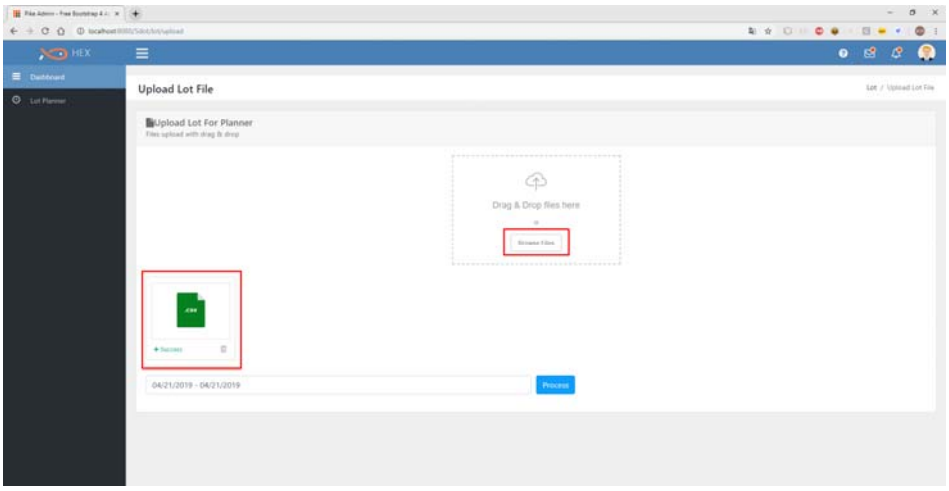
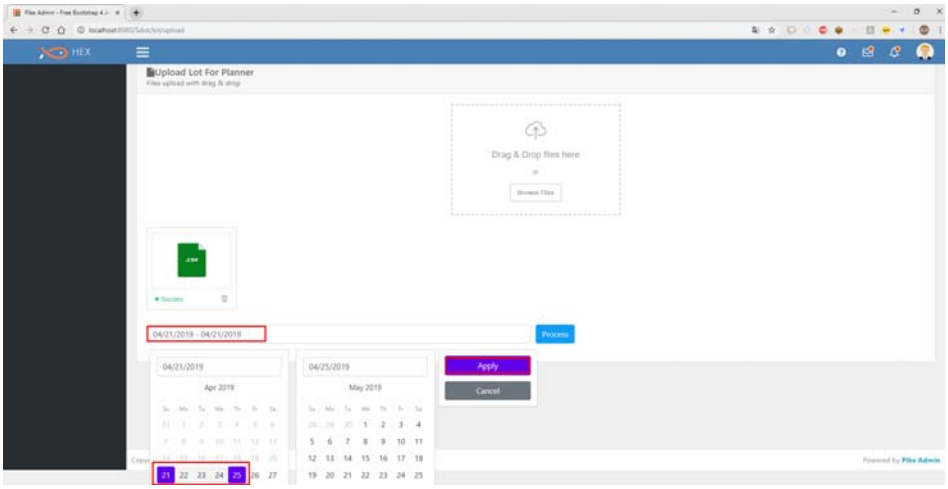
c. Everything else will be the same in windows application wise.

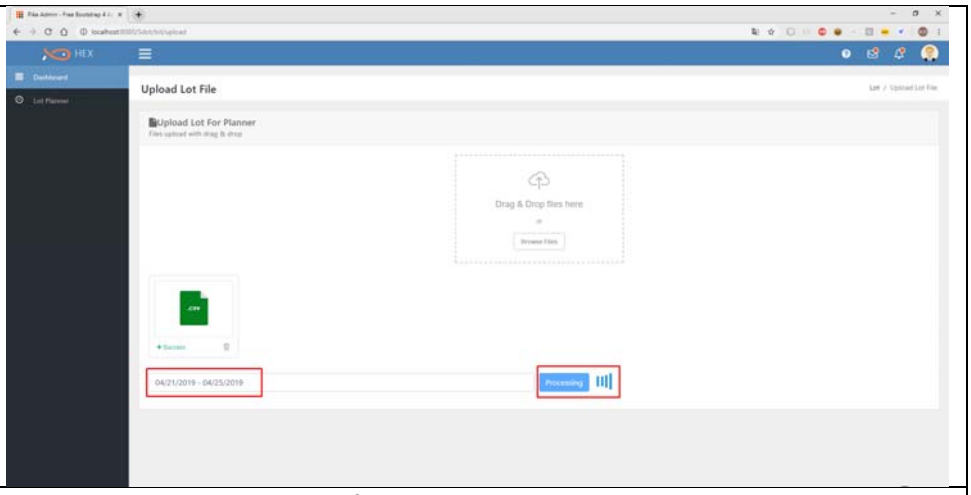
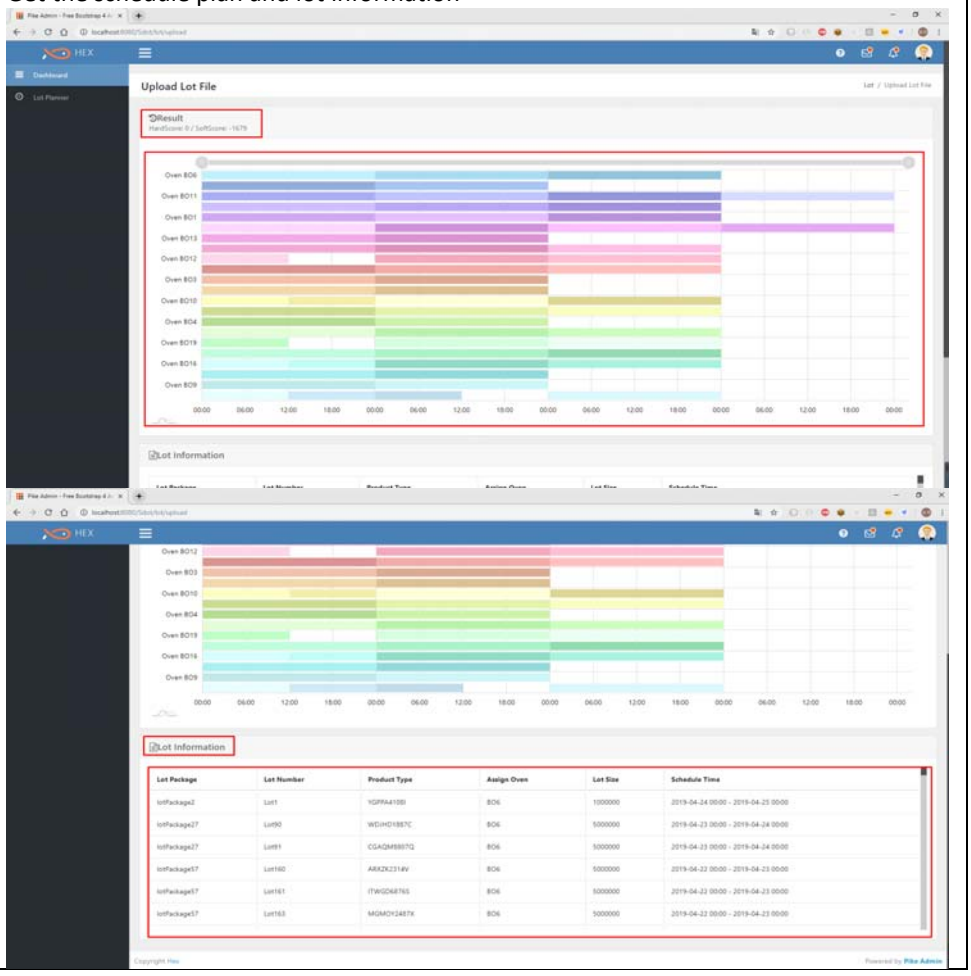
Test Scenario

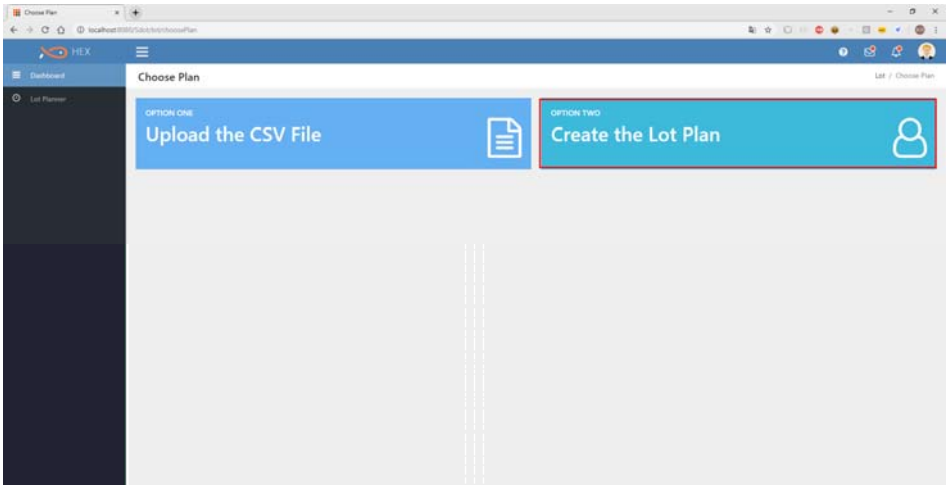
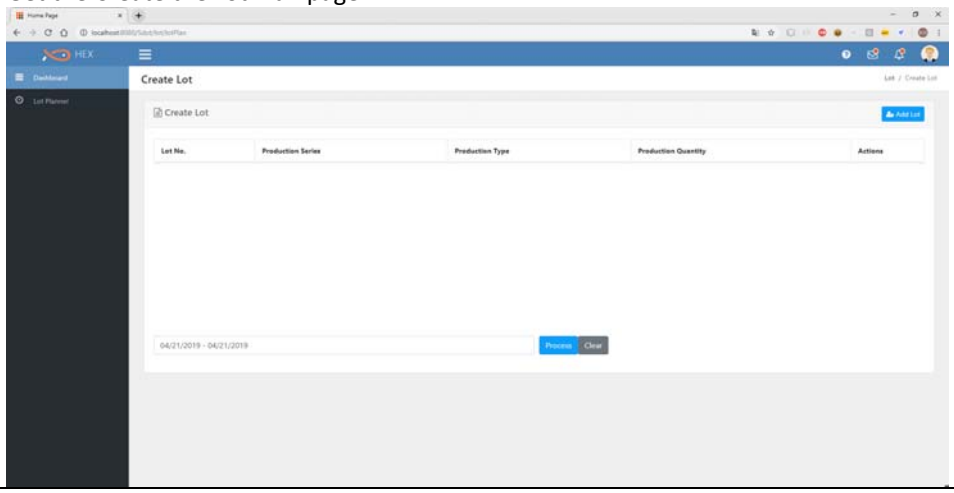
Test Case 1	Login the Home page
User Input	Type http://localhost:8080/Sdot/home/index in browser 
System out put	Get the home page of the system 

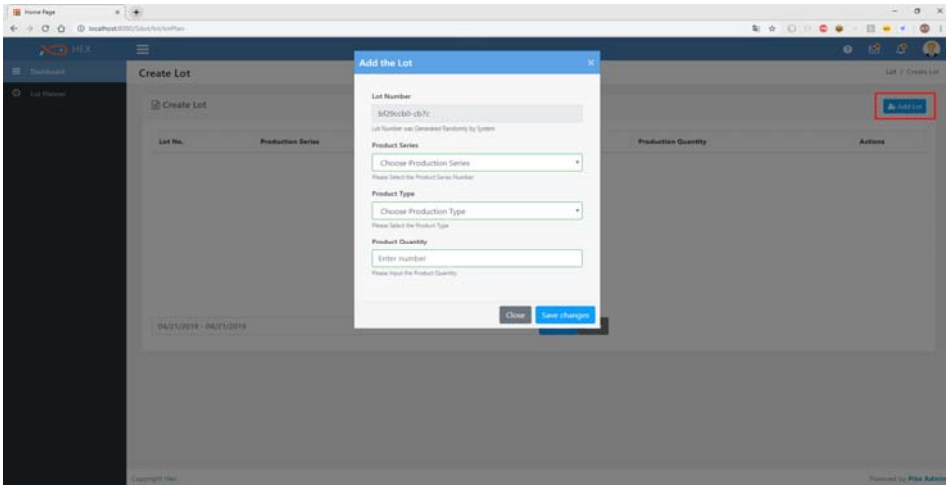
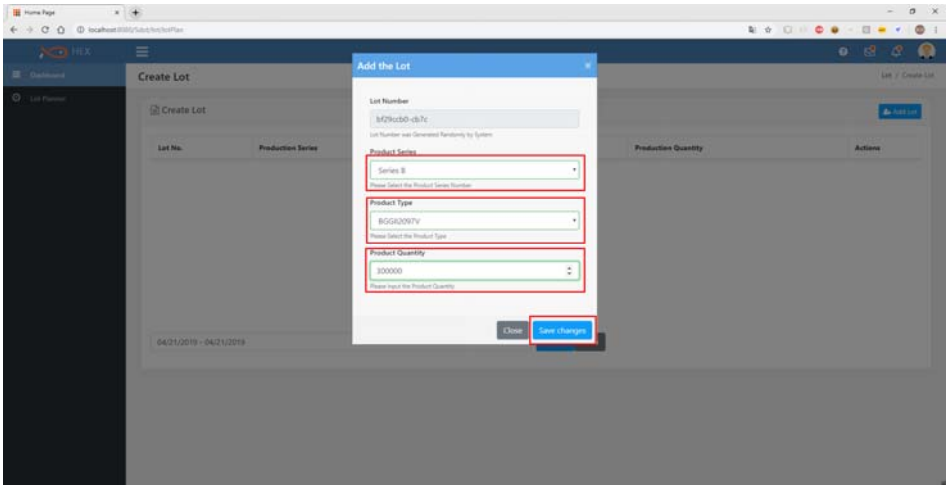
Test Case 2	Navigate to Lot Planner Page
User Input	Click the “Lot Planner” on the left side menu 
System out put	Get the Lot Planner page 

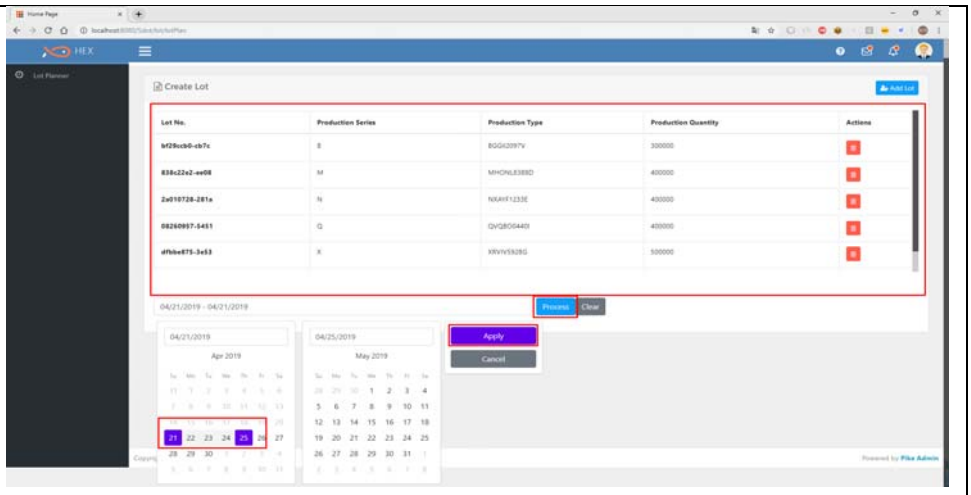
Test Case 3	Navigate to Upload CSV Page
User Input	Click the “Upload the CSV” button 
System out put	Get the Upload the CSV page 

Test Case 4	Upload Test csv file and schedule the lot plan
User Input	1. Drag the file or click “Browse files” to upload the csv file  2. Click the date picker and select plan date  3. Click the “Process” button and wait for result (one minute)

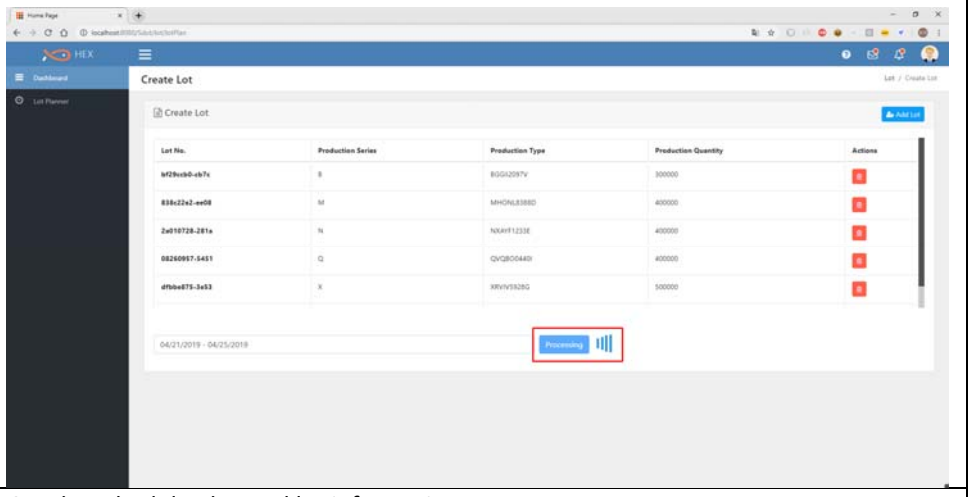
	
System out put	Get the schedule plan and lot information 

Test Case 5	Navigate to Create Lot Page
User Input	Click the “Create the Lot Plan” button 
System out put	Get the Create the Lot Plan page 

Test Case 6	Create Lot manually and and schedule the lot plan
User Input	1. Click “Add Lot” button  2. Fill in the lot information and click “Save Changes” button  3. Repeat step 2 and choose the plan date



4. Click “Process” button and wait for result (around one minute)



System out put

Get the schedule plan and lot information