

E BOARD

DESIGN DOCUMENT

Version – 3.0

Date – 2016/05/22

Team–ELECTRO BLITZ

PROJECT MEMBERS

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1. PREFACE:

The main aim of the project is to develop a basic Internet Whiteboard, which facilitates communication between employee of the consultancy (ConTech) and its customers. It helps them to work together, despite being far away. This is revised version of the Design document(version-3.0).

In the remainder of the document, all the modules of the internet whiteboard are described in detail and the test plan of each module has been made.

1.1 LOG MODIFICATONS :

Release version 3.0 on 2016/05/22

- Made changes to the design document version 2.0
- Added tests related to user requirements.
- Added test plan for unlimited number of users (section 3.4.19), automatic play back of modifications(section 3.4.20), reload with click (section 3.4.21), replication of events (section 3.4.22), Reconfigurable IP(section 3.4.23).
- Added test plan for Admin privileges (section 4.4.1), Employee privileges (section 4.4.2), Customer privileges (section 4.4.3), encryption of web server (section 4.4.4), validity period of an account (section 4.4.5), Acknowledgement via email(section 4.4.6), Encryption of MySQL server(section 4.4.7)
- Added screenshots for section 4.4.10
- Added additional test plans for list of modifications (section 4.4.10) in the back end module.

Release version 2.0 on 2016/05/15

- Made changes to TEST_FE1
- Cleared the confusion between TEST_BE3 and TEST_BE4
- Detailed explanation is given in the operation part for each test.
- Figures are kept in the expected output.

Release version 1.0 on 2016/05/01

- Initial release

2. GLOSSARY AND ABBREVIATIONS

ConTech	Consulting firm (Costumer)
DB	Database
GUI	Graphical User Interface
IP	Internet Protocol
MySQL	Open-Source relational database management system
Python	Programming Language
PDF	Portable document format
SHA1	Cryptographic Hash Function
Timestamp	Indicates Date and Time in a standard format

3. FRONT END

3.1. TOOL MANAGEMENT

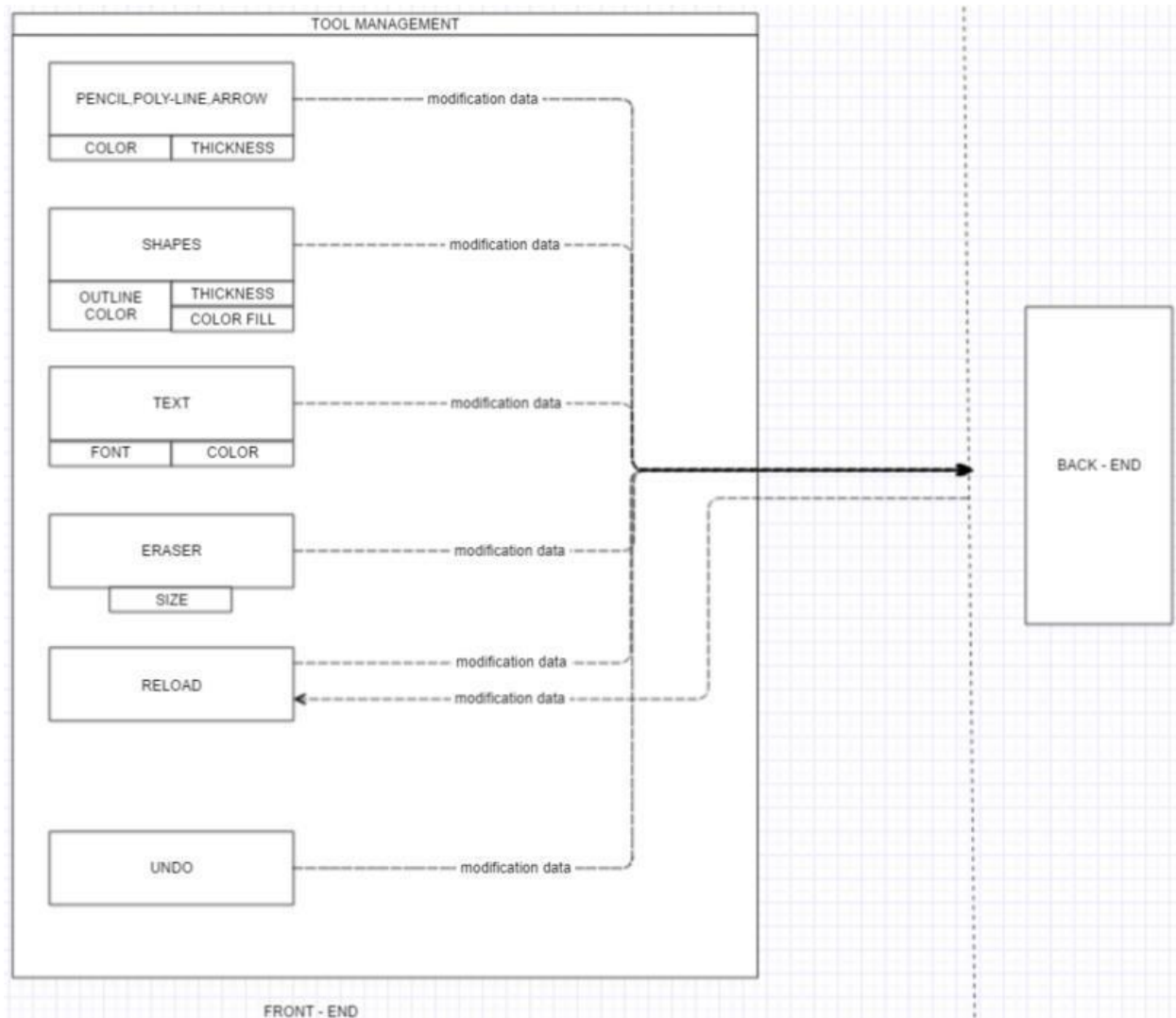


Figure 1: Front end of Tool management module

The Tool Management sub-module deals with all the tools available for each sheet of the whiteboard. Figure 1 shows the tools available and their attributes. Pencil, Polyline, Arrow are characterized by their color and thickness. Shapes include rectangle, square, oval and circle. These are characterized by their outline color, fill color and thickness. Text Box allows the user to type text. Color and font of the text can be chosen. Eraser is available in different sizes. Reload option clears all the sheets and a user will be able to move sequentially through the modifications by clicking the mouse. For each click, the next modification is added to the corresponding sheet.

The product must enable the moderator to lock the White Board sheets at any time during operation. Modifications done on the sheet using these tools are sent to the database. When reload option is executed, modification data is fetched from the database and executed. Modification data always includes a timestamp, which indicates the time and date, at which modification is done and the name of the user, who is responsible for the modification, as well as the type of the user of the Whiteboard (Admin, Employee or Customer).

3.2. USER MANAGEMENT

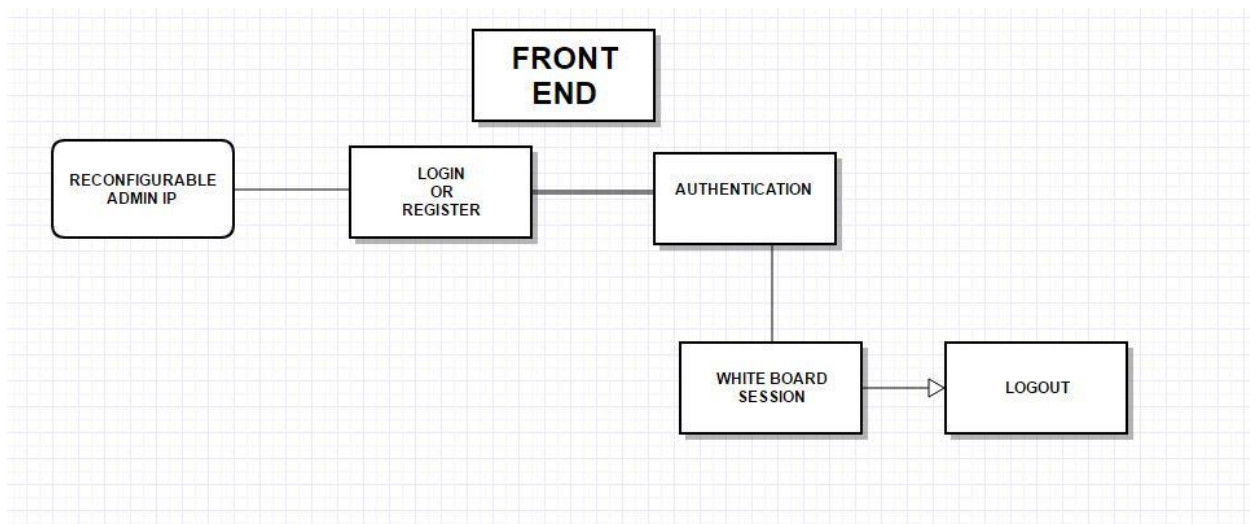


Figure 2: Front end of User management module

The User management sub-module includes the front end as well as the back end part. The front end of the module is described by the block diagram in figure 2. It includes:

Reconfigurable admin server: Upon start of the application, the user must choose the IP address of the admin. This is the admin server throughout the whiteboard session.

Login or Register: The user can login into his account or create an account of his own using the register option as Employee or Customer.

Admin logs in with username as Admin and password as Admin.

Authentication: The user ID and password entered are compared with the contents of the Database (DB). The user is authenticated if the user ID and password matches with that stored in the DB. The password is hashed using SHA1 algorithm and is stored in database.

Whiteboard: Specific users have additional features based on their designation (admin, employee or customer). Undo and replay are the features exclusively for the moderator, i.e., the first person to start the Whiteboard session.

3.3. SHEET MANAGEMENT

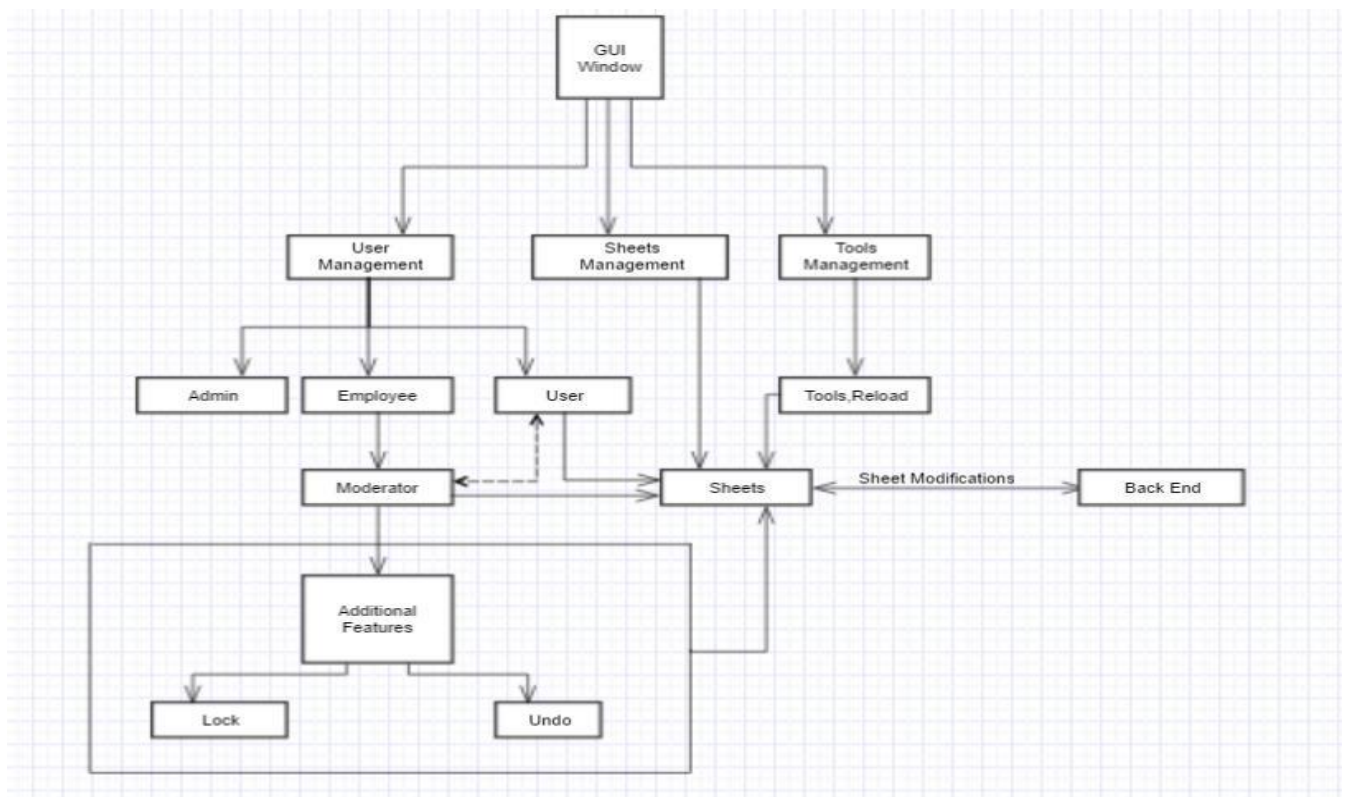


Figure 3: Front end of sheet management

This design tells us about the sheet management sub-module in the Front End module. It is linked with the user management, tool management and database at the Back End.

Figure 3 describes the contents of sheet management module. It contains 'n' number of sheets and tells us about how sheets are being organized. Tools for the sheets are loaded with the help of tool management module. Initially, Moderator starts the white board session, FE21 has a special privilege of locking the sheets and can perform undo operations. All modifications performed on sheets are stored in the database. When user selects the reload, all the sheets are cleared and data obtained from the modification table is executed.

3.4. UNIT TEST PLAN

The frontend module can be assessed by performing the following tests.

3.4.1

Test: TEST_FE1

Purpose: Testing free drawing tool (pencil).

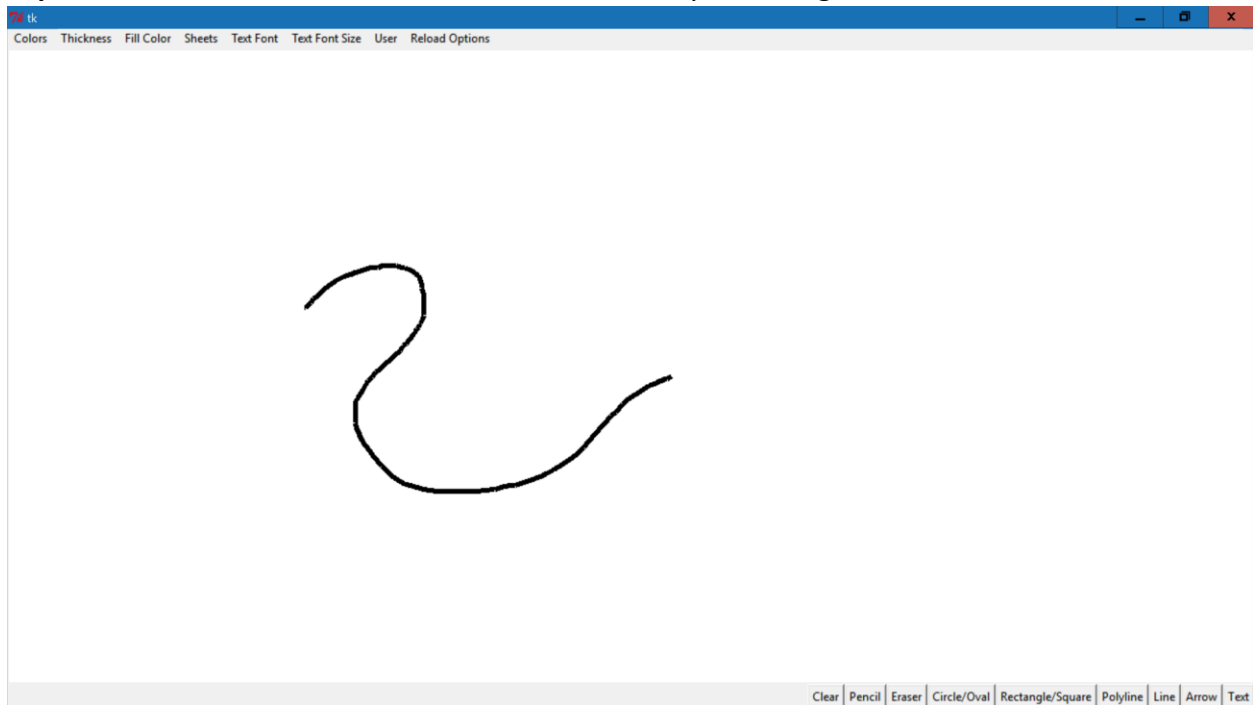
Requirements: REQ_USR19

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose pencil tool by clicking on it from the tool menu.
- Draw on the canvas by dragging mouse.

Expected result: Pencil tool draws whichever the way user drags the mouse.



Result:

Comment:

3.4.2

Test: TEST_FE2

Purpose: Testing Eraser.

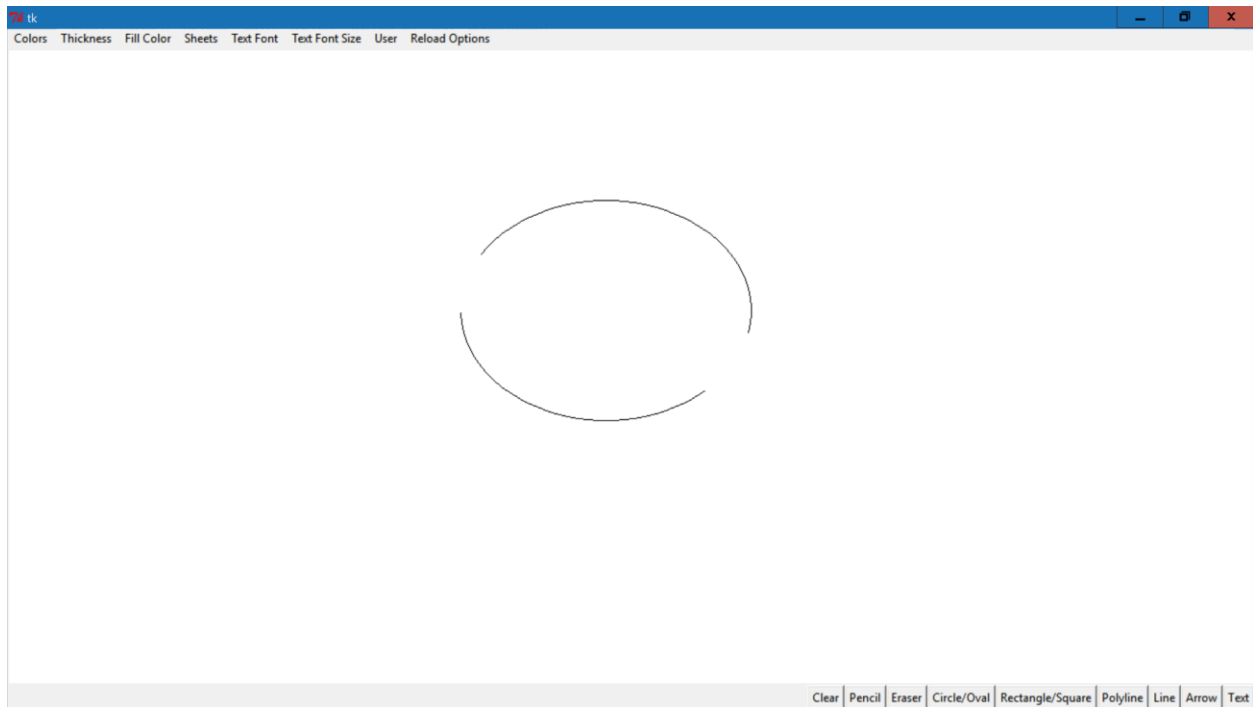
Requirements: REQ_USR18

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose any tool from tool menu by clicking on the respective tool.
- Draw on the canvas after selecting any tool by dragging the mouse.
- Select eraser by clicking on icon eraser from the tool menu.
- Drag the mouse on the canvas to the respective position where erasing has to be done.

Expected result: The modifications done on canvas must be erased.



Result:

Comment:

3.4.3

Test: TEST_FE3

Purpose: Testing Line operation.

Requirements: REQ_USR10

Environment:. The server is setup and the whiteboard application is run

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose line tool by clicking on it from the tool menu.
- Click and Drag the mouse on the canvas to the respective position where the line has to be drawn.

Expected result: A line is drawn whichever the way user drags the mouse.

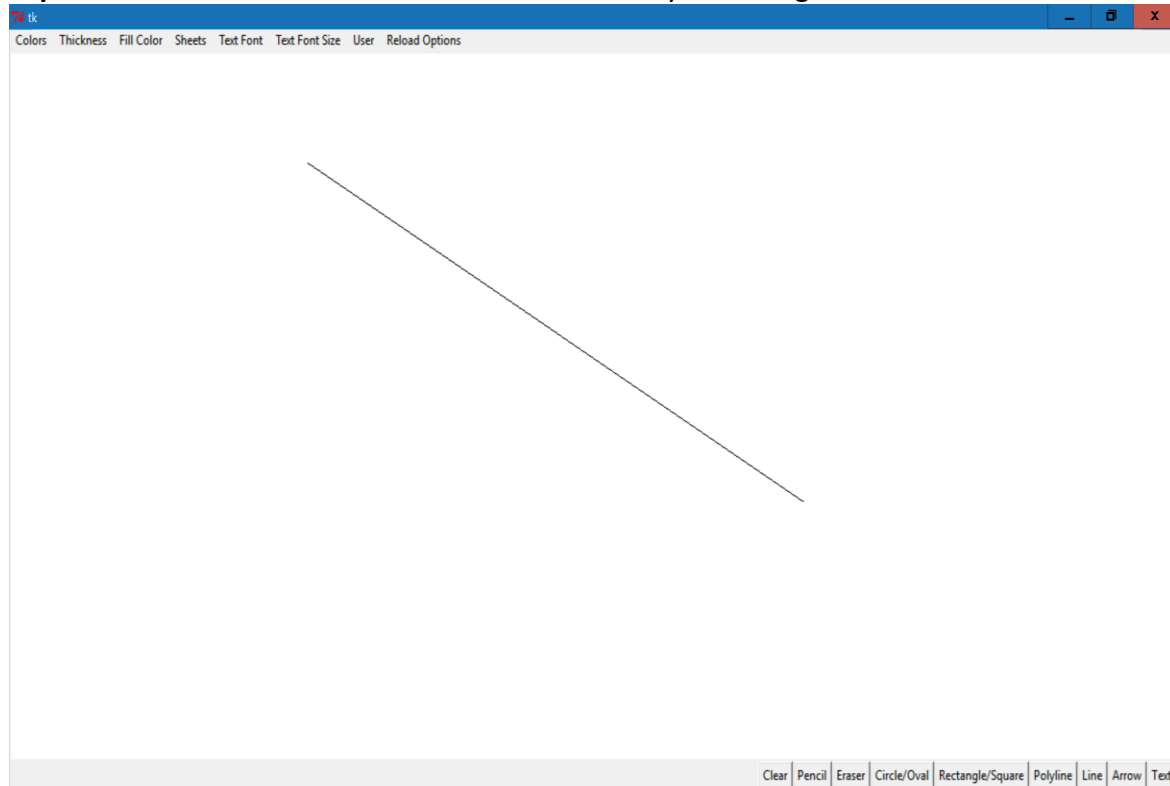


Figure 4: Testing of line tool

Result:

Comment:

3.4.4

Test: TEST_FE4

Purpose: To test if polyline is working in the whiteboard.

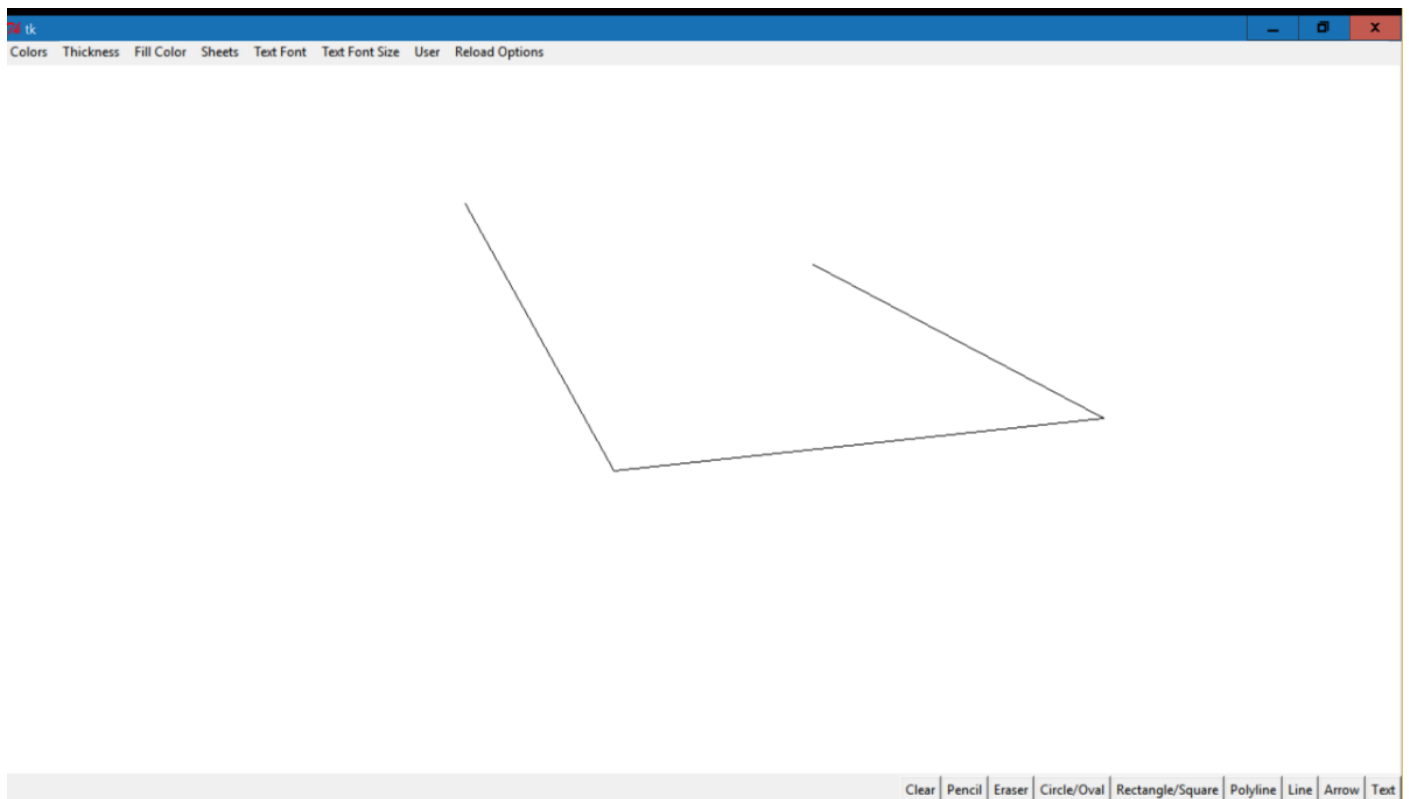
Requirements: REQ_USR16

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose polyline tool by clicking on it from the tool menu.
- Click on the canvas where u want the polyline to start.
- Drag the cursor till where you want to end it.

Expected Results: A polyline is drawn whichever the way user points the cursor of the mouse.



Result:

Comment:

3.4.5

Test: TEST_FE5

Purpose: To test if circle/oval is working in the whiteboard.

Requirements: REQ_USR12

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose circle/oval tool by clicking on it from the tool menu.
- Click on the canvas where u want the circle/oval to start.
- Drag the cricle/oval till where you want to end it.

Expected Results : A Circle/Oval of selected thickness and color shall appear.

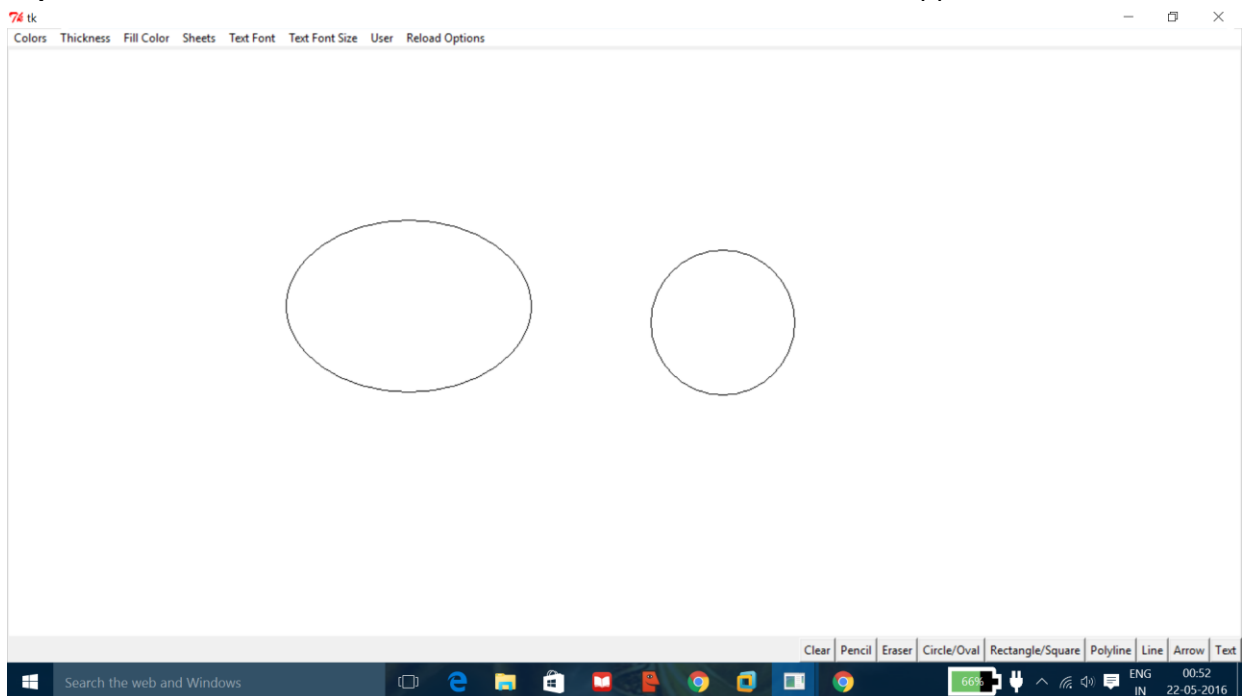


Figure 5: Testing of Circle/Oval tool

3.4.6

Test: TEST_FE6

Purpose: Testing Rectangle/Square.

Requirements: REQ_USR14

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose Rectangle/Square tool by clicking on it from the tool menu.
- Left click on the mouse and drag diagonally to get a Rectangle/Square of desired dimensions.

Expected result: A Rectangle/Square of selected thickness and color shall appear.

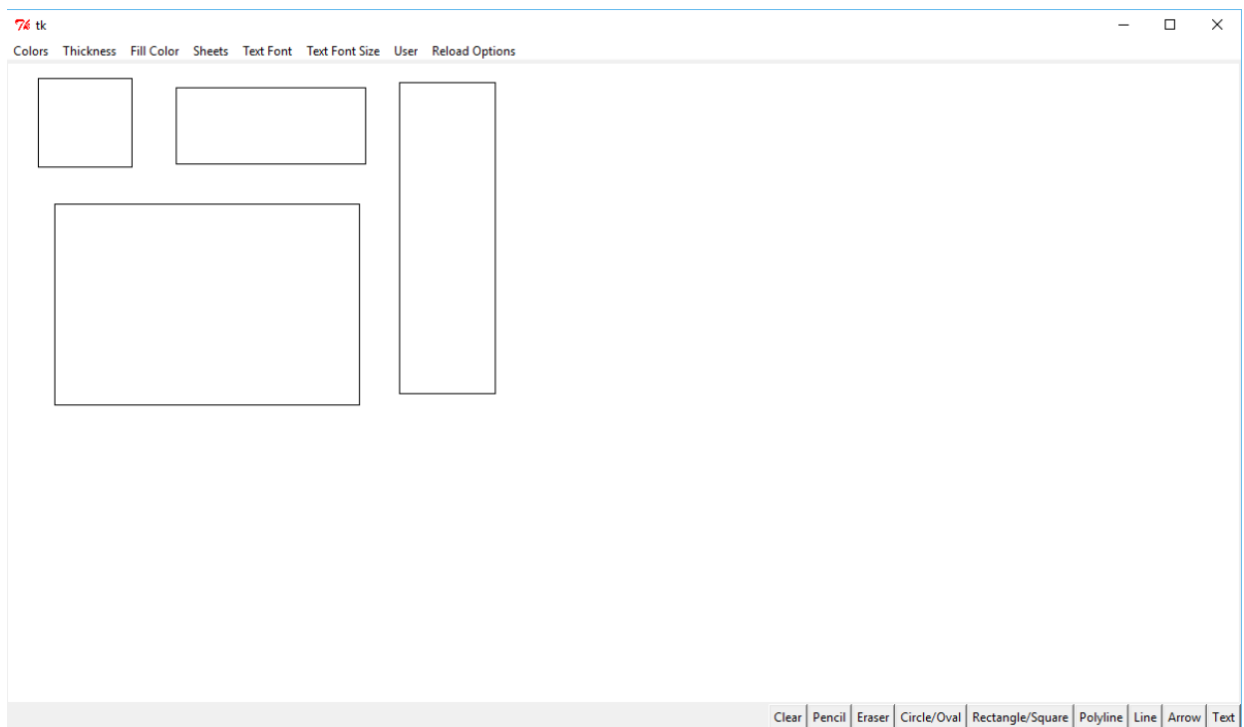


Figure 6: Testing of Rectangle/square tool

Result:

Comment:

3.4.7

Test: TEST_FE8

Purpose: Testing text.

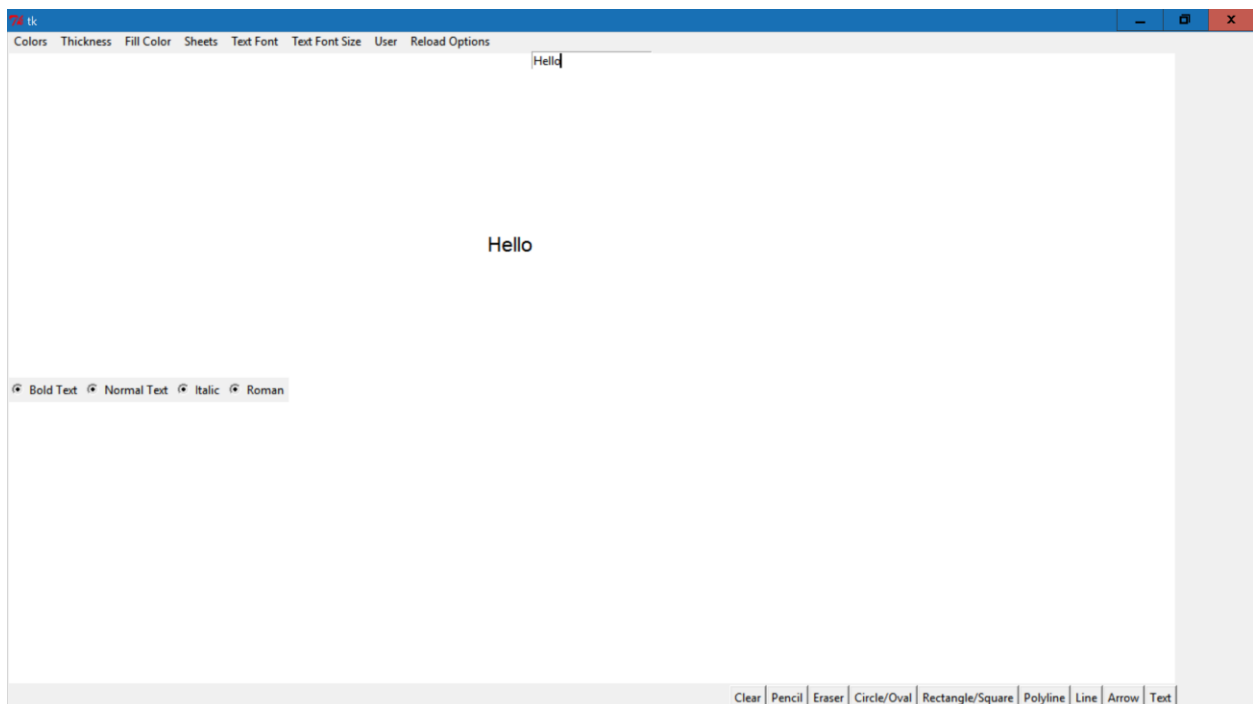
Requirements: REQ_USR17

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose text tool by clicking on it from the tool menu.
- Type the text in the text box which appears after clicking on text.
- Click on the canvas where you wish the text to be placed.
- For the text input widget to disappear from text box, right click on the text box.

Expected result: The text is written on the canvas.



Result:

Comment:

3.4.8

Test: TEST_FE9

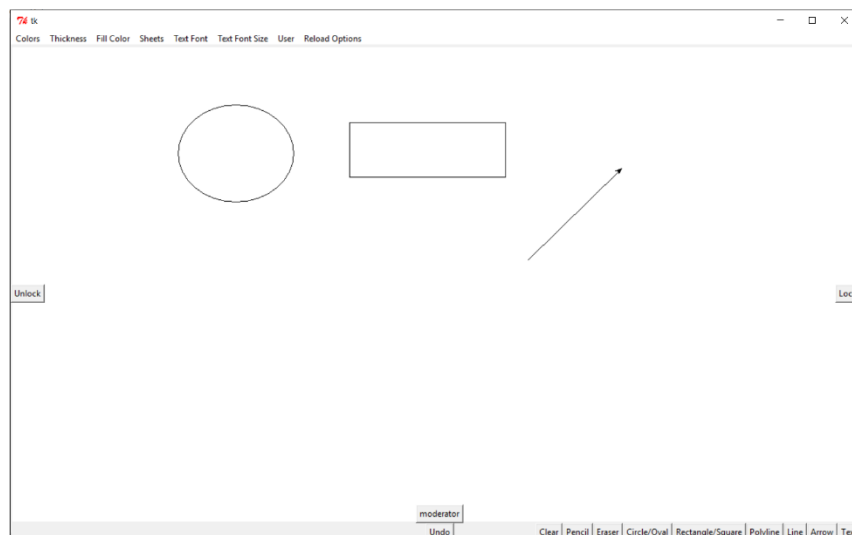
Purpose: Testing UNDO operation.

Requirements: REQ_USR29

Environment: The server is setup and the whiteboard application is run.

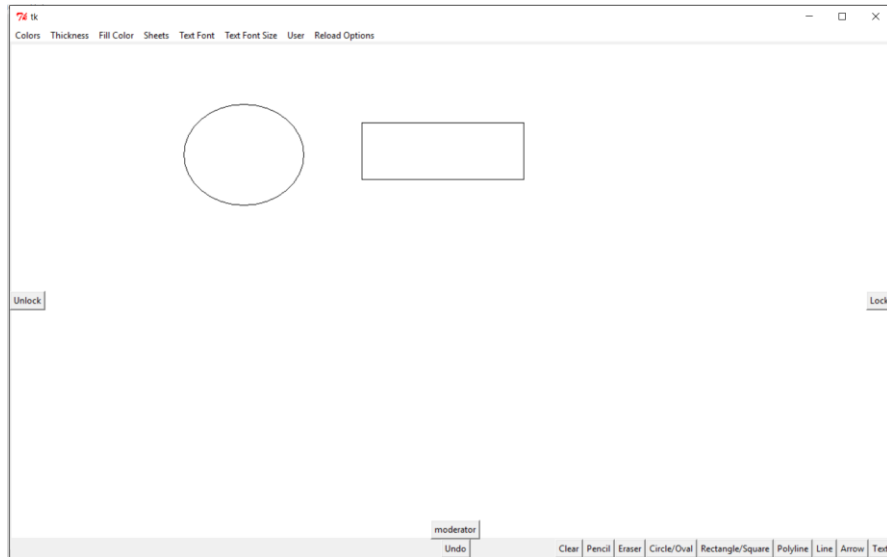
Operation:

- Enter the login page and give ADMIN credentials.
- Click on “CREATE EMPLOYEE” button and register a new employee.
- Go to LOGIN PAGE and enter the employee credentials received via E-mail.
- EMPLOYEE PAGE is displayed. Click on “START SESSION” button to enter a new whiteboard session.
- One who starts the session becomes the moderator, where UNDO option is available only to moderator. Moderator role can be reassigned to any user.
- Draw basic shapes on the sheet.
- Click on “UNDO” button.



Expected Result:

- Last drawn event is removed from the sheet.



3.4.9

Test: TEST_FE10

Purpose: Testing thickness.

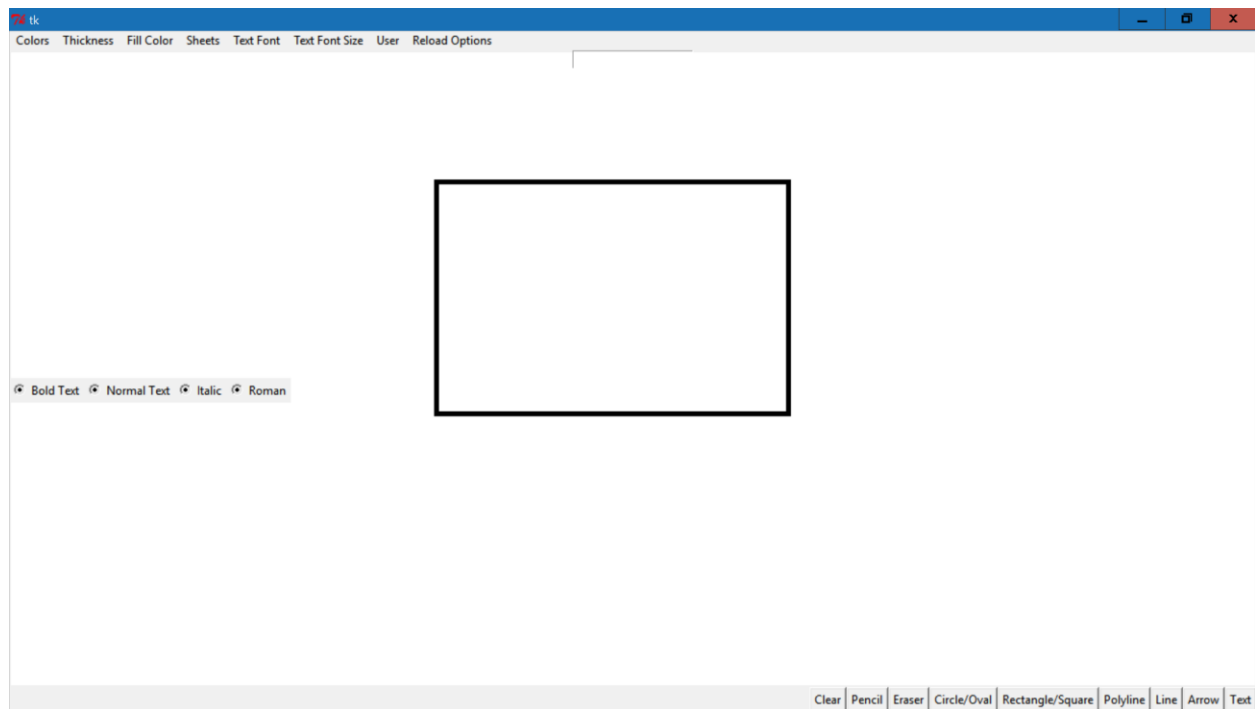
Requirements: REQ_USR20

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose any tool from the tool menu from circle, rectangle, pencil, line, polyline, arrow and text by clicking on the respective tool.
- Then, On the menu bar, select thickness by clicking on it and choose any thickness by clicking on the available thickness on display.
- Draw on the canvas.

Expected result: The tool of the selected thickness is drawn on the canvas.



Result:

Comment:

3.4.10

Test: TEST_FE11

Purpose: Testing color.

Requirements: REQ_USR21

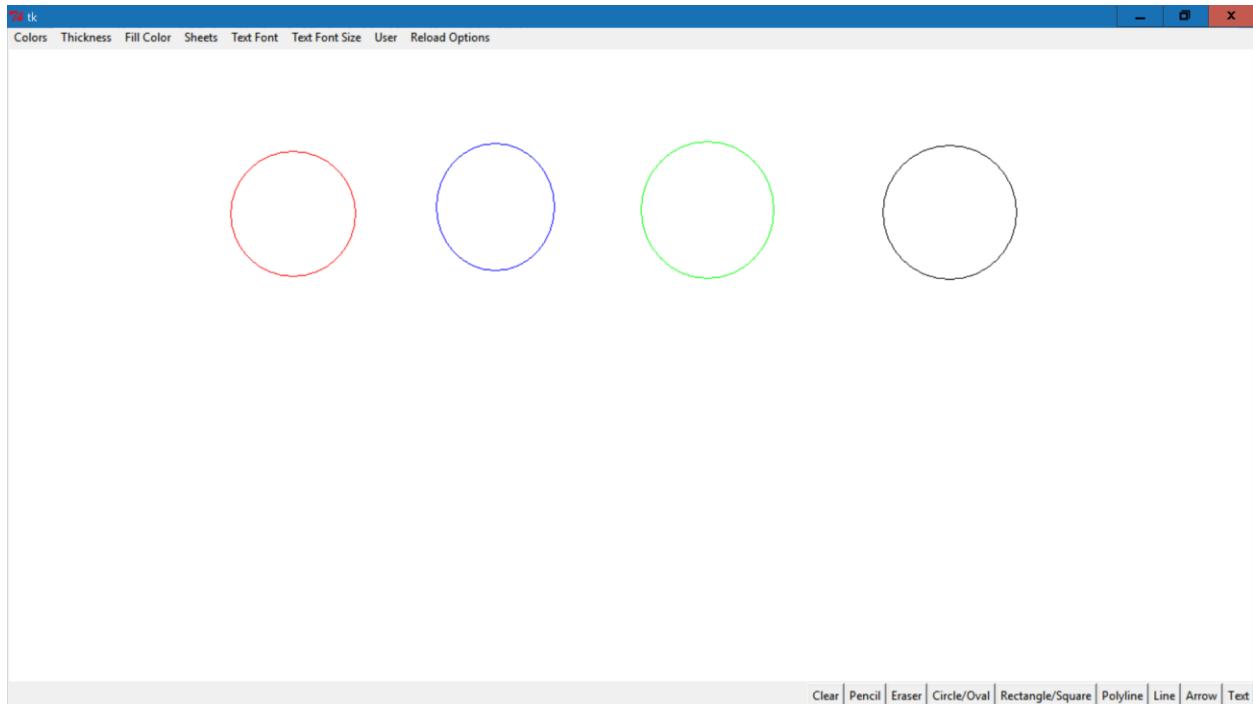
Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.

- Choose any tool from the tool menu from circle, rectangle, pencil, line, polyline, arrow and text by clicking on the respective tool.
- Then, On the menu bar, select Color by clicking on it and choose any color by clicking on the available colors on display.
- Draw on the canvas.

Expected result: The tool of the selected color is drawn on the canvas .For a Rectangle and a circle, outline color is drawn on canvas.



Result:

Comment:

3.4.11

Test: TEST_FE12

Purpose: Testing Color Fill.

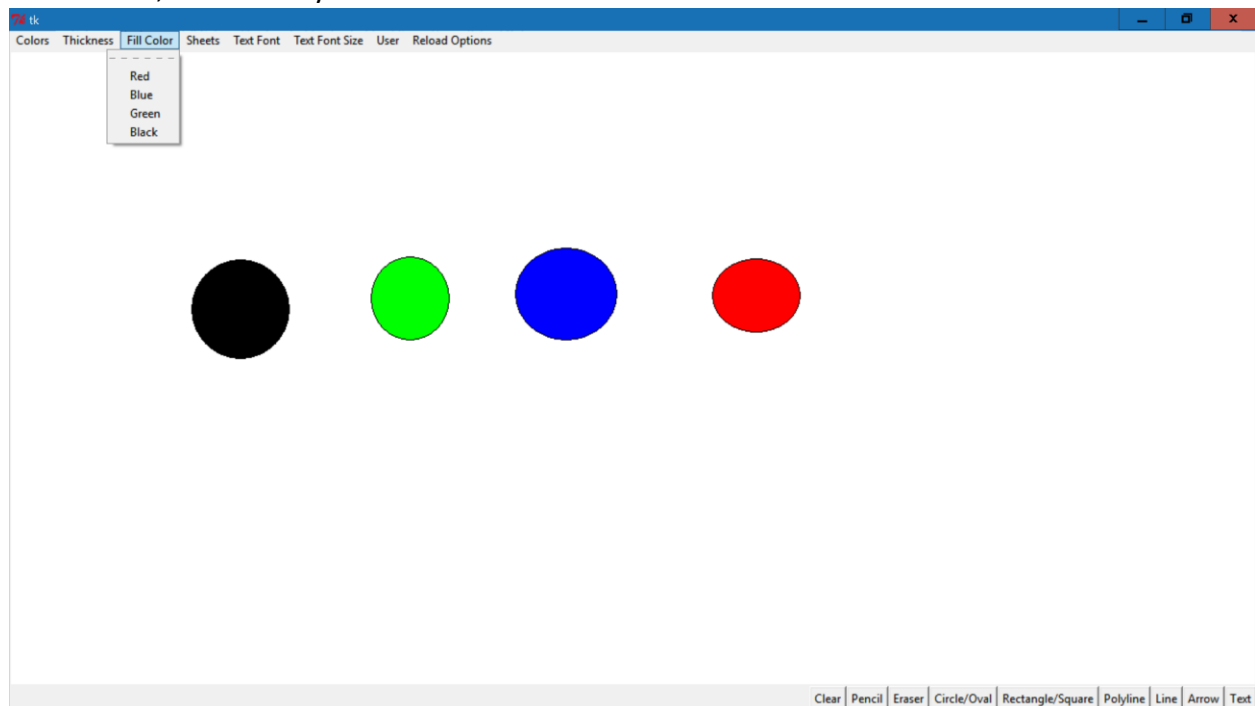
Requirements: REQ_USR22

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose any tool from circle/oval, rectangle/square by clicking on the respective tool.
- Then, On the menu bar, select Color Fill by clicking on it and choose any color by clicking on the available colors on display.
- Draw on the canvas by dragging the mouse of the desired dimensions.

Expected result: The tool of the selected Color Fill is drawn on the canvas .For a Rectangle and a circle, it is filled by selected color fill.



Result:

Comment:

3.4.12

Test: TEST_FE13

Purpose: To test Sheets selection from the menu.

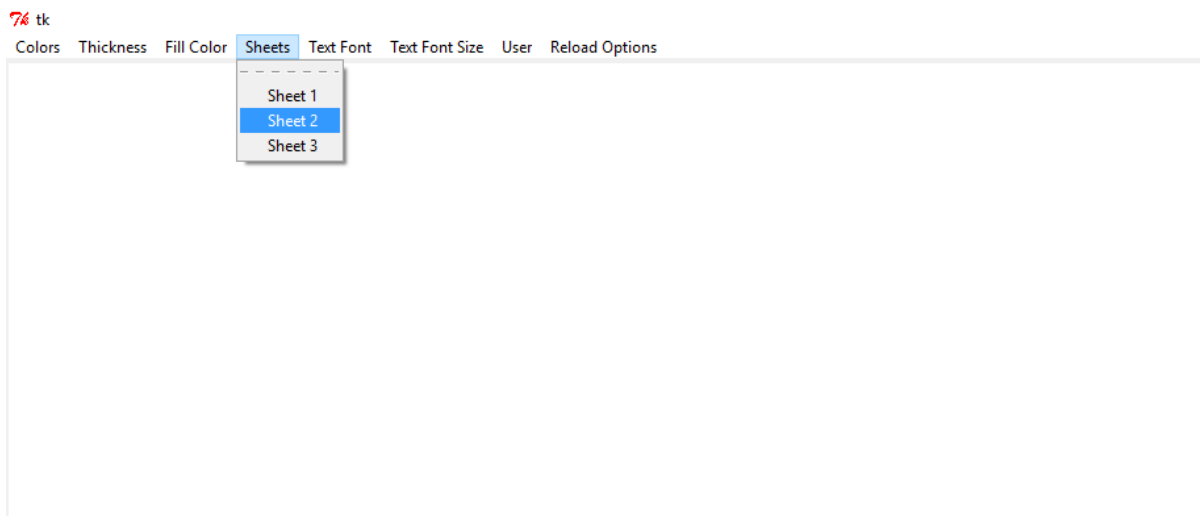
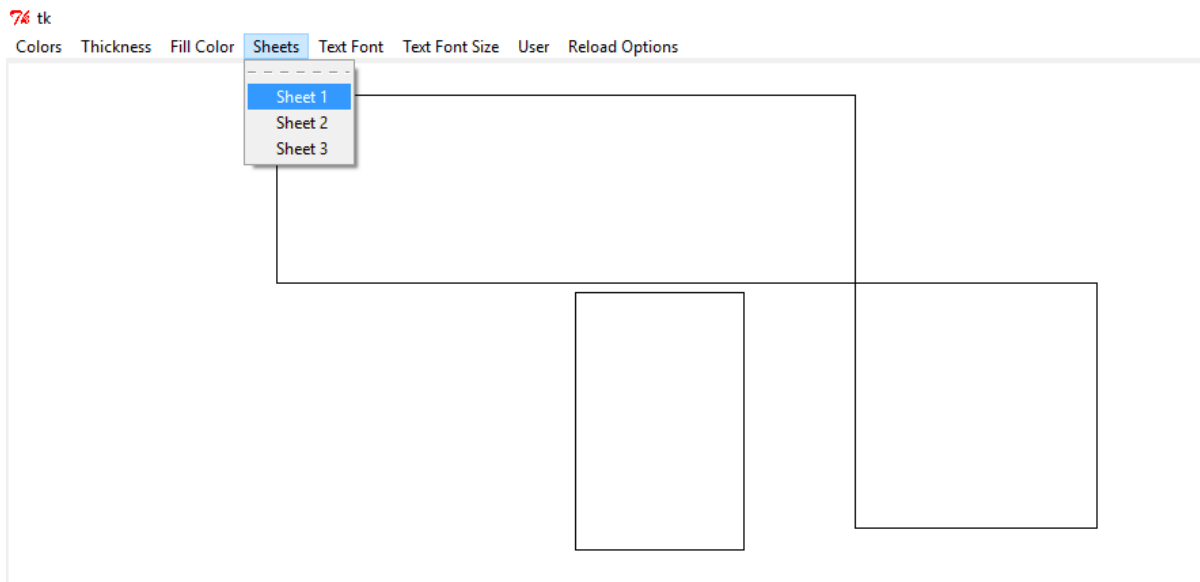
Requirements: REQ_USR8

Environment: The server is setup and the whiteboard application is run

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- We can select one of the three sheets available from the menu.

Expected result: Sheet changes shall be observed.



Result:

Comment:

3.4.13

Test: TEST_FE14

Purpose: Testing Font Size.

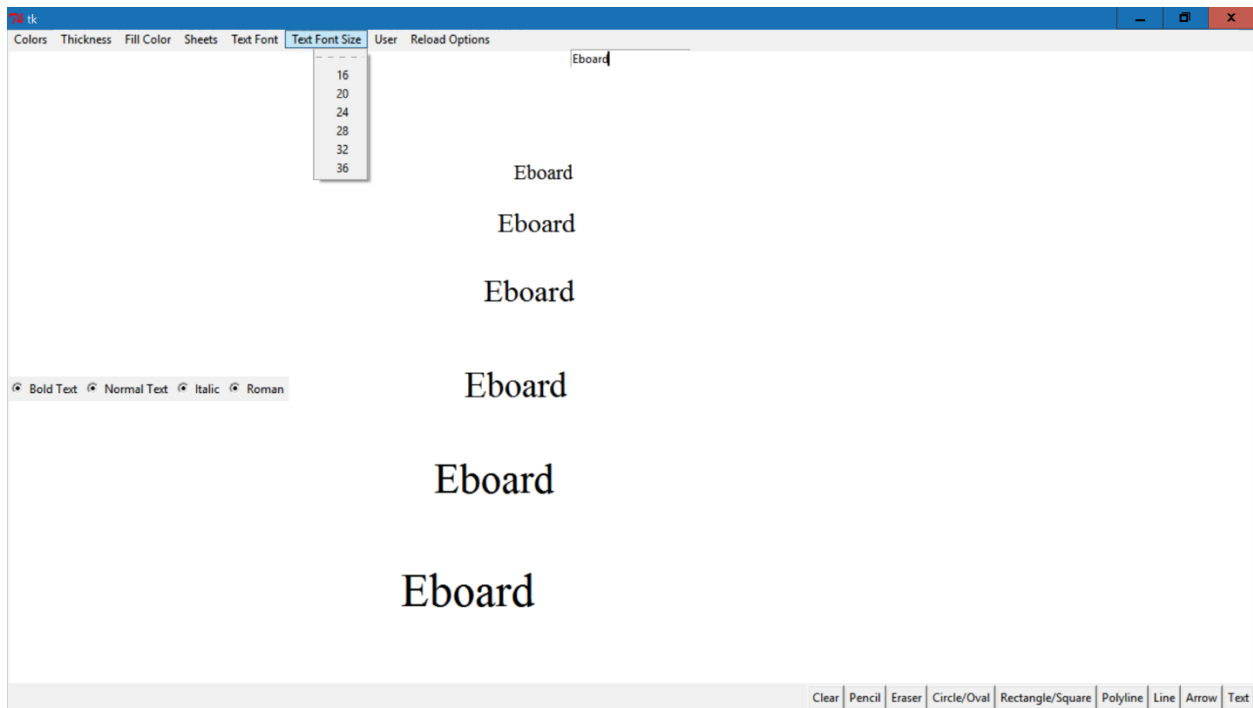
Requirements: REQ_USR23

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose text tool by clicking on it from the tool menu.
- Type the text in the text box which appears after clicking on text.
- Then, On the menu bar, select Font size by clicking on it and choose any size by clicking on the available font sizes on display.
- Click on the canvas where you wish the text to be placed.

Expected result: The text of the selected Font size is written on the canvas.



Result:

Comment:

3.4.14

Test: TEST_FE15

Purpose: Testing Font style.

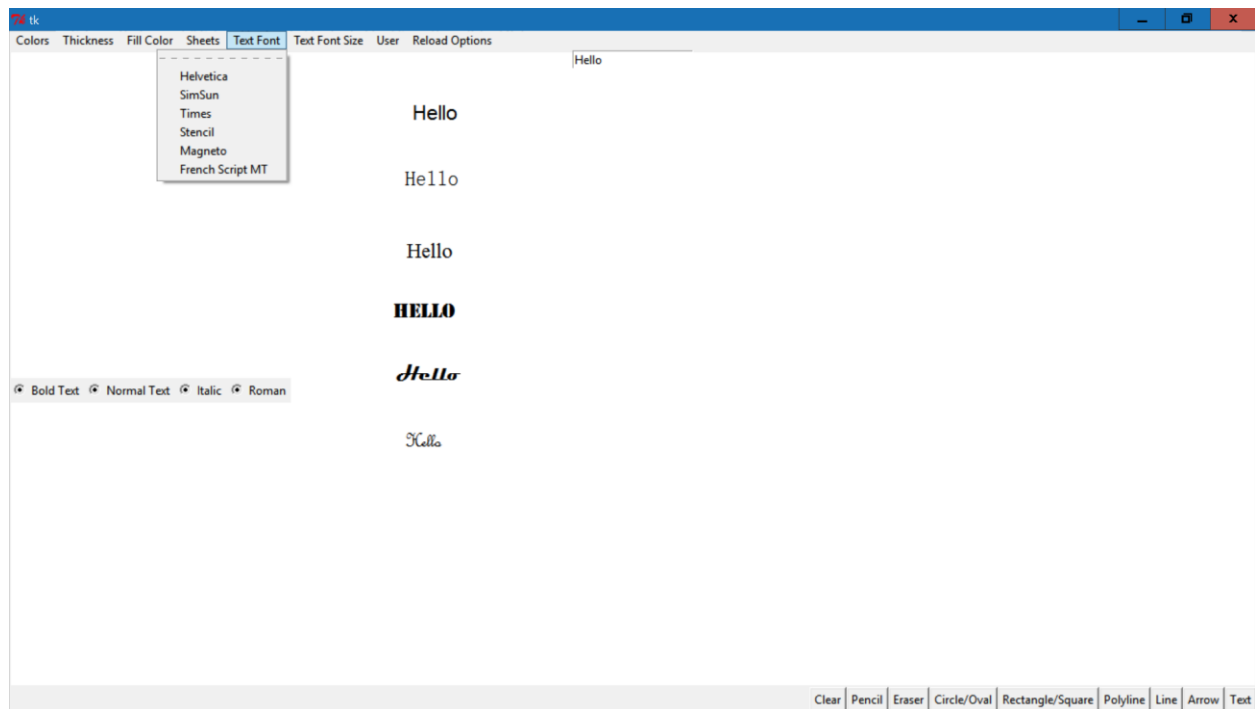
Requirements: REQ_USR24

Environment: The server is setup and the whiteboard application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose text tool by clicking on it from the tool menu.
- Type the text in the text box which appears after clicking on text.
- Then, On the menu bar, select Text font by clicking on it and choose any style by clicking on the available text fonts on display.
- Click on the canvas where you wish the text to be placed.

Expected result: The text of the selected Font style is written on



Result:

Comment:

3.4.15

Test: TEST_FE16

Purpose: To test Bold and Italic functionality.

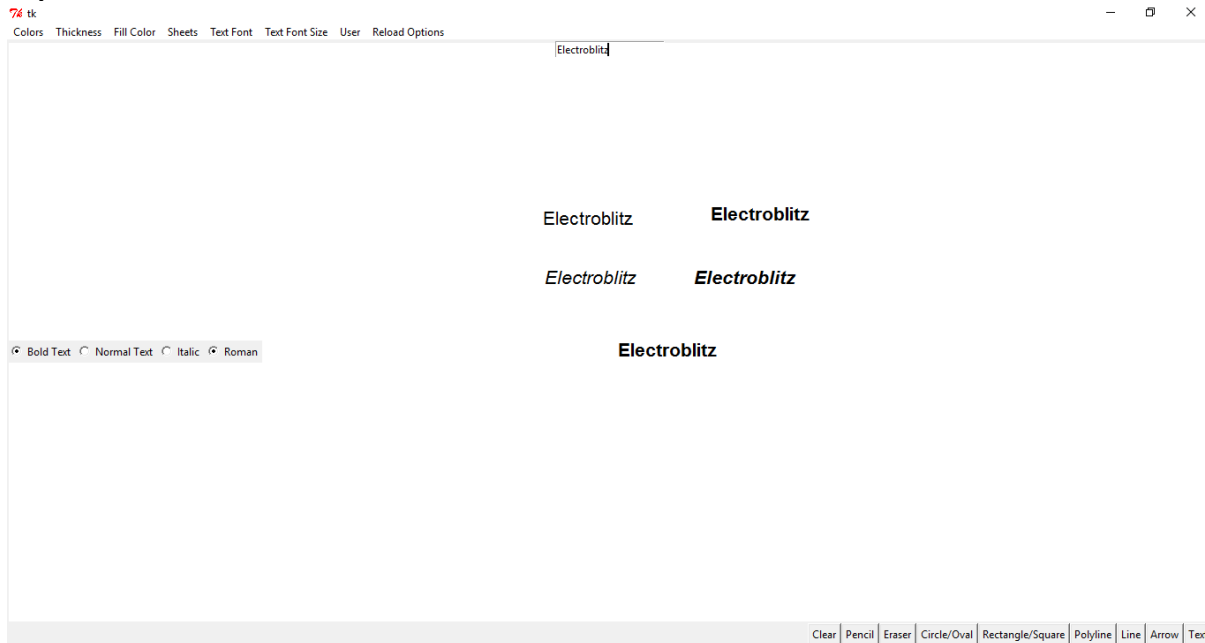
Requirements: REQ_USR25

Environment: The server is setup and white board application is run.

Operation:

- Login to the eboard using the credentials received through mail. If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Click on text button, enter the text and choose Bold/Italics for the entered text .

Expected result: Text shall be available in Bold and in Italics.



Result:

Comment:

3.4.16

Test: TEST_FE17

Purpose: Locking of access to sheets

Requirements: REQ_USR28

Environment: The server is setup and white board application is run.

Operation:

- Enter the login page and give ADMIN credentials.
- Click on "CREATE EMPLOYEE" button and register a new employee.
- Go to LOGIN PAGE and enter the employee credentials received via E-mail.
- EMPLOYEE PAGE is displayed. Click on "START SESSION" button to enter a new whiteboard session.

One who starts the session becomes the moderator, where lock option is available only to moderator. Moderator role can be reassigned to any user.

- When lock button is clicked, no one can make modifications on the sheets.

- Unlock button is available only for moderator where unlocking of whiteboard takes place.

Expected result: Other users will not be able to draw or write on the whiteboard

Result:

Comment:

3.4.17

Test: TEST_FE19

Purpose: To test the change of moderator role.

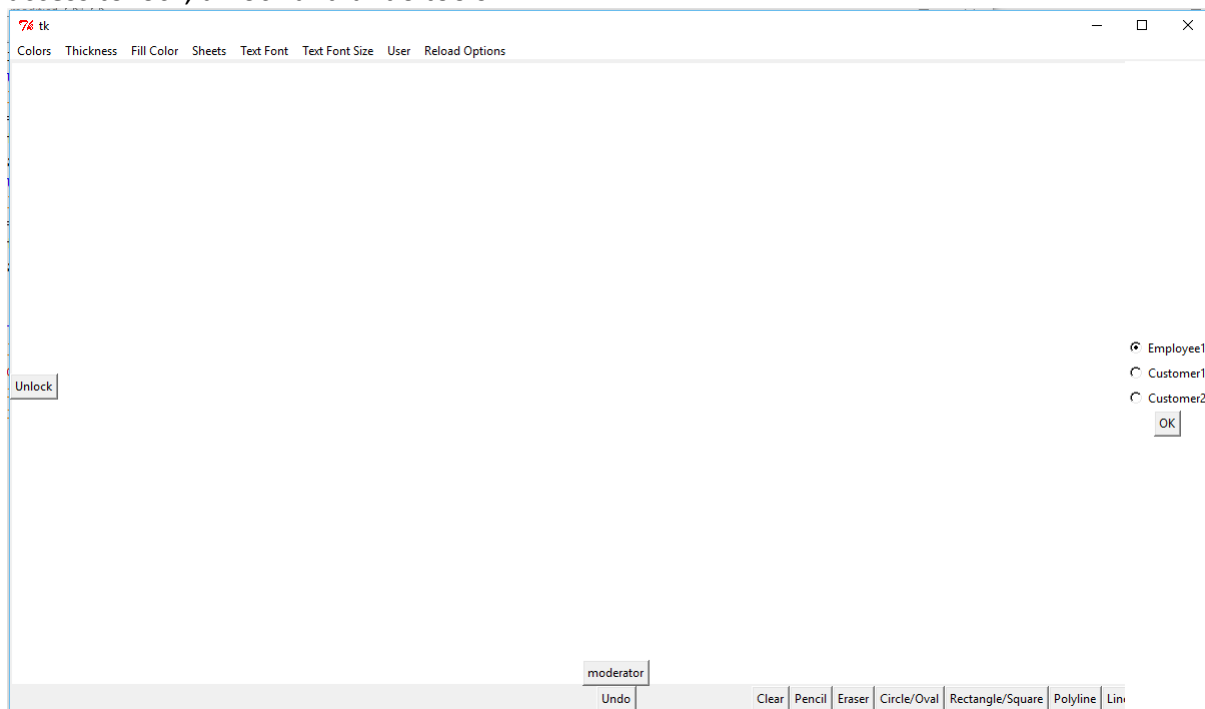
Requirements: REQ_USR27

Environment: The server is setup and whiteboard application is run. Employee creates a whiteboard session and customers joins the session.

Operation:

- Moderator should click on change moderator button and a list of users in the session is shown with a radio button.
- Moderator should click on the radio button on the user who he want to be the moderator and press OK.
- Moderator role is now assigned to the selected user and the creator of the session loses their moderator privileges.
- New moderator has access to the lock, unlock and undo tools.

Expected result: Moderator role should be re-assigned to one of the participant and has access to lock, unlock and undo tools.



Result:

Comment:

3.4.18

Test: TEST_FE20

Purpose: To check the function of the tool arrow.

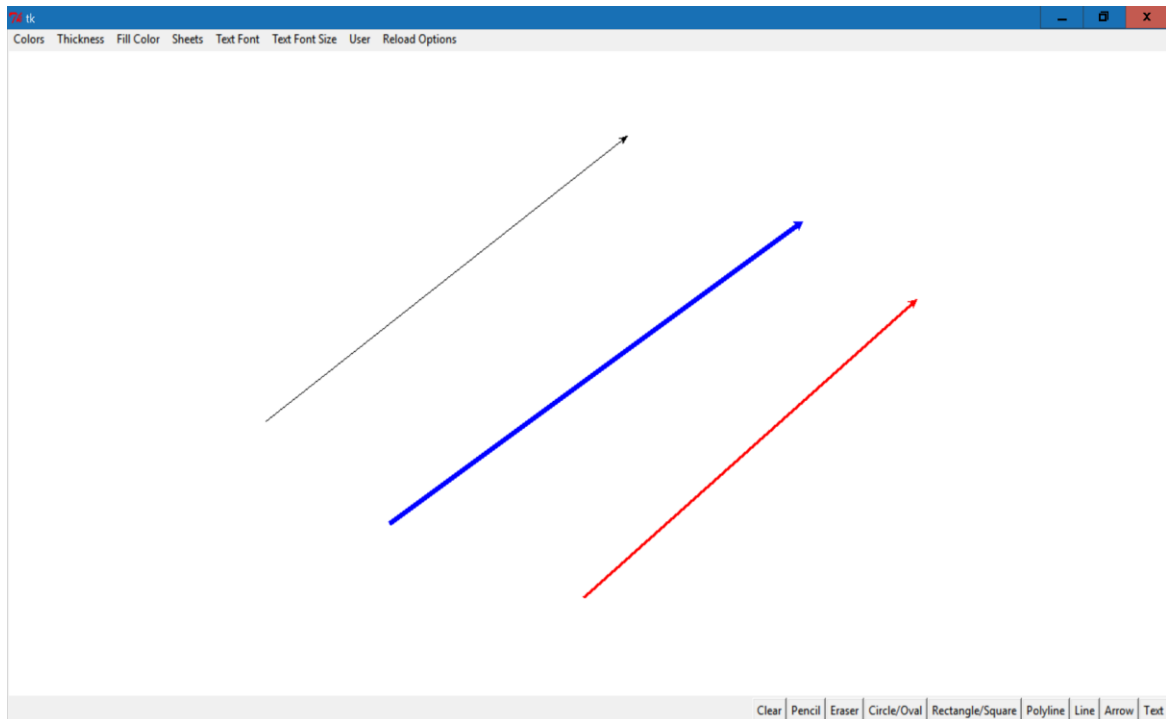
Requirements: REQ_USR11

Environment: The Server is setup and white board application is run.

Operation:

- Login to the eboard using the credentials received through mail.
- If the credentials match and access to eboard is granted, then eboard canvas appears on the screen.
- Choose arrow tool by clicking on it from the tool menu.
- An arrow is drawn whichever the way user points the cursor of the mouse

Expected result: A line with arrow symbol shall appear.



Result:

Comment:

3.4.19

Test: TEST_FE21

Purpose: Testing unlimited number of users.

Requirements: REQ_USR1

Environment: The server is setup and the whiteboard application is run.

Operation:

- On the login page, give login details of Admin.
- Once Admin logs in, you can find buttons like create employee and create customer on Admin page.
- Click on the Create employee/customer button, type username and email ID and click on the ok button.

- Employee can also create customers by logging in with employee details.
- Once Employee logs in, click on Create customer button to create customers.



Expected result:

You find the labels username and mail ID with entry boxes. A registration success dialog box appears upon filling of details and clicking ok button as shown in Figure 8

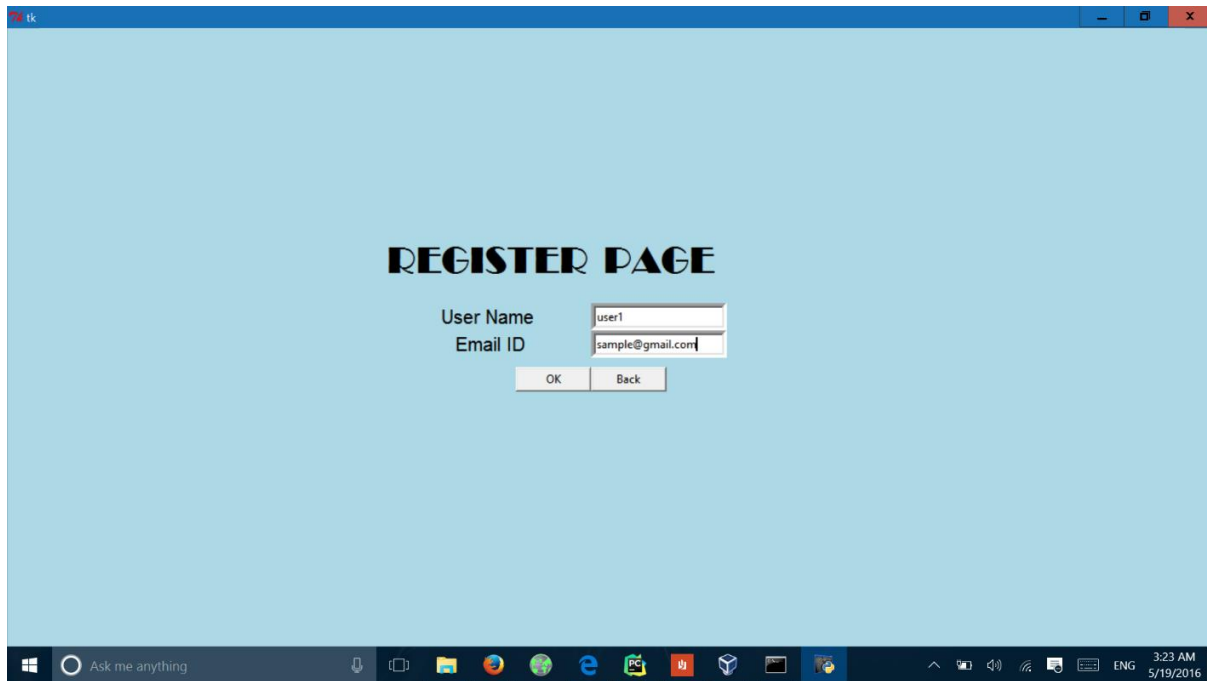


Figure 7 Registration Page

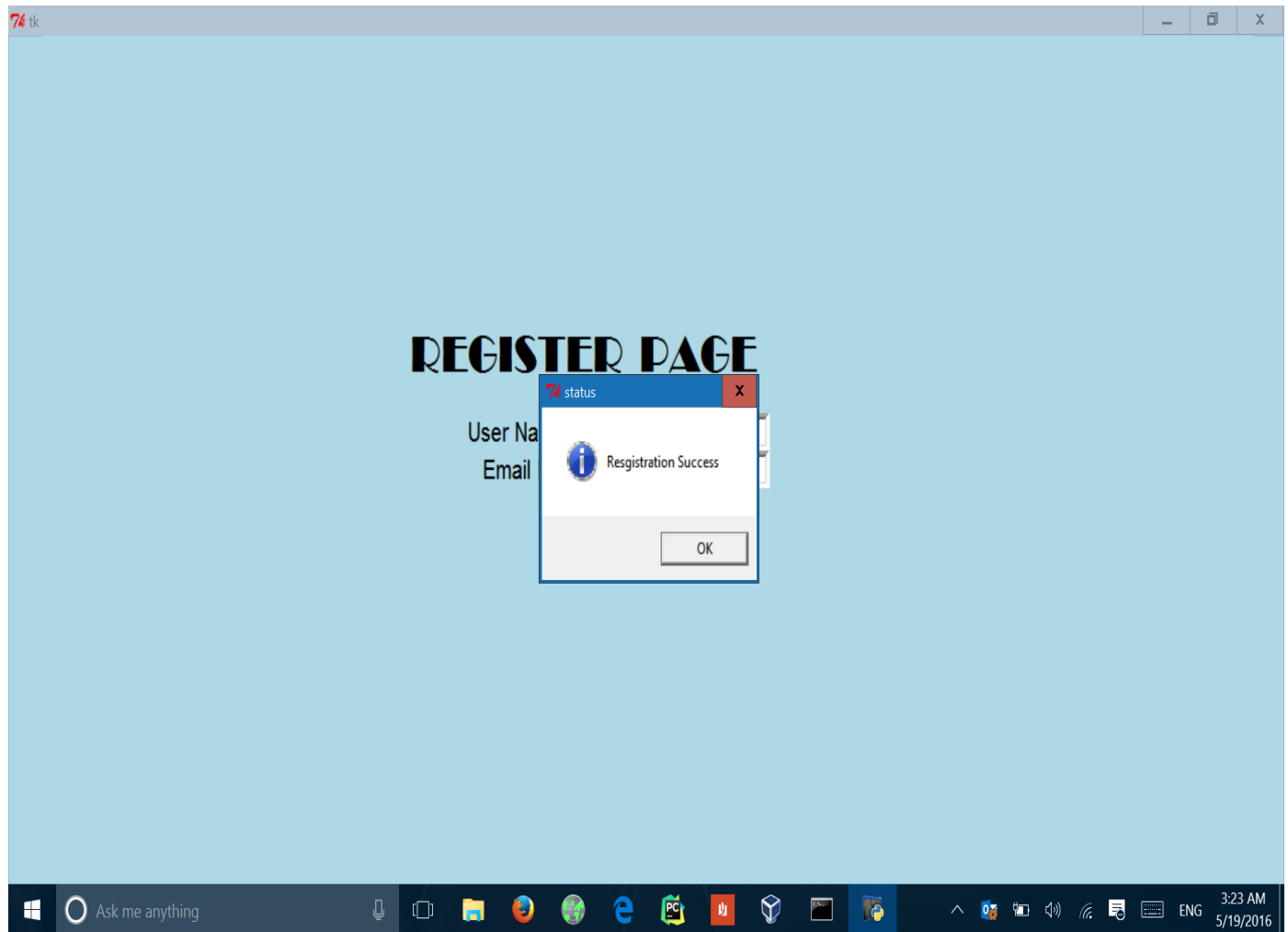


Figure 8 Registration success dialog box

Result:

Comment:

3.4.20

Test: TEST_FE18

Purpose: To test automatic playback of modifications.

Requirements: REQ_USR31

Environment: The server is setup and the whiteboard application is run.

Operation:

- Enter the login page and give ADMIN credentials.
- Click on “CREATE CUSTOMER” button and register a new customer.
- Go to LOGIN PAGE and enter the customer credentials received via E-mail.
- Whiteboard sheet is displayed.
- Draw any four basic shapes on the sheet.
- Select the “Reload Options” from the menu bar and click on “Playback” option.

Expected Result:

- Automatic playback of all modifications done on the sheet, by providing a delay between each modification.

3.4.21

Test: TEST_FE18

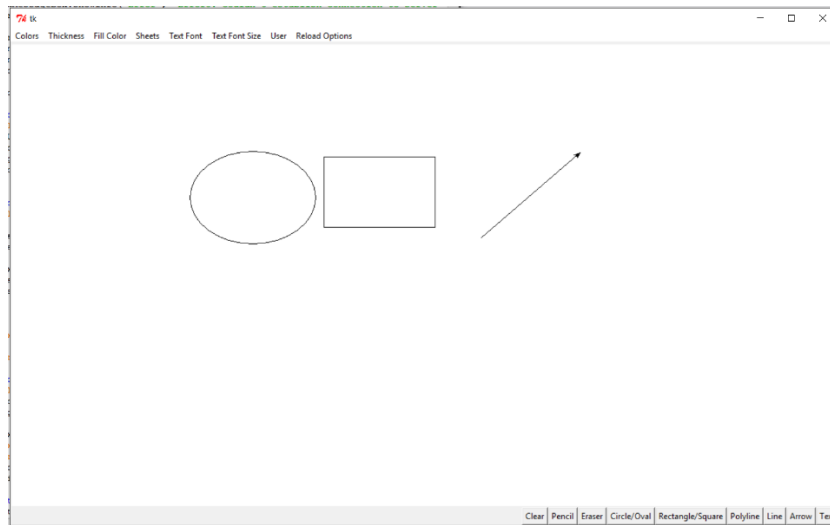
Purpose: To test Reload with click.

Requirements: REQ_USR32

Environment: The server is setup and the whiteboard application is run.

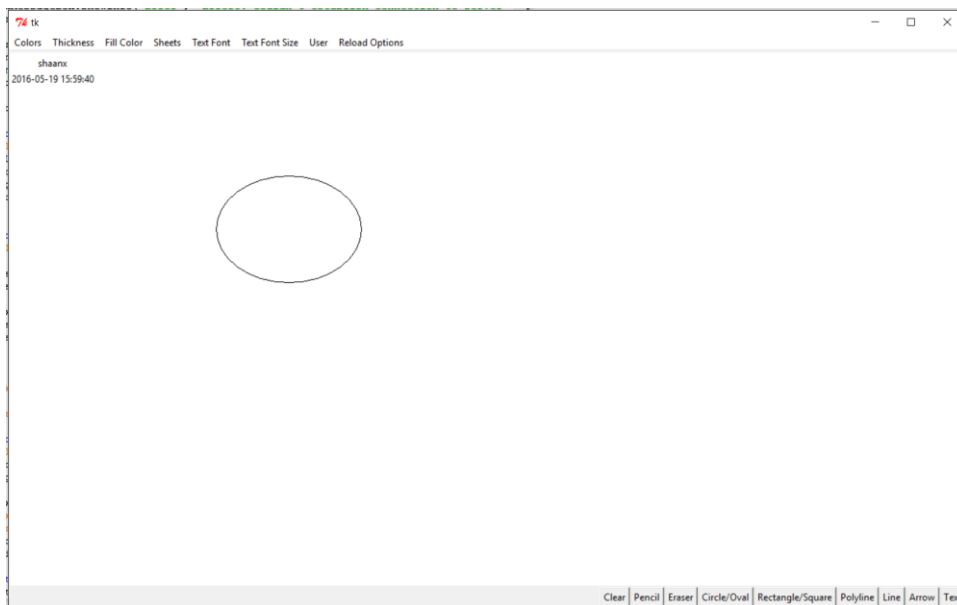
Operation:

- Enter the login page and give ADMIN credentials.
- Click on “CREATE CUSTOMER” button and register a new customer.
- Go to LOGIN PAGE and enter the customer credentials received via E-mail.
- Whiteboard sheet is displayed.
- Draw any four basic shapes on the sheet.
- Select the “Reload Options” from the menu bar and click on “On Click” option.



Expected Result:

- With each mouse left click, a modification from the list is added to the whiteboard along with the modification timestamp and name of user responsible for it.



3.4.22

Test: TEST_FE22

Purpose: To test replication of events.

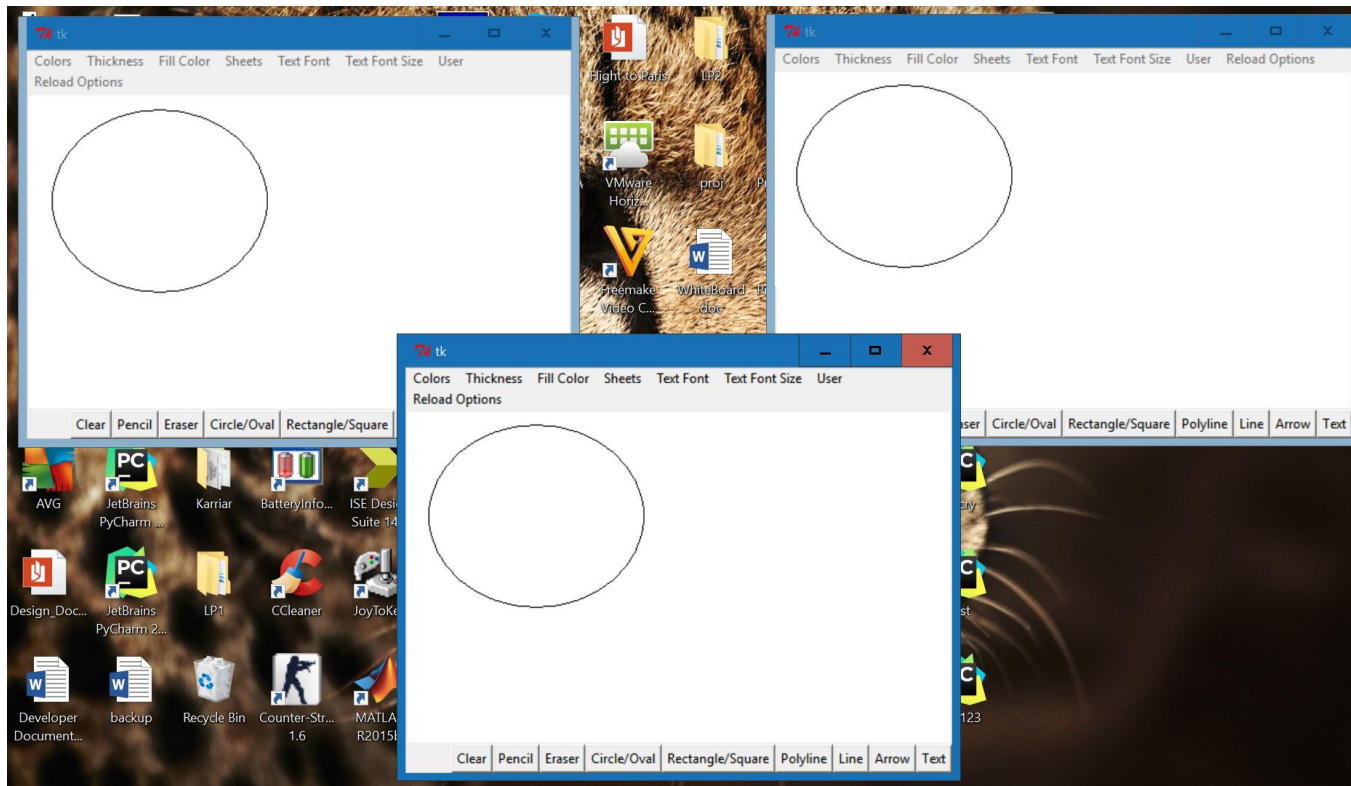
Requirements: REQ_USR9

Environment: The server is setup and the whiteboard application is run.

Operation:

- Log in through username and password.
- Do any modification on the canvas of one user.
- Modifications done on one canvas are replicated on other canvas.

Expected Results:



Result:

Comment:

3.4.23

Test: TEST_FE23

Purpose: To test reconfigurable IP.

Requirements: REQ_USR38

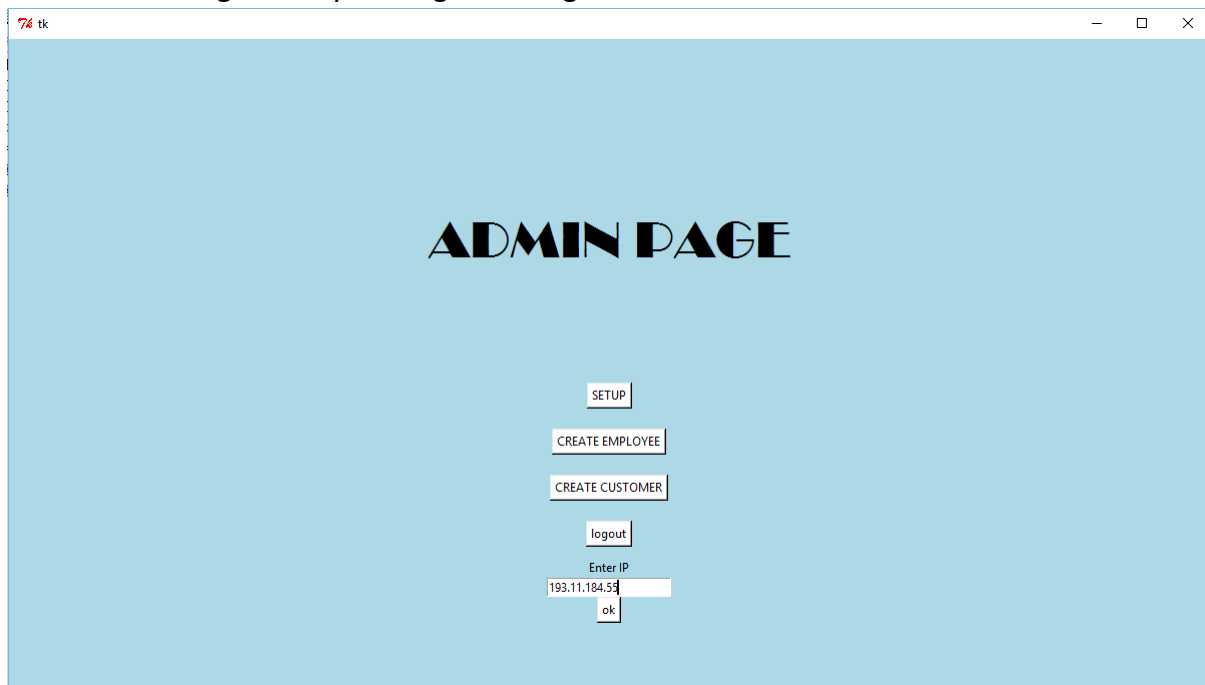
Environment: The server is setup and the whiteboard application is run. Only Admin can reconfigure IP address.

Operation:

- Admin logs into the application with Admin credentials.
- Options like create customer, create employee, setup, change IP are available for Admin.
- Click on change IP.
- Admin can give desired IP.

Expected Results:

Admin can configure IP by clicking on ChangeIP button.



4. BACK END

4.1 TOOL MANAGEMENT

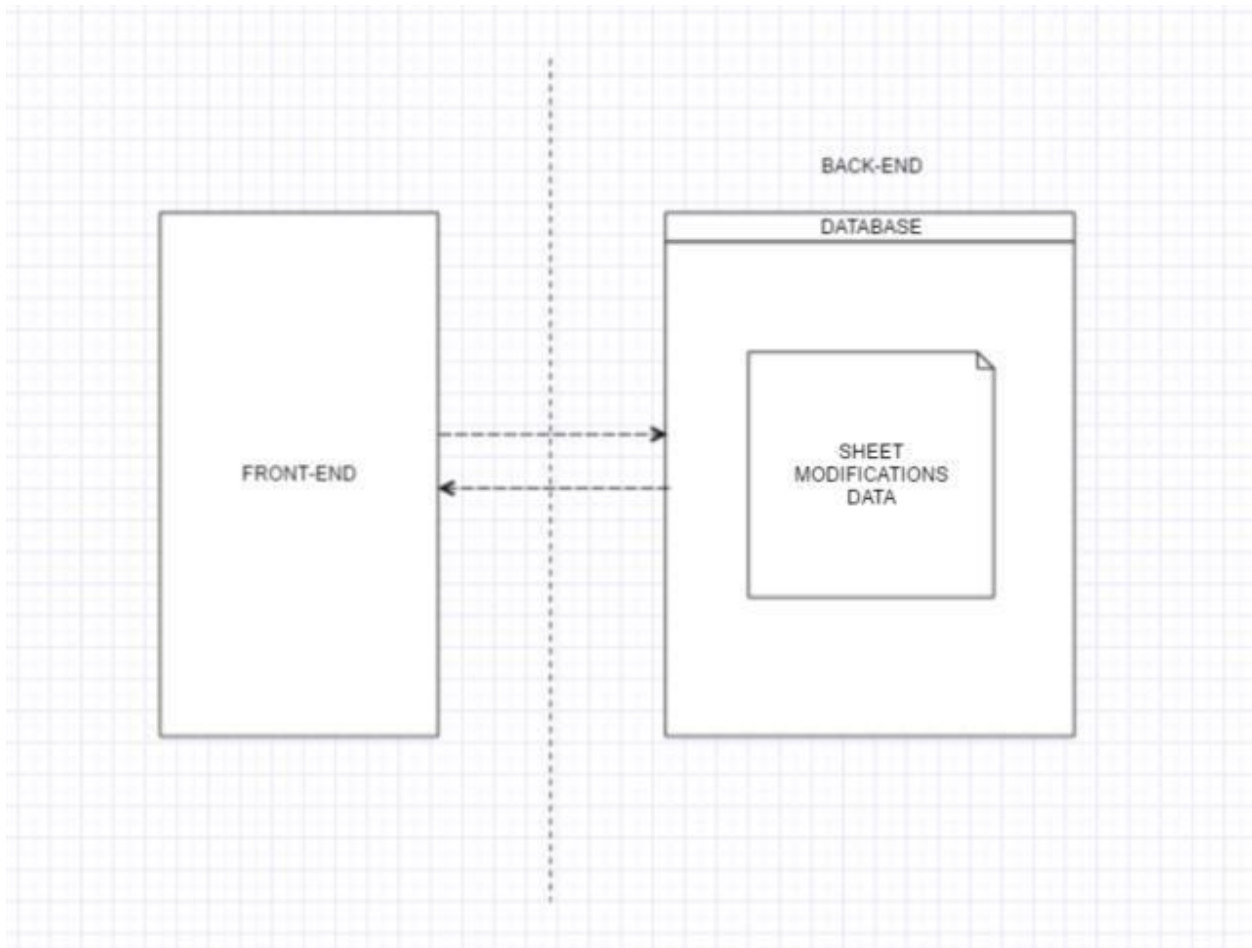


Figure 9: Back end of Tool management

Modification data from the sheets is stored in a modification table on the database as strings. This string is stored into the database table. Reload option retrieves data from the table when needed.

4.2 USER MANAGEMENT

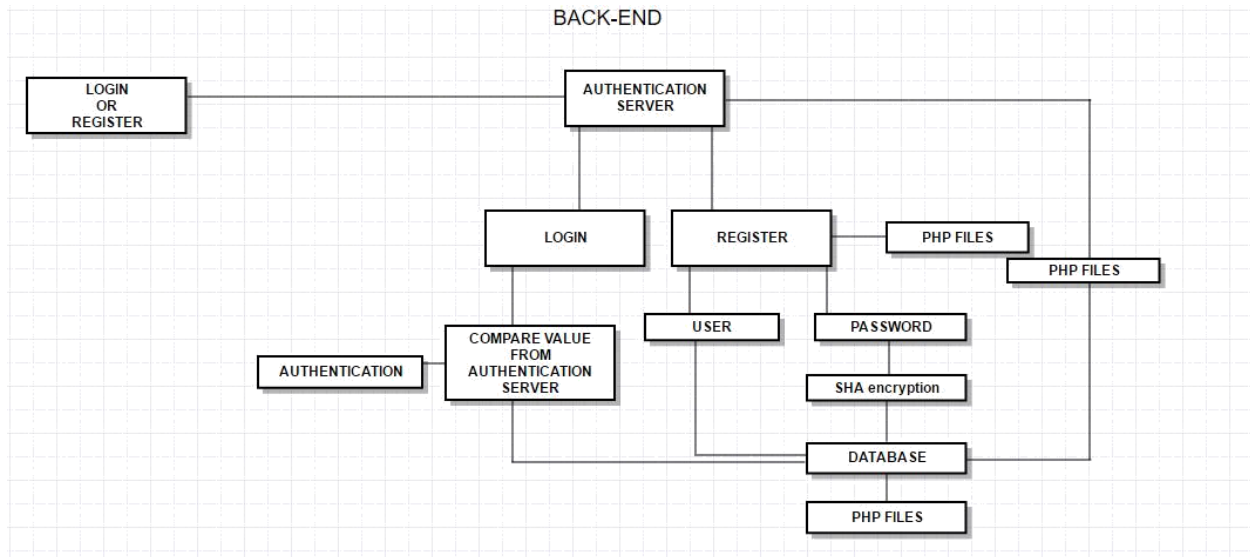


Figure 10: Back end of User management

The backend of the user management sub-module is described by figure 6. It includes:

Authentication server: The authentication process requires the email server, web server and the SQL database.

Email server: E- mail server is used to send the credentials to the user when the user gets registered.

Web server: The server consists of different PHP files which are used to connect the DB to the web server, compare the user ID and password with that inside the DB and to insert user ID and encrypted password (SHA1 hashed) into DB.

SQL DATABASE: It is used to store information like user ID encrypted passwords and information about the user of the whiteboard as well as sheet modifications.

4.3 SHEET MANAGEMENT

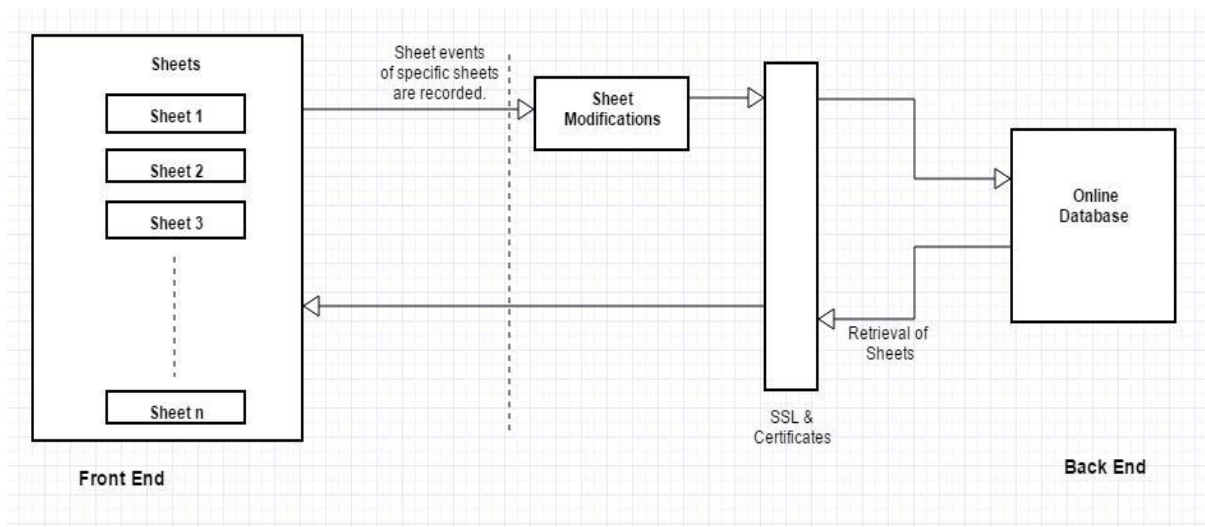


Figure 11: Back end of Sheet management

Sheet Management in the back-end stores the modifications done on the sheet into the database with a timestamp and name and type of the user responsible for the modification. Data is stored into the database when the user makes modifications to the sheets. When the whiteboard session is reloaded, data is retrieved from the modifications table and executed, with/without a delay between each modification, according to the options selected by the moderator.

4.4 UNIT TEST PLAN

The backend module can be assessed by performing the following tests.

4.4.1

Test: TEST_BE3

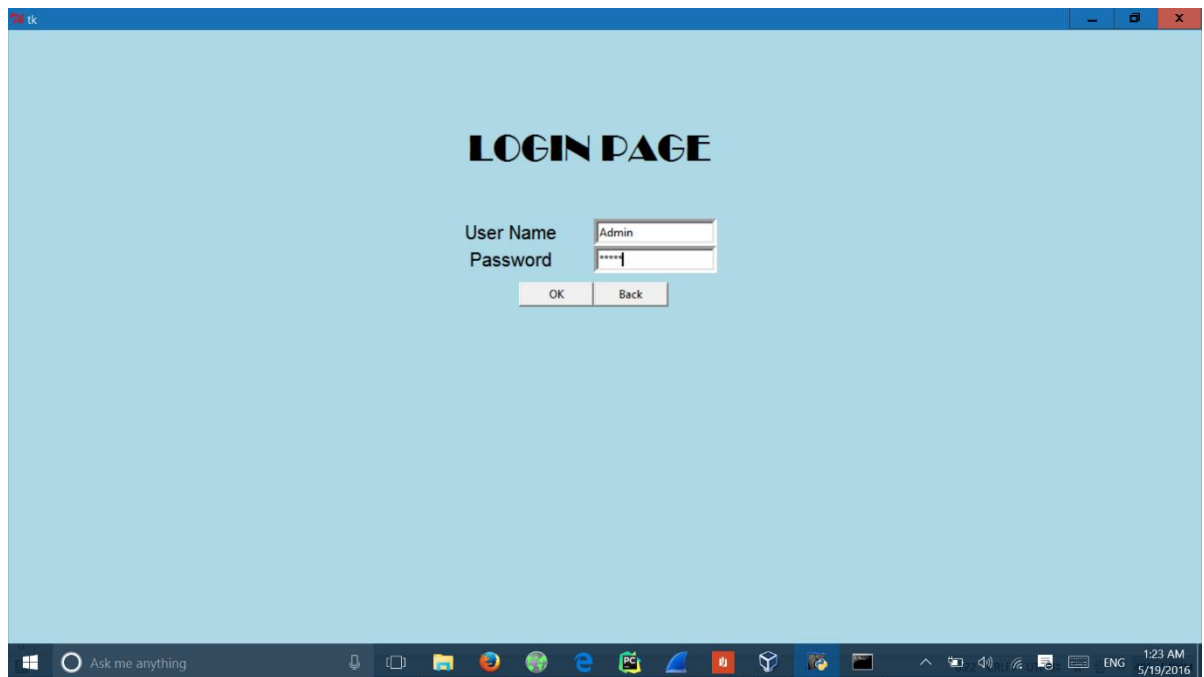
Purpose: To test Admin privileges.

Requirements: REQ_USR2

Environment: The server is setup and the whiteboard application is run.

Operation:

- Click on the Login button on home page and give username as Admin and password as Admin on the login page.
- Once Admin logs in, you can find options like SETUP, Create Employee, Create Customer, Logout, ChangeIP.



Expected result:

Type Login details of Admin, you will be finding the options shown in Figure 12

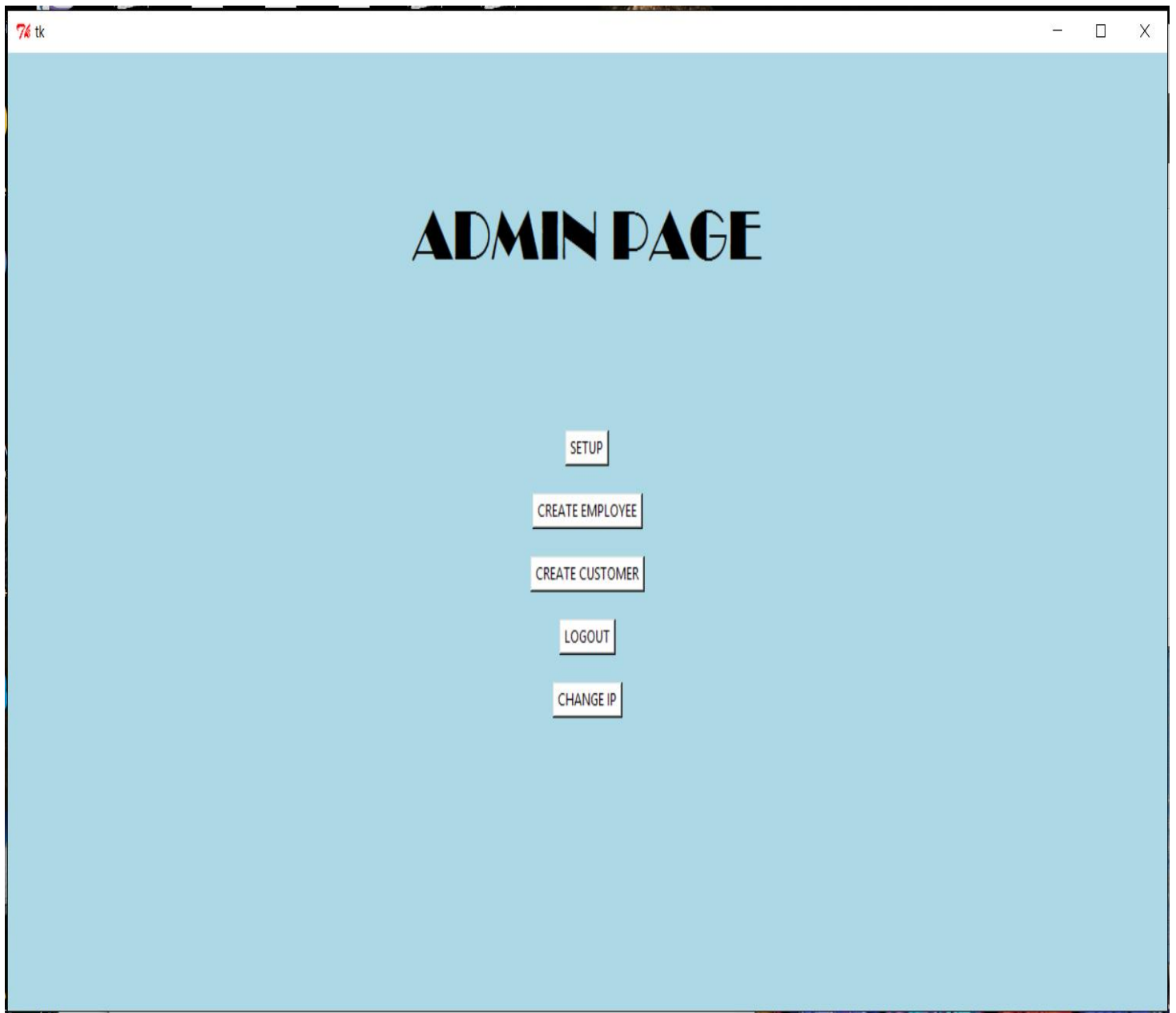


Figure 12 Admin page

Result:

Comment:

4.4.2

Test: TEST_BE4

Purpose: To test creation of an Employee.

Requirements: REQ_USR3

Environment: The server is setup and the whiteboard application is run.

Operation:

- On the login page, give login details of Admin.
- Once Admin Logs in, you can find buttons like create employee and create customer on Admin page.
- Click on the Create Employee button shown on the Admin page to create Employee.
- Logout from the Admin account.



- Once the Employee account is created, type username and passcode on the login page. Upon login you will find options like start session, create customers and logout.

Expected result:

An employee is created and logs in with credentials obtained. He observes options shown in figure 13

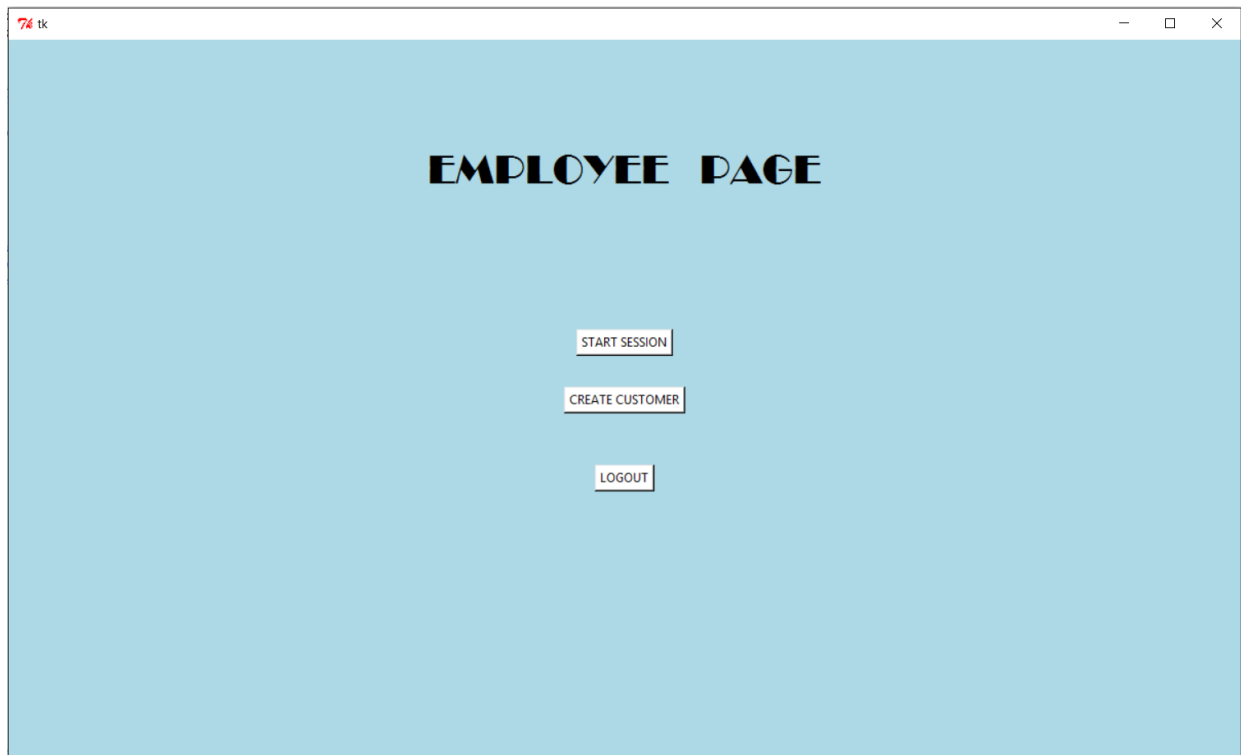


Figure 13 Employee Page

Result:

Comment:

4.4.3

Test: TEST_BE5

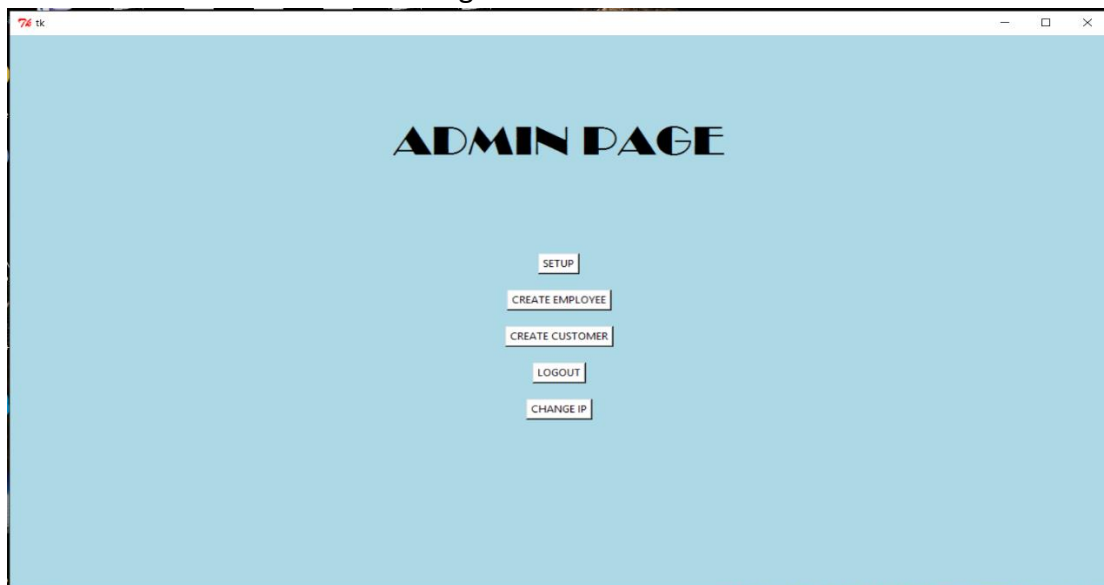
Purpose: To test creation of customer.

Requirements: REQ_USR4

Environment: The server is setup and the whiteboard application is run.

Operation:

- On the login page, give login details of Admin.
- Once Admin Logs in, you can find buttons like create employee and create customer on Admin page.
- Click on the Create customer, type username and email ID.
- Employee can also create customers by logging in with employee details and click on create customer button for creating customers.



Expected result:

A registration success dialog box appears upon click of ok button as shown in Figure 15

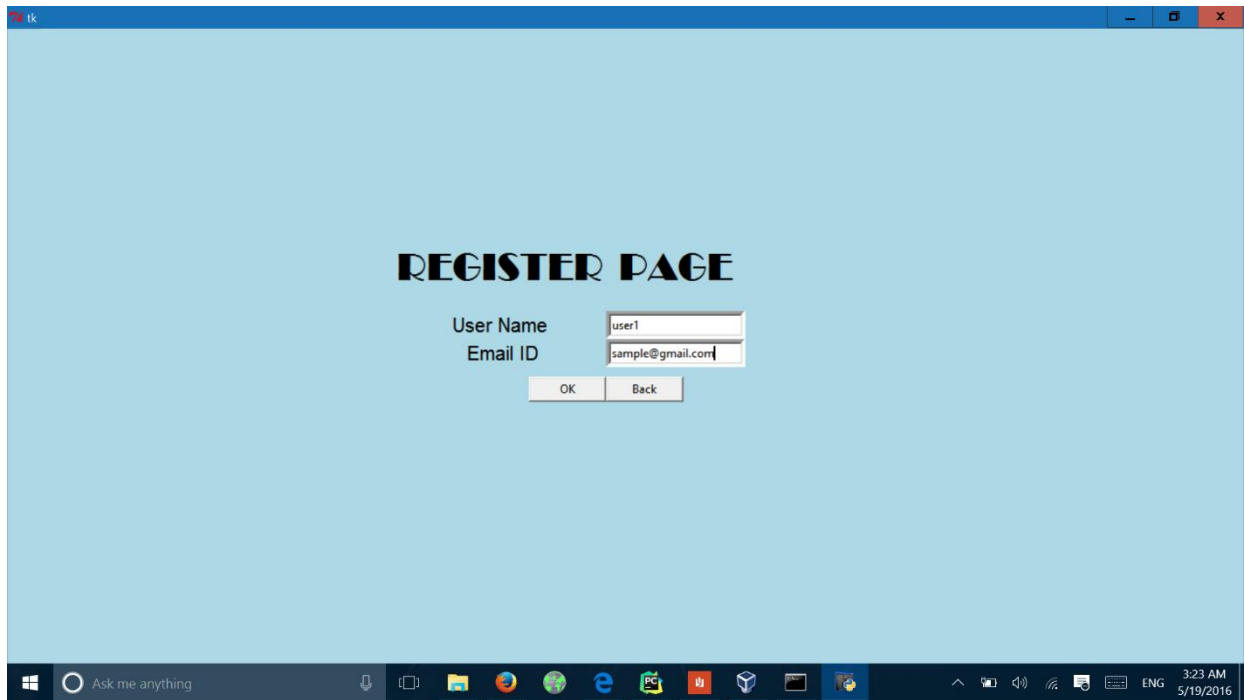


Figure 14 Registration page

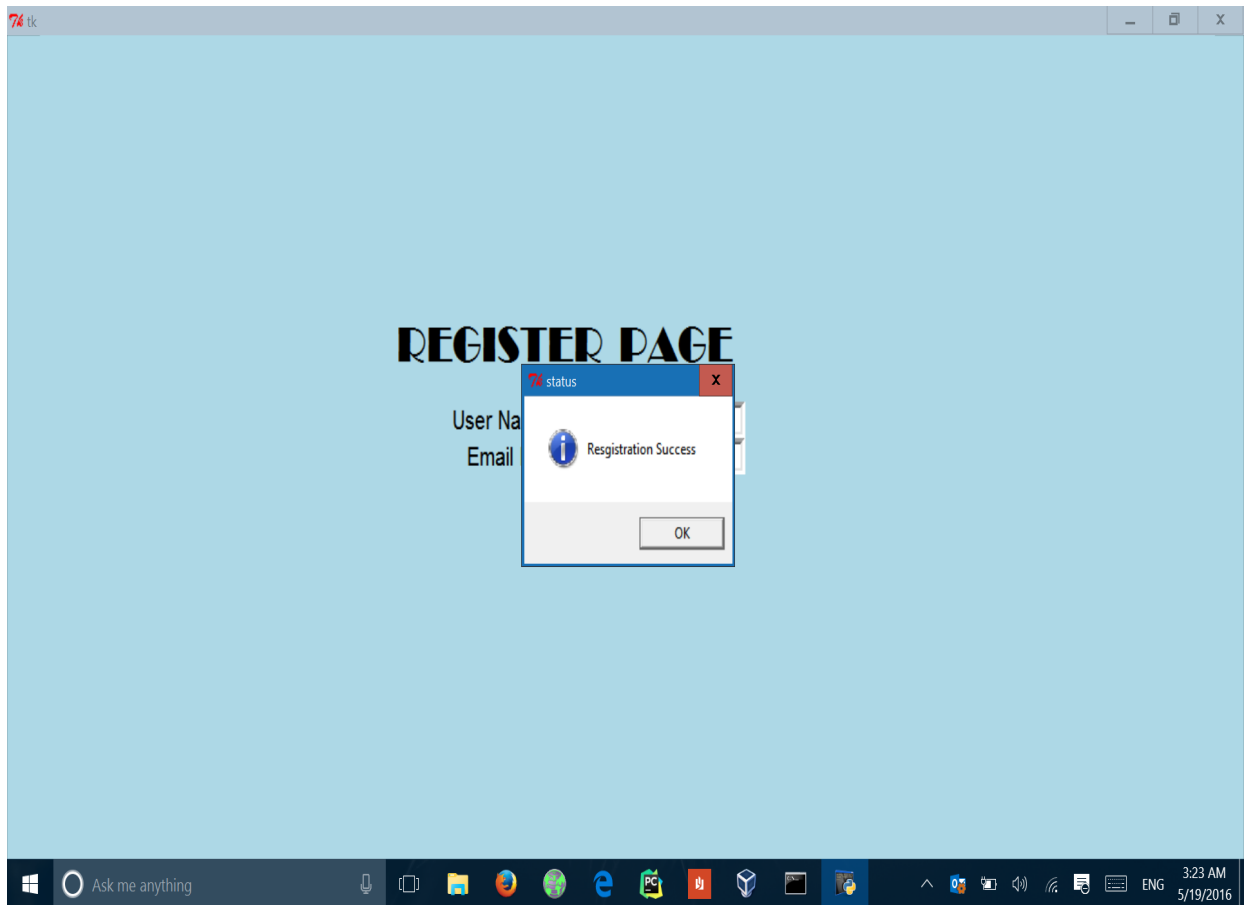


Figure 15 Registration success dialog box

Result:

Comment:

4.4.4

Test: TEST_BE6

Purpose: Encryption of Web Server

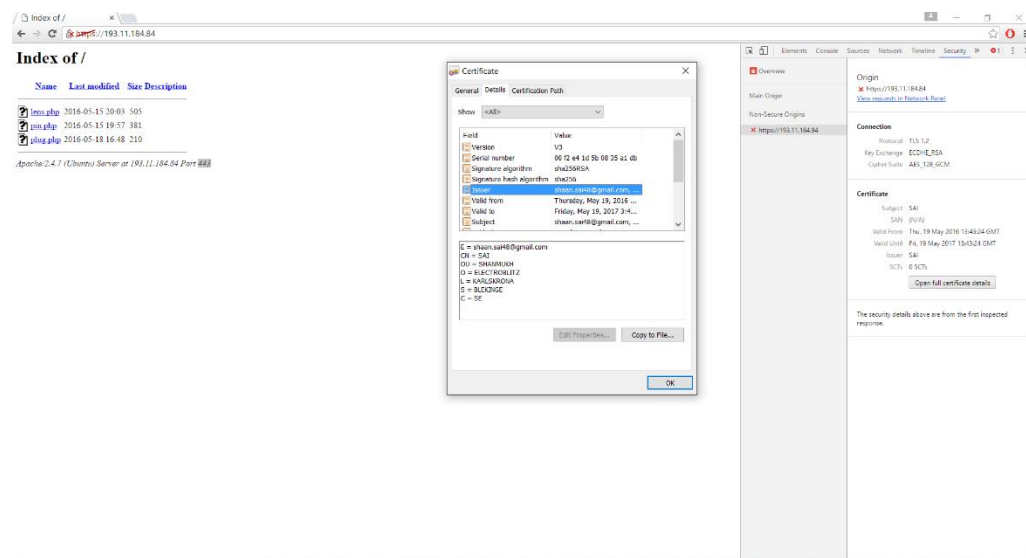
Requirements: REQ_USRQ33

Environment: The server is setup (with certificates) and the whiteboard application is run.

Operation:

- Open browser
- Visit “https://HOSTIP”
- Check for the site certificates (view sites information->details->show full certificate).

Expected result:



Result:

Comment:

4.4.5

Test: TEST_BE7

Purpose: Validity period of an account

Requirements: REQ_USR5

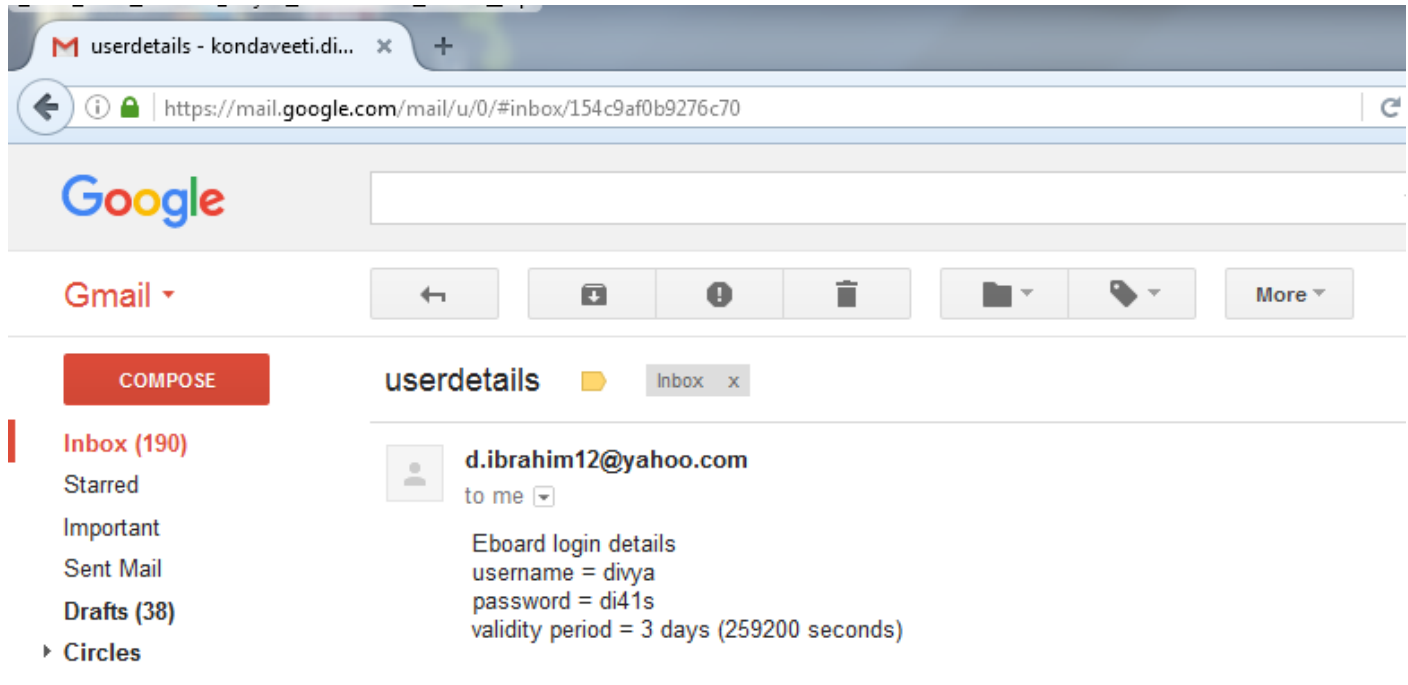
Environment:

- The server is setup and the application is installed and run. A MySQL instance is also run in parallel.

Operation:

- Employee creates the customer account giving the username and corresponding mail ID.

Expected Result: password in the mail shall have 3 days of validity period.

**Result:****Comment****4.4.6**

Test: TEST_BE8

Purpose: Acknowledgement via E-mail

Requirements: REQ_USR7

Environment:

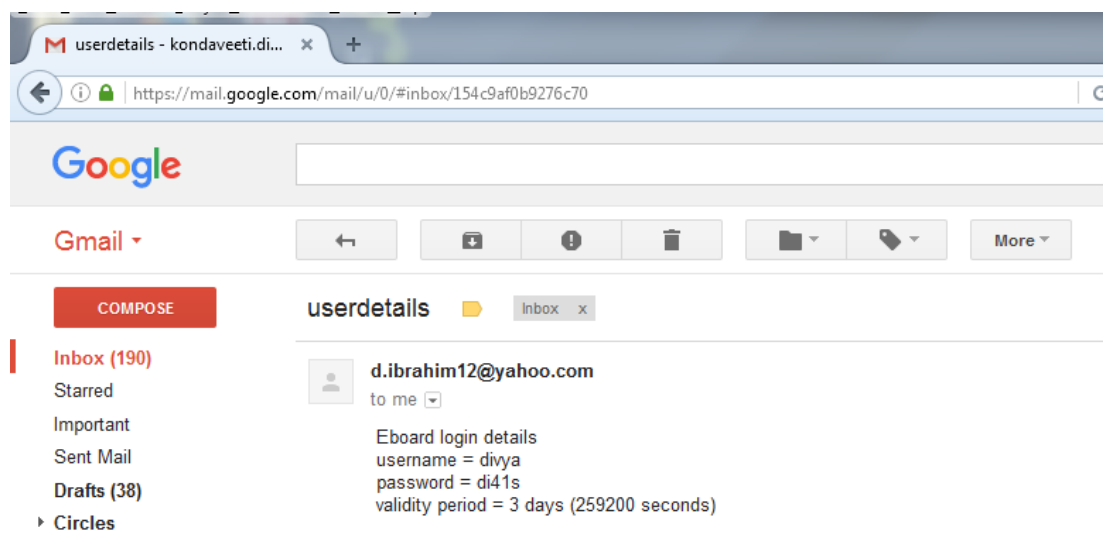
The server is setup and the application is installed and run. A MySQL instance is also run in parallel.

Operation:

- Either Admin/Employee creates the customer account by entering the registered mail ID.

Expected Result:

Shall receive the mail with the password.

**Result:****Comment****4.4.7**

Test: TEST_BE9

Purpose: Encryption of MySQL server.

Requirements: REQ_USR34

Environment: The server is setup and the application is installed and run. A MySQL instance is also run in parallel.

Operation:

- Open Wireshark, start capturing packets.
- Login as any user and draw anything on the sheet.

Now getback to wireshark, observe the mysql protocol packets
Expected result: The observed data makes no sense (encrypted)

Result:

Comment:

4.4.8

Test: TEST_BE10

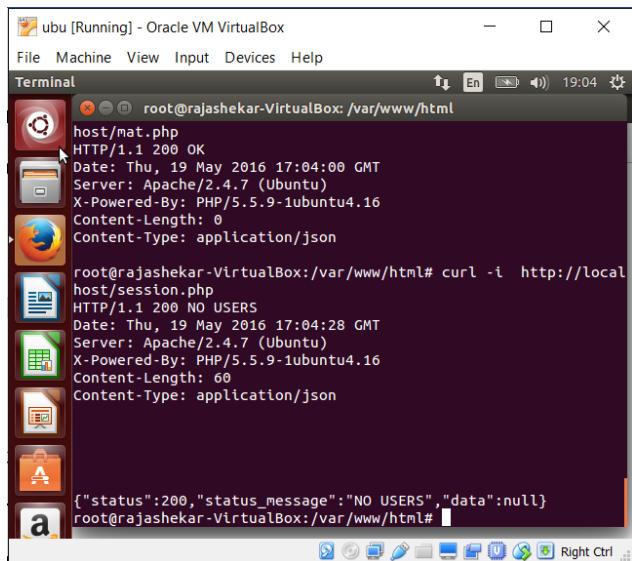
Purpose: RESTful API

Requirements: REQ_USRQ35

Environment: The server is setup and accessed through web browser

Operation: In the server run command 'curl -i http://localhost/filename.php'

Expected result: The tester shall know that REST principles are followed.



```
ubu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Terminal
root@rajashekar-VirtualBox: /var/www/html
root@rajashekar-VirtualBox: /var/www/html# curl -i http://localhost/mat.php
HTTP/1.1 200 OK
Date: Thu, 19 May 2016 17:04:00 GMT
Server: Apache/2.4.7 (Ubuntu)
X-Powered-By: PHP/5.5.9-1ubuntu4.16
Content-Length: 0
Content-Type: application/json

root@rajashekar-VirtualBox: /var/www/html# curl -i http://localhost/session.php
HTTP/1.1 200 NO USERS
Date: Thu, 19 May 2016 17:04:28 GMT
Server: Apache/2.4.7 (Ubuntu)
X-Powered-By: PHP/5.5.9-1ubuntu4.16
Content-Length: 60
Content-Type: application/json

{"status":200,"status_message":"NO USERS","data":null}
root@rajashekar-VirtualBox: /var/www/html#
```

Result:

Comment:

4.4.9

Test: TEST_BE11

Purpose: Debugging Feature

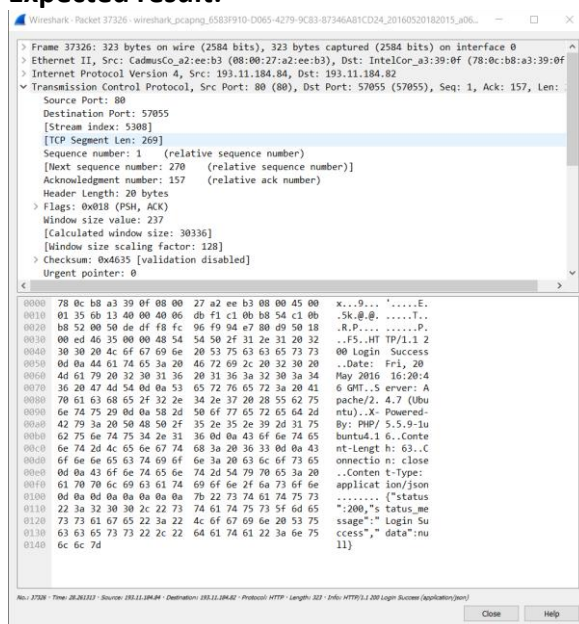
Requirements: REQ_USR37

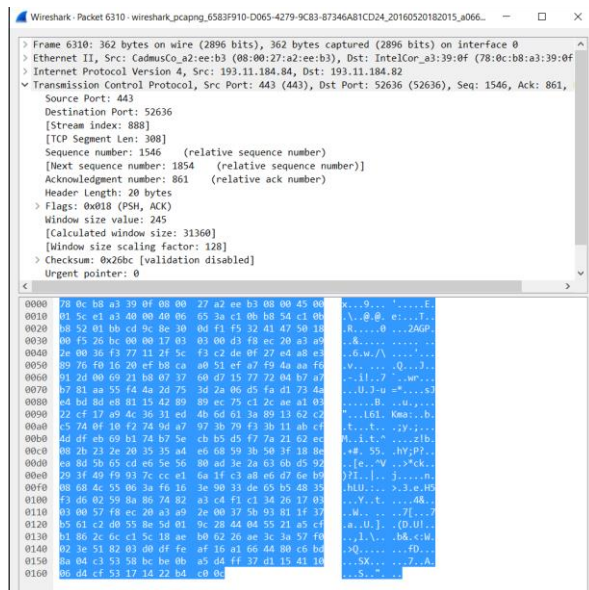
Environment: The server is setup and the application is installed and run.

Operation:

- Login either as customer or employee.
- Logout of the session.
- Login as Admin and select the debug option.
- Login either as customer or employee.
- Open Wireshark and observe data exchange occurred at step 1 and step 4.

Expected result:





Result:

Comment:

4.4.10

Test: TEST_BE12

Purpose: Authentication

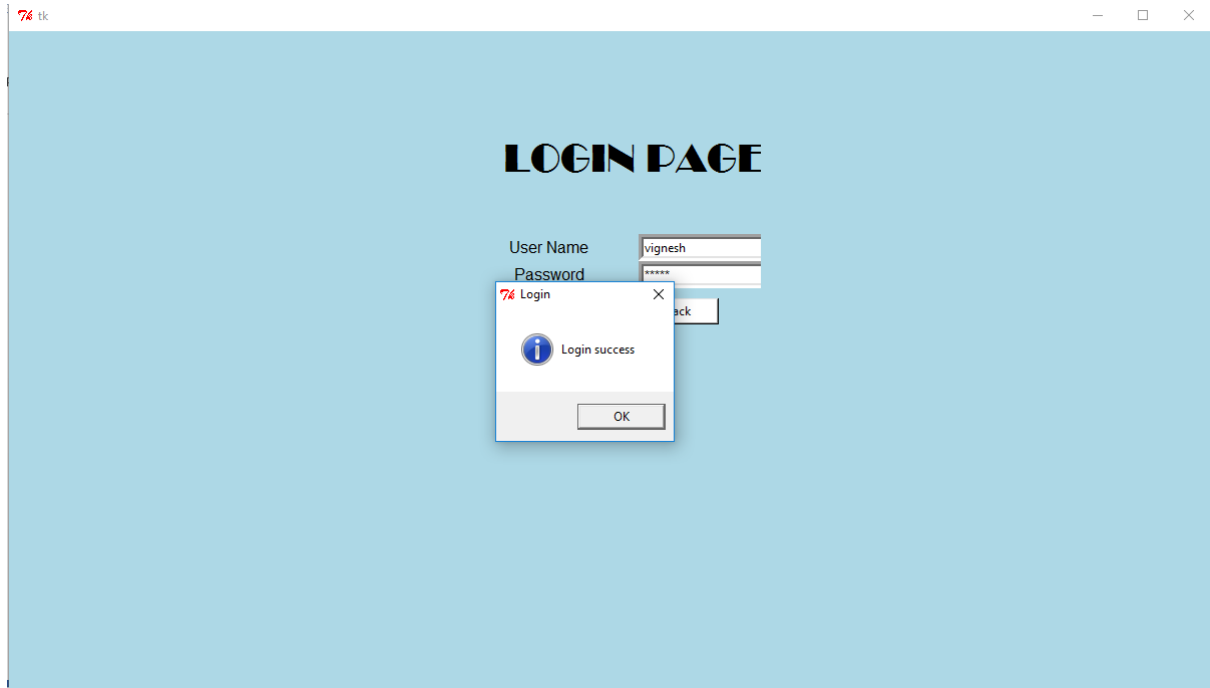
Requirements: REQ_USR6

Environment: The server is setup and the application is installed and run. A MySQL instance is also run in parallel.

Operation:

- The tester registers by specifying account credentials and logs in.
- Given credentials are checked with data stored in the database.
- If the credentials are matched whiteboard application is opened.

Expected result: If the credentials are correct user gets access to the whiteboard.If the credentials are wrong an error will be occurred.



Result:

Comment:

4.4.11

Test: TEST_BE13

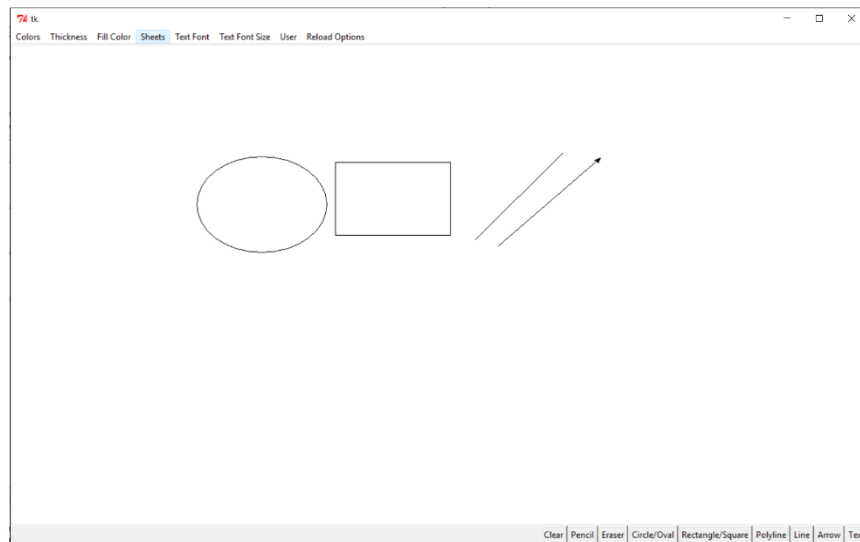
Purpose: To view the list of modifications.

Requirements: REQ_USR30

Environment: The server is setup and the whiteboard application is run.

Operation:

- Enter the login page and give ADMIN credentials.
- Click on “CREATE CUSTOMER” button and register a new customer.
- Go to LOGIN PAGE and enter the customer credentials received via E-mail.
- Whiteboard sheet is displayed.
- Draw any four basic shapes on the sheet.
- Logout of the session.
- Open MySQL Workbench and make a connection to the server.
- Use the electroblitz database. Command : use electroblitz;
- View the contents of the modification table ‘Table_1’.



Expected Result:

- Each modification done on the sheet is stored as an event in the table along with an index, a timestamp, the name of user that produced the modification and on what sheet occurred.

SNO	SHEET_NO	MODIFICATION	USER	TIME_STAMP
1	1	AL[1]=canvas1.create_oval((264, 117, 454, 243),outline="black",fill="white",width=1); # 1	shaanx	2016-05-19 15:36:22
2	1	AL[2]=canvas1.create_rectangle((523, 116, 733, 249),outline="black",fill="white",width=1); # 2	shaanx	2016-05-19 15:36:25
3	1	AL[3]=canvas1.create_line((838, 248, 983, 126),fill="black",width=1); # 3	shaanx	2016-05-19 15:36:30
4	1	AL[4]=canvas1.create_line((1063, 139, 954, 280), arrow = "last", fill="black",width=1);# 4	shaanx	2016-05-19 15:36:33

5 . REFERENCES

- [1] ConTech product request, P5: Internet Whiteboard, 2016. [Online]. Available for itslearning users:
<https://bth.itslearning.com/ContentArea/ContentArea.aspx?LocationID=6504&LocationType=1>
- [2] Design Document -version2.0.