# **Enterprise Web Software Development**

Course: COMP1640

Submitted To	Submitted By	
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Due Date: 12th April 2018

## **Team Name: The Ultimate's**

## **Team Members & Roles:**

Greenwich ID	Name	Role
001003296	Irina Alam	System Analyst
001003772	Mosharraf Hossain	Programmer
001003480	Arman Hossain	Database
001003913	Mahadi Hasan	UI Designer & Tester

Screencast Link	https://www.youtube.com/watch?v=5OV9ZNjiyZ4&feature=youtu.be	
Repository Link	https://github.com/mhmohon/the_ultimate	
Application Live	http://lmhs8tez-site.ftempurl.com	
link		

Login Details			
Role	Email Address	Password	
Admin	Onlineforum@gmail.com	forum@admin	
QA Manager	mohon.diit33@gmail.com	forum@qam	
QA Coordinator	mohon.diit65@gmail.com	forum@qac	
Staff	armanshatu@gmail.com	forum@staff	
Student	salihan@gmail.com	forum@stu	

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## Introduction:

"The Ultimate's" team is consist of four members. A database Designer, An information architect, A programmer which is also playing a role of web designer and I took the part of testing and scrum master in our team. We worked together and built a secure web-enabled role-based system for collecting ideas for improvement from students in a large University. We meet all the requirements which are given to us for building this system. The approximate report of the system is produced according to a system tester and scrum master's point of view.

#### **Product Evaluation:**

There has a large university with the Quality Assurance Manager, OA Coordinator, QA Manager, Staffs, Students and others. This University wants to build a secure web-enabled role-based system for collecting ideas for improvement from students. For developing this system there are lots of requirements. Full filling all the requirements, provided them a secured system which have a suitable and secure database system, well designed and developed system as well as test this system very accurately. By this idea collecting improvements system from the students, University can improve their entire environment.

#### **Strength of proposed system:**

In this system there are lots of strong fact. Those are the key points. The strength of the system is described below –

- User interface well developed for understanding
- Responsive for all user interface like smart phones, Laptops, PC, tablets etc.
- Live notification for admin
- Email notification is available here
- Download individual idea as zip folder
- Secure role based user login
- Admin can manage whole system and takes any kind of changes need
- SQL queries are completed accurately for better performance
- Strong validation rules are applied in the system
- The whole system is more efficient to use
- Statistical reports are represented here
- Scripts are protected and can't oversee
- Prevents SQL injection

#### Weakness of the proposed system:

The system have some weak points too. Some features should be added in the system but we can't give. That's are –

- Some part of the system designed badly
- No live notification for student
- Need to host in a better quality server

## **Further Development:**

There are some work to do for further development in this system. Those are -

- Live chat for the QA coordinator and student
- UI design will be more improved
- More Security system will be applied
- System performance will be better in further work

## **System Walkthrough:**

### Login page -

This represent the login page of system where user must have provide their email address and password for entering the system.

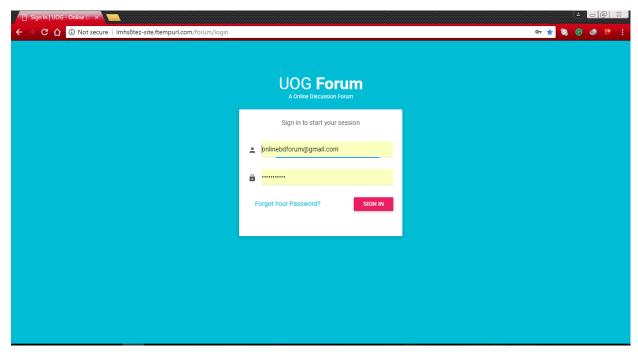


Figure 1: Login Page for Role based user

## User Interface Page -

After login the system Admin or Student see the home page of the system. There are some discussion about different topic.

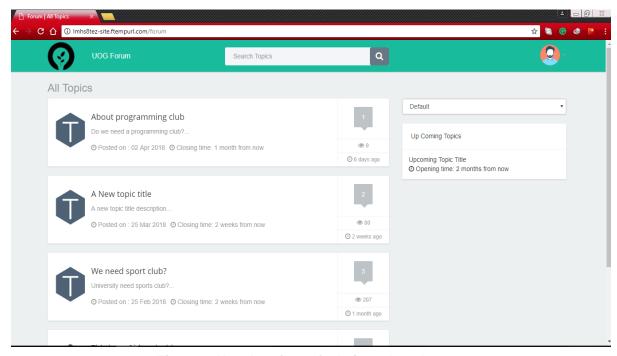


Figure 2: User Interface of admin and student

## Student Dashboard Page -

In this part student can see their posted idea list and replies list as well as can search anything in the top bar.

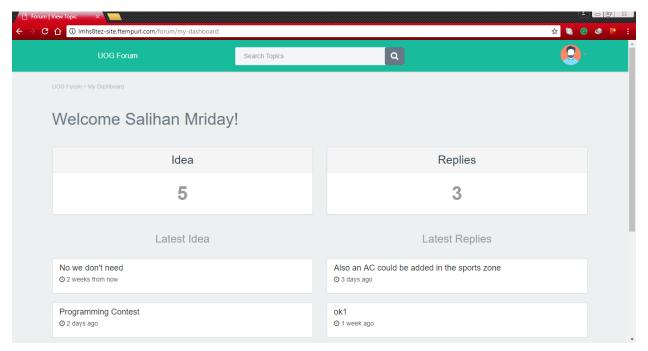


Figure 3: Student Dashboard

## Idea Post Page -

Student can post any kind of idea under the topic. But they can't post any idea after the topic date is over.

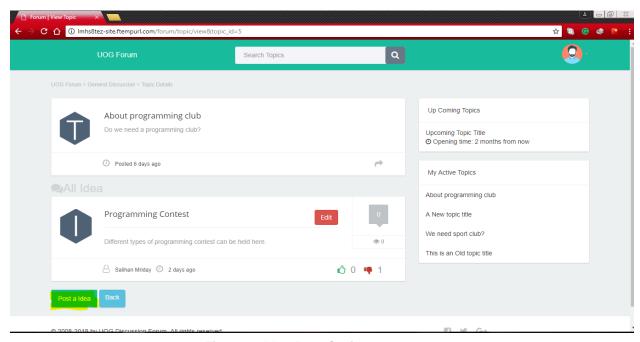


Figure 4: Idea Post Option

In this part student can comment under an idea post as well as can give thumbs up or down for an idea. Student can hide their real name and post a comment as anonymous

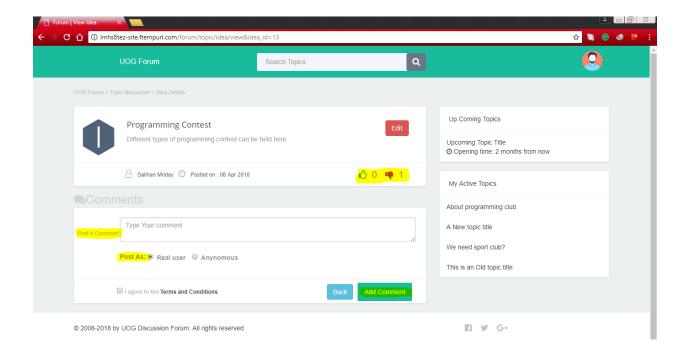


Figure 5: Like or dislike an idea, Post Comment and post as what wants

## Admin Dashboard Page -

This segment shows the admin dashboard and responsibility in the system.

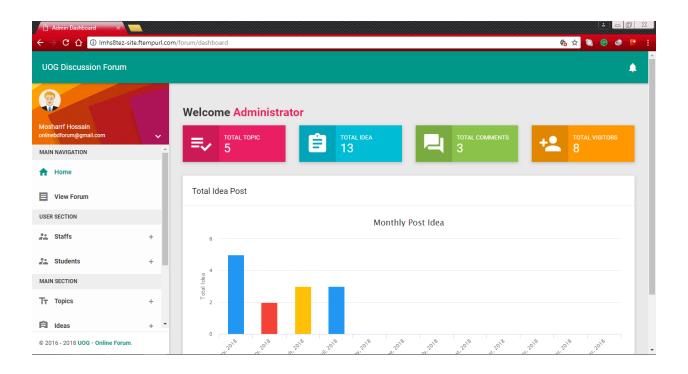


Figure 6: Admin Dashboard

## Topic Form Page -

Here admin can add topic for the student.

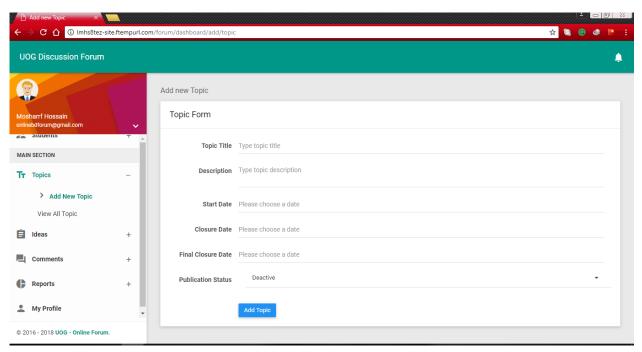
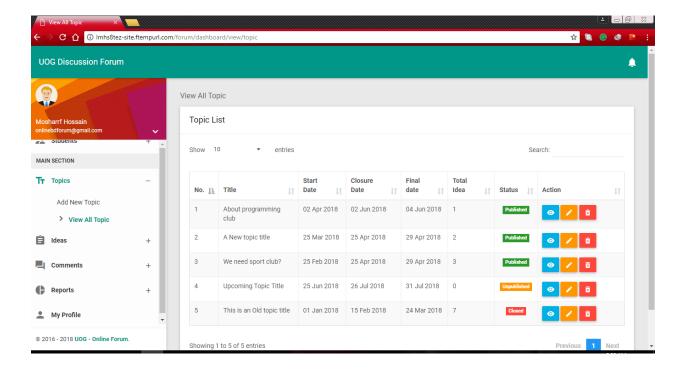


Figure 7: Topic Form

### **Topic List Viewed Page –**

At this point view all the topic list which are posted in forum discussion.



#### All Idea Showing Page -

This represents the idea list which are posted by student.

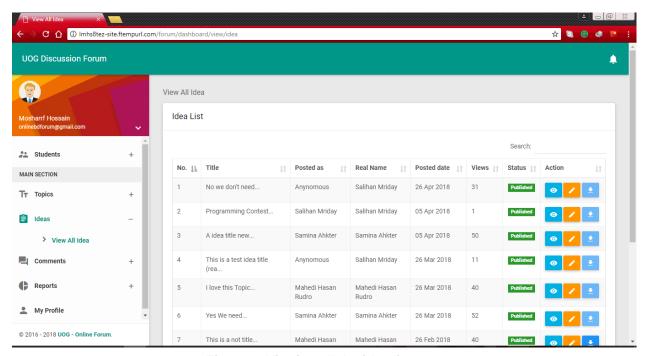


Figure 8: Viewing all the idea list

## View Report Page -

Here viewing all those reports those are system need. The following screenshort showing each idea submitted by department wise.

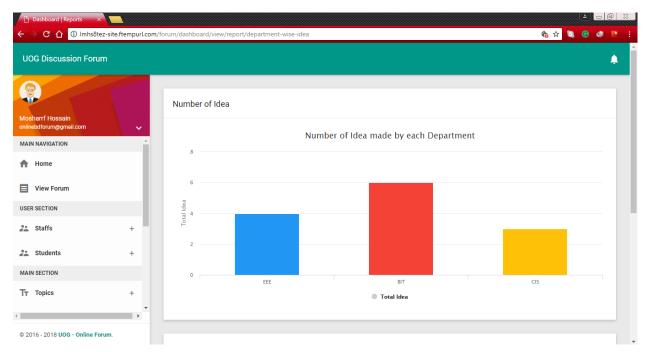


Figure 9: Idea posted by each department

## **Evaluation of Team:**

No.	Name	Role	Comments	Performance
1.	Arman	Database	He gave tremendous effort in	
	Hossain	Designer	creating database for the	
			proposed system. Sometimes	
			he faces some confusions	
			while creating the database	9/10
			tables but at the end he has	
			become successful to	
			overcome the confusions.	
2.	Irina Alam	Information	She gives a huge effort to	
		Architect	gather all the requirements	
			data and draw all the diagrams	8/10
			those are needs. Overall her	
			performance is good	
3.	Mosharraf	Programmer and	He tried his best for	
	Hossain	Designer	developing the system. He	
			works properly and co-operate	9/10
			with others very efficiently.	
4.	Mahadi Hasan	UI Designer and	I have tried my best to	
		Tester	complete my role as efficiently	
			as possible. I was available in	9/10
			all meeting and tries my best	
			to contribute while any	
			problem arises.	

## **Self-Evaluation:**

#### **Own Efforts:**

As I played the part of both UI Designer and Tester part. I needed to give best endeavors than regular in the proposed framework. I present all the meeting that held week after week and gave my attempts to survey to guarantee the strength of the proposed framework. In the wake of gathering the necessities from analyst I portrayed the UI plan of the framework. Ensuing the design of UI framework I offered it to the programmer to build up the proposed framework.

Later to finish the advancement software developer gave me the framework for testing. I have done the whole test effectively. Earlier to the beginning the test, I have learned about enterprise web application testing and I attempted my best to test the framework more expert way.

As a tester fundamental concentration was to assurance all the usefulness of the framework. Then I have made a test plan for the testing. In this way, above all else, I have checked the usefulness of the framework then I have finished the security, validation, integration, responsive, performance, usability testing and so on.

At long last, there is no bug in the framework and a test log is made with a useful pass rate.

#### **Lesson Learnt:**

In this group project, here I manage two part. I acted as both UI Designer and Tester. There are numerous things I have picked up amid this project. Right off the bat I needed to work in a group and I have figured out how to maintain group work and how to team up with every single

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colleagues to give an effective result of an undertaking. Particularly I have learned agile strategy for the building up the framework.

As UI architect I have made the full outline of the proposed framework. For making this draw I contemplated hard about how to configuration well portray for a framework and what might be taken after.

As a tester, I needed to learn about testing related techniques. I presented myself a portion of the computerization testing instruments that make more productivity to my work. However doing the security testing I have found out about web security, how to shield from various assaults like SQL infusion, Brute power assault and so on in integration and usability testing, I have additionally found out about this.

At last I discovered that group comprehension can improve framework inside a short due date

#### **Conclusion:**

Despite the fact that to develop the framework, it was an extreme employment however we have made it effectively toward the end. To develop the framework, scum strategy followed appropriately. Framework satisfied the greater part of the given requirements and every one of the capacities working straightforwardly. Group joint effort was too great that made the assignment less demanding for us.

## **Appendix- A: User Interface Design**

## **UI Design:**

User Interface is the outline for a system or product, for example, the look of an application, without breaking a sweat of utilization for the client. In short design patterns are solution to repeating issues. By augmentation, UI configuration designs are answer for normal UI issues. It configures more often than not alludes to the plan of graphical UIs—however can likewise refer to others, for example, regular and voice UIs.

UI Design interiors around envisioning what clients may need to do and ensuring that the interface has components that are reliable for access, comprehend, and use to encourage those activities. UI unites ideas from association outline, visual plan, and data engineering (usability.gov, 2018).

Some elements of the Interface -

Input Controls - Buttons, text field, radio buttons, checkboxes, date field

Navigational Modules – Icons, sidebar, tags, slider, search box

Informational Elements – Message boxes, Notification bar

Containers – Accordion

## **User Interface Design Process:**

User Interface comprises some processes. This process must have to follow a designer to draw the interface of ant system. In this section those processes are represented –

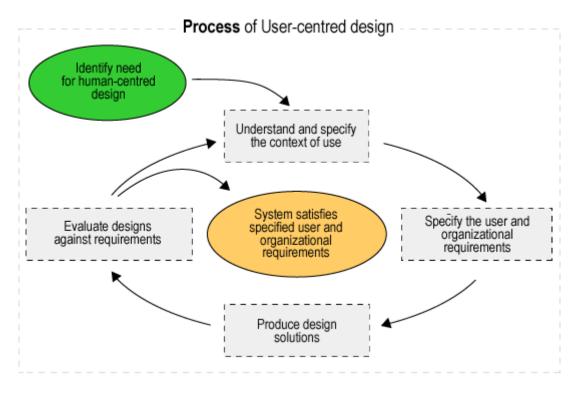


Figure 10: Process of UI Design (Anton Sergeev, 1999-2010)

## **User Interface of system:**

Proposed system User Interface Design is given below -

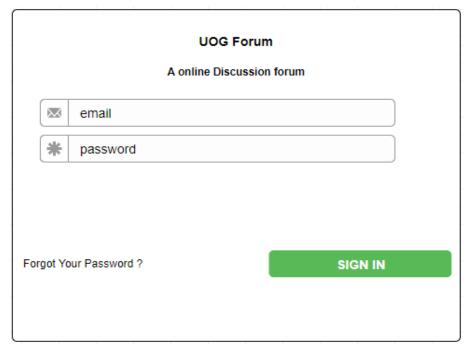


Figure 11: Login Form

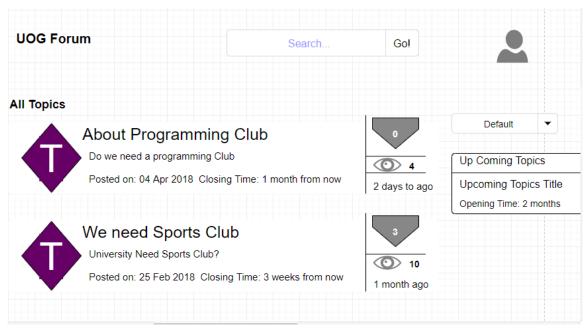


Figure 12: User Interface of UOG Forum

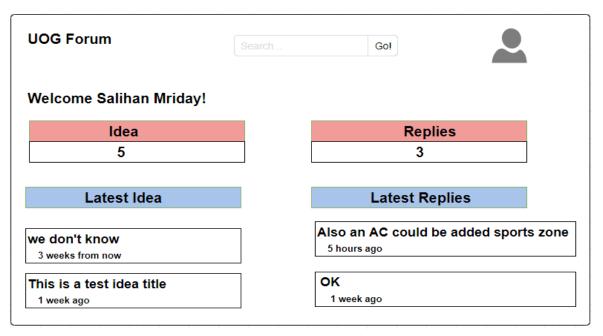


Figure 13: Student Dashboard

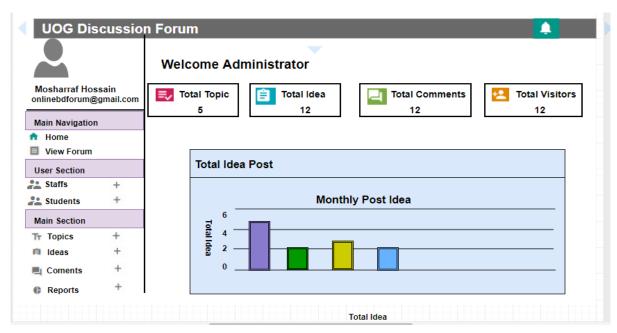


Figure 14: Admin Dashboard

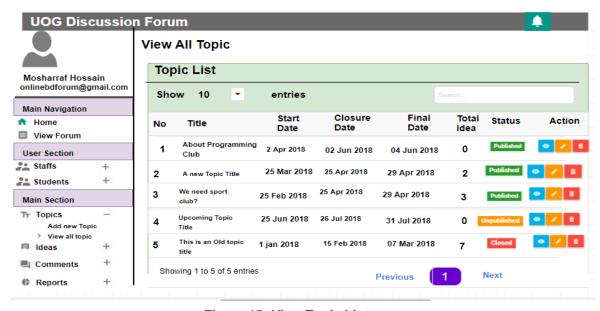


Figure 15: View Topic List

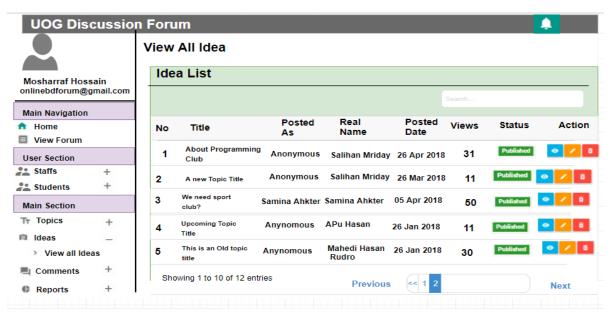


Figure 17: View Idea List

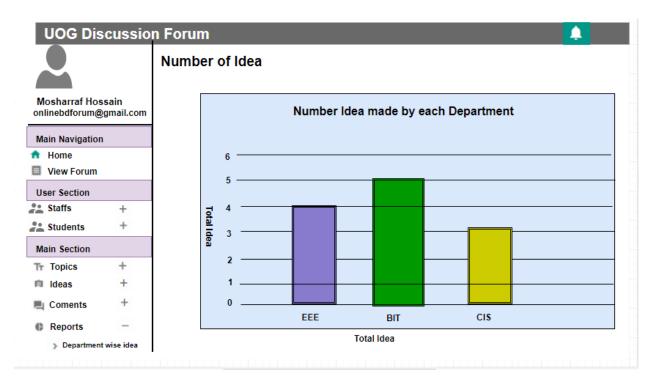


Figure 16: View Chart of all the posted idea by Department

For More Information Visit below Repository link:

https://github.com/mhmohon/the\_ultimate/tree/master/Web%20Designer

## **Appendices- B: Testing**

### **Intention of Software Application testing:**

Testing is required for an effective performance of software application or product. It's important to ensure that application works properly without any kind of failure. The reason of testing is to make sure that the end of the system or product meet all the requirements which it's have. Appropriate testing provide the best quality of the product and stay in the business market.

### **Principles of testing:**

There are seven types of principles testing. The description of those principles are given below:

- Presence of Defects: Testing ensure the defects of the application or product. Even after testing we can't say that the product is full free of defect. It reduces the number of unseen defects in the software.
- Impossible Exhaustive testing: Testing the whole thing containing all combinations of input and preconditions is not possible. For accessing and managing risk it is must needed.
- ➤ Early Testing: In software testing lifecycle early testing is must be started as soon as possible and also should attention on well-defined intents.
- Defect Clustering: Few modules contains a large portion of the imperfections found in pre-discharge testing. It indicates the effective failure.

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- Pesticide Paradox: For overcoming Pesticide Paradox, needs to analysis the test cases often and different tests need to written to exercise different parts of application to catch more faults.
- Context Dependent: Testing is mainly context depending. Different sites tested differently.
- ➤ Absence of errors Fallacy: Built useless system and does not please the client's and not fulfill the all requirements then finding and fixing errors are useless.

http://istqbexamcertification.com/what-are-the-principles-of-testing/

#### **Key Test Assumptions:**

There are some test assumptions that must be focused while the testing is running on.

Those assumptions are described below:

- > Appropriate data should be used during the relevant testing processes.
- Testing processes will be gradually checked by the tester and tester can choose a well-suited person to carry out processes as an alternative.
- All types of suggestions, queries, helps and doc file of the system will be given by the tester during the testing processes.

## **List of Testing:**

- 1. Integration Testing
- 2. Security Testing
- 3. Crows Browser Testing
- 4. Validation Testing
- 5. Responsive Testing
- 6. Performance Testing
- 7. Functionality Testing
- 8. Compatibility Testing
- 9. Usability Testing
- 10. Database Testing
- 11. Block unauthorized Testing
- 12. SQL Injection Testing
- 13. Crowd Testing

#### **Test Plan:**

The test design is an imperative part of executing the test effectively. There is different programming testing accessible for testing part. Keeping in mind the end goal to accomplish better outcome required to make an arrangement for testing.

Before beginning the test I have made some rundown of criteria that going to check in this framework. The test design is given beneath –

Test	Test Name	Specification	Expected Outcome	
N0.				
1.	Security Testing	SQL injection	Expected result is show	
		Encrypted password	properly all those	
		URL checking	things.	
		Valid user access		
2.	Crows Browser	Google Chrome	Will be overcome the	
	Testing	Mozilla Firefox	test clearly.	
		Internet Explorer		
		Opera Browser		

3.	Validation Testing	Login validation	Testing will be	
		Accomplish session validation	completed with	
		Form validation	success.	
		Upload varieties validation		
4.	Responsive Testing	Check smart phones view with	Will be run on all those	
		1920 x 1080 pixels	screen.	
		Check Laptop and Desktop view		
		size		
		Check all tabs screen size view		
5.	Performance Testing	In this section system	Acquire a good result.	
		performance will be implemented		
		by checking its performance.		
6.	Functionality Testing	Login test	All functions will be ran	
		Authenticate Dashboard	properly.	
		Check post idea and view it		
		Check Student Profile view		
		View all the reports		
7.	Compatibility Testing	Tried server OS platforms for	Will be a good report.	
		testing		

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8.	Usability Testing	Search bar check	Will work all those
		Notification bar check	things
		Check images, font type and size	
		Check instruction of all pages.	
9.	Database Testing	Data insertion	Functions will work.
		Data Update and Delete	
		Password encrypted	
10.	Block unauthorized	If the system can't match data with	Show a message for
	Testing	user input. The system will block	blocking the user.
		those user for 18 second.	
11.	SQL Injection Testing	Check for injection attack	Will be prevent form this
			attack

## **Attempting Testing:**

Those testing are attempting for the application which are given below:

#### **Security Testing:**

Security testing is a process to determine that an information system protects data and maintain functionality as intended. It confirms that the program is restricted access to authorize. Security testing of the this system is given below –

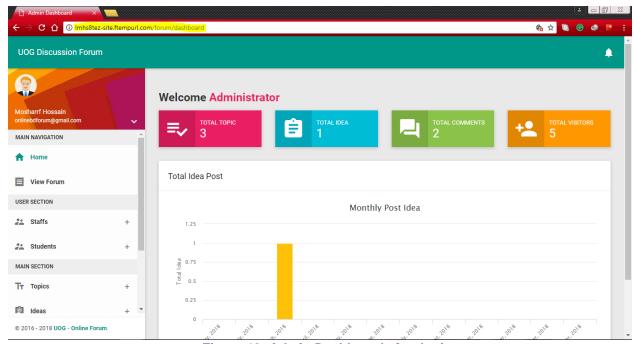


Figure 18: Admin Dashboard after login

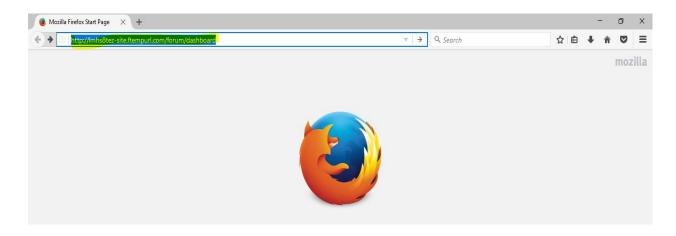


Figure 19: Copy URL and paste it Mozilla Browser

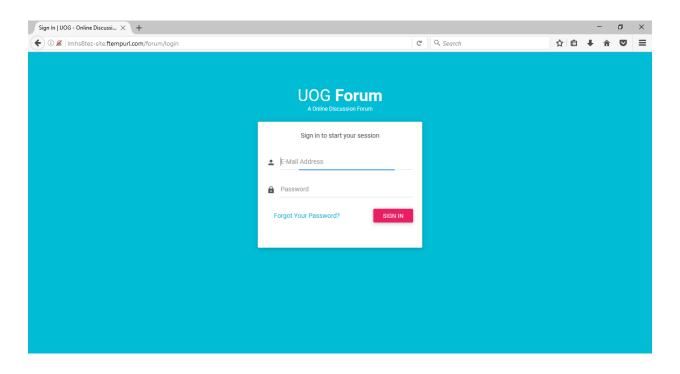


Figure 20: Showing Login page

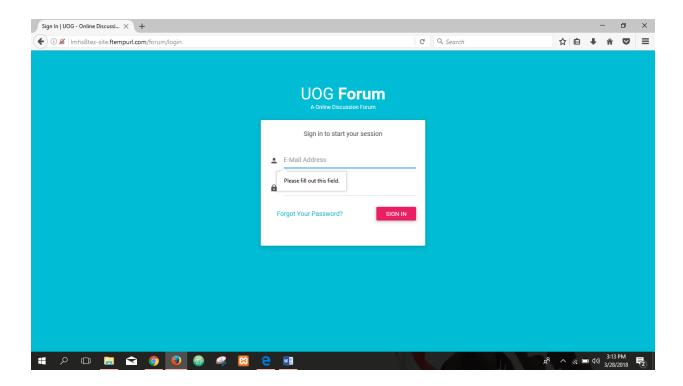


Figure 21: Field can't be blanked

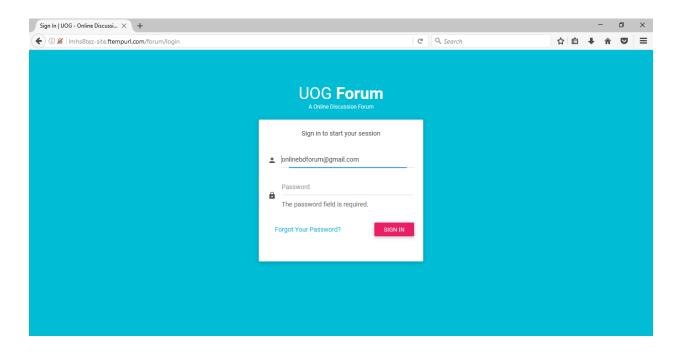


Figure 22: Password can't be blanked

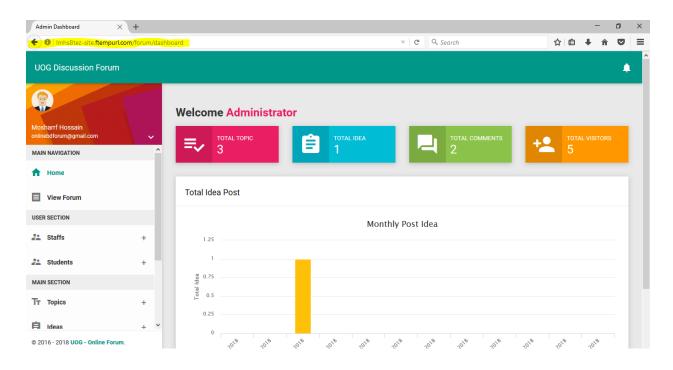


Figure 23: Successfully Login after giving all correct information

#### **Cross Browser Testing:**

Cross Browser testing is a process to test web applications across multiple browser. It checking compatibility and ensure that web application works correctly across the different web browser. Some web browser testing of my application is given below:

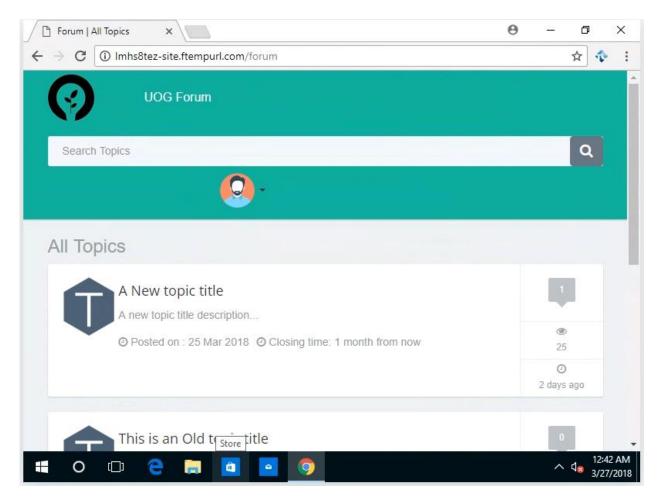


Figure 24: Google Chrome

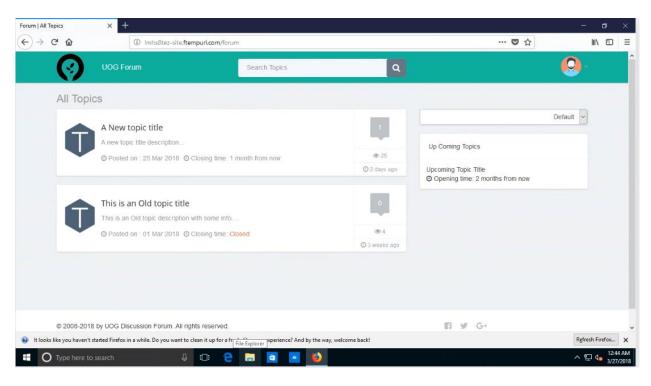


Figure 25: Mozilla Firefox browser

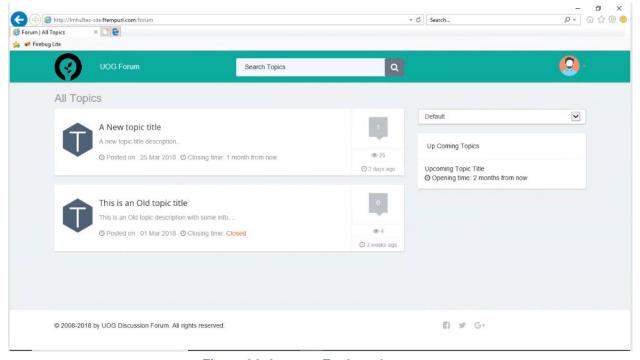


Figure 26: Internet Explorer browser

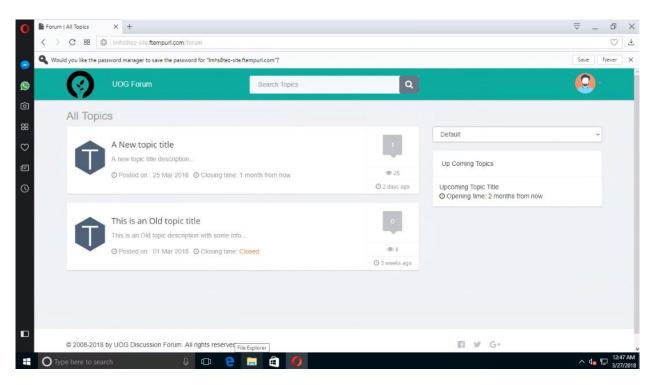


Figure 27: Opera browser

## **Validation Testing:**

The Process of evaluating software during the development process or after the completing all the processes. It ensure that the product meet the requirements which is required and accomplishes functional purposes. Validation testing is must needed for testing for an application. Major validation test of the program is given below –

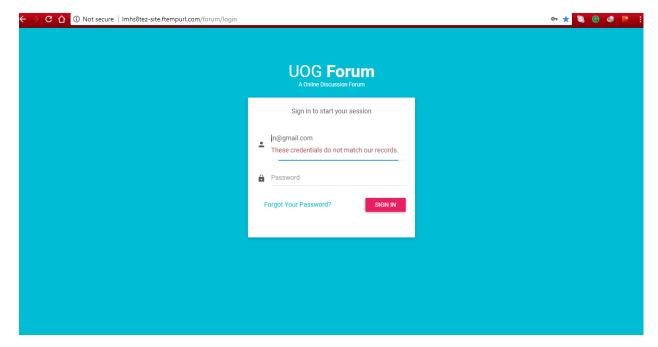


Figure 28: Not valid Email Address check

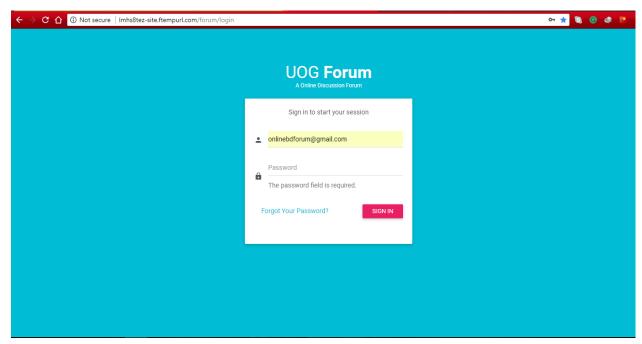


Figure 29: Password Field can't be blank

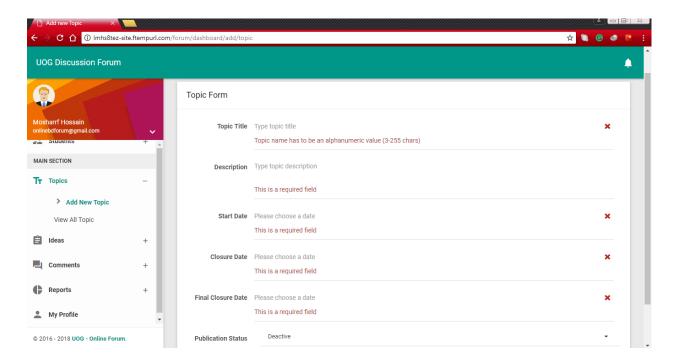


Figure 30: If field is blanked then validation message will show

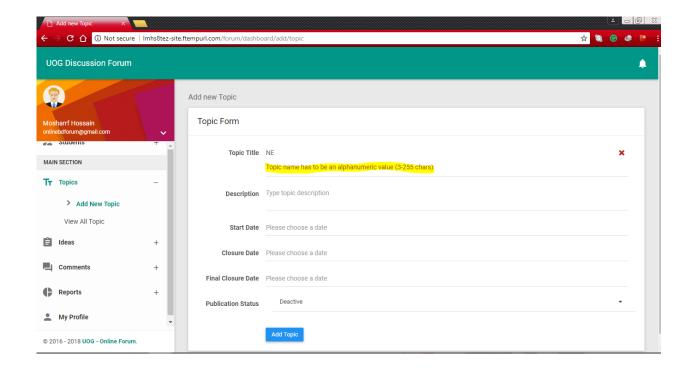


Figure 31: Topic Title must be in 3 Words

#### **Responsive Testing:**

It is an approach to design intended at creating sites to provide a best viewing experience like easily reading and navigation with a minimum of resizing, planning and scrolling across a wide range of devices. This system is tested on various devices like computer, laptop, pc, mobile, tablet with the different screened devices and it passed all the tested and run efficiently. In the below a figure is given for this testing-

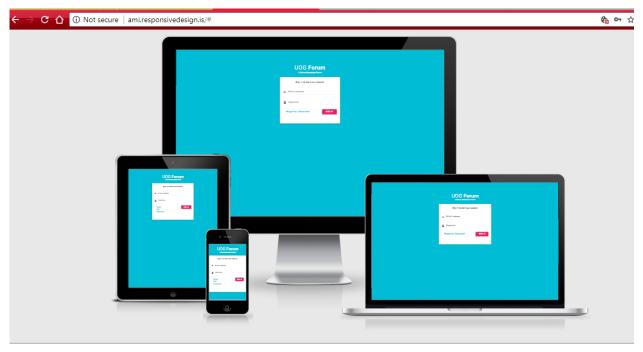


Figure 32: The system show properly all type of display

http://ami.responsivedesign.is/#

#### **Performance Testing:**

This testing evaluate the response time or speed. Throughput and utilization of the system to execute its required functions in comparison with different versions of the same product which is called as a Performance testing. In the below there is given of my application performance-

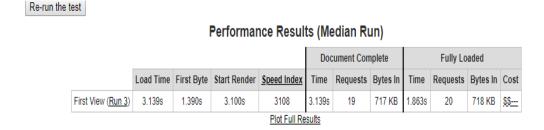


Figure 33: Performance Testing



Figure 34: Performance Testing PIE Chart

#### **Functionality Testing:**

It's a process used within software development in which software is tested to ensure that it confirms with all requirements. It's a way off checking software to ensure that it has all the required functionality that specified within its functional requirements. Some of the functional testing of the system is given below –

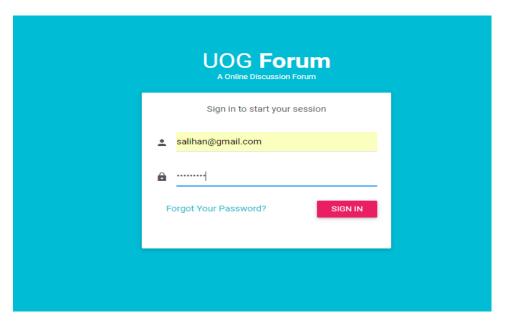


Figure 35: Student user name and password entered

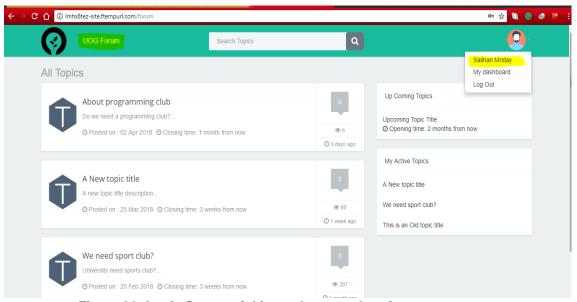


Figure 36: Login Successful in student user Interface

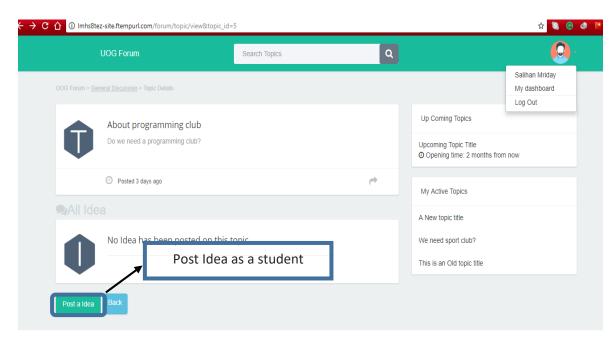


Figure 37: Select idea button for posting idea under a topic

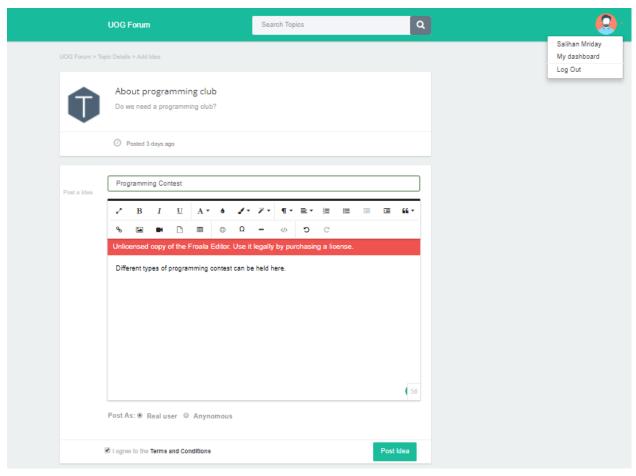


Figure 39: Insert Idea Title, description, real name or anonymous

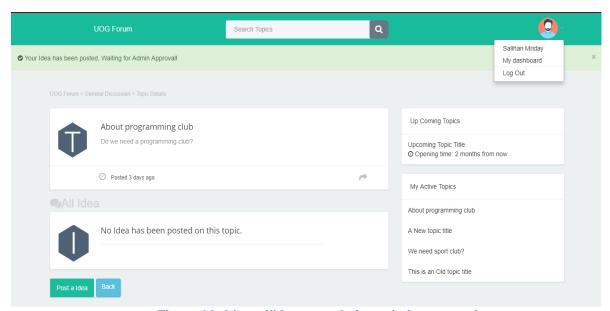


Figure 38: Idea will be posted after admin approval

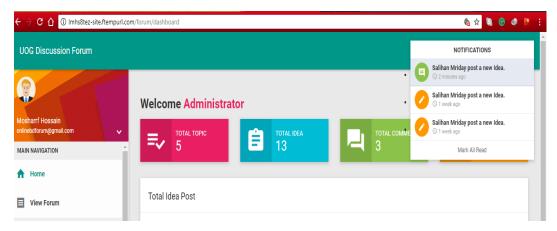


Figure 40: Admin get notification for new idea

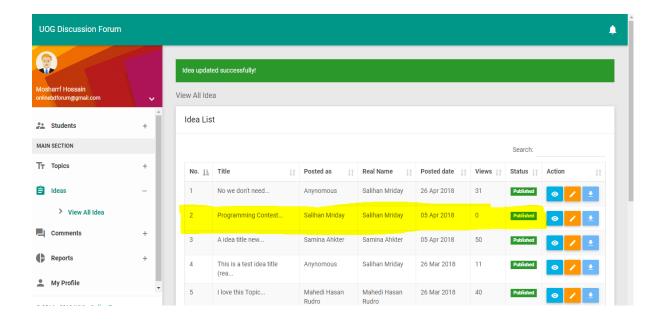


Figure 41: Admin Approve the Idea

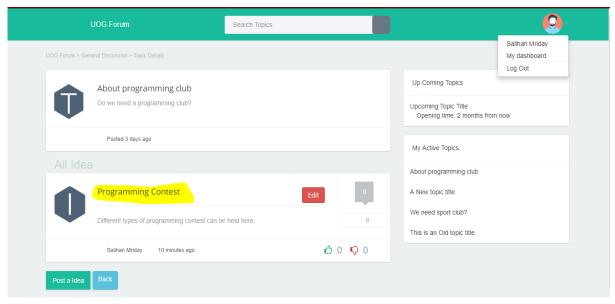


Figure 42: Idea Successfully Posted

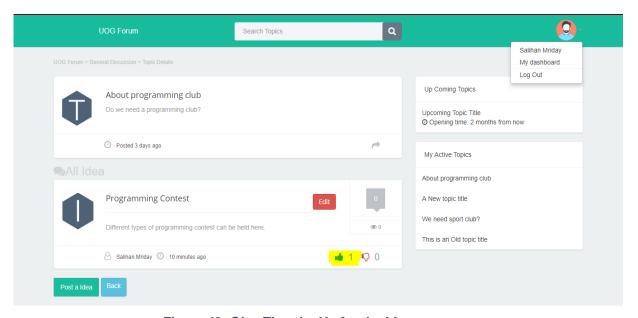


Figure 43: Give Thumbs Up for the Idea

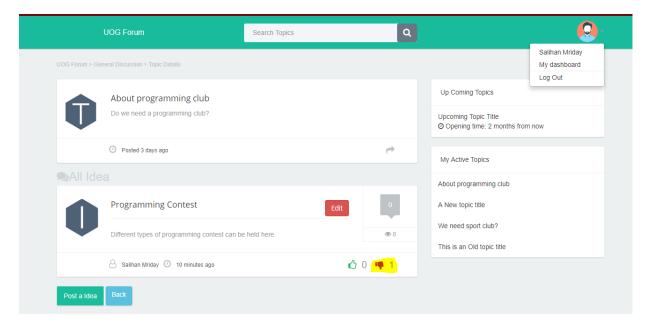


Figure 44: Can give Thumbs Down for Idea

#### **Compatibility Testing:**

This software testing is used to ensure compatibility of the system built with carious objects such as other web browser, hardware platforms, and user's requirements.

## **Usability Testing:**

It's a technique used in user-centered interaction design to evaluate a product by testing it on user. This can be seen as an irreplaceable usability practice when it gives direct input on how real users use the system. Particular testing of usability is given below –

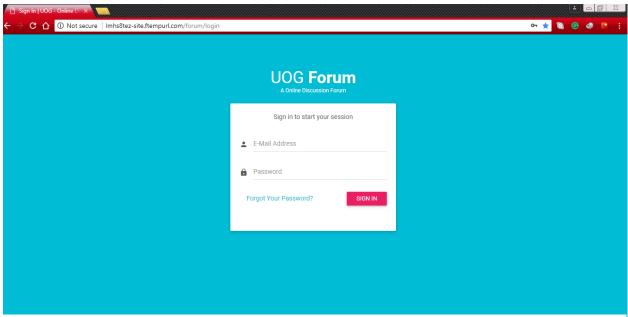


Figure 45: Manager and Student Login

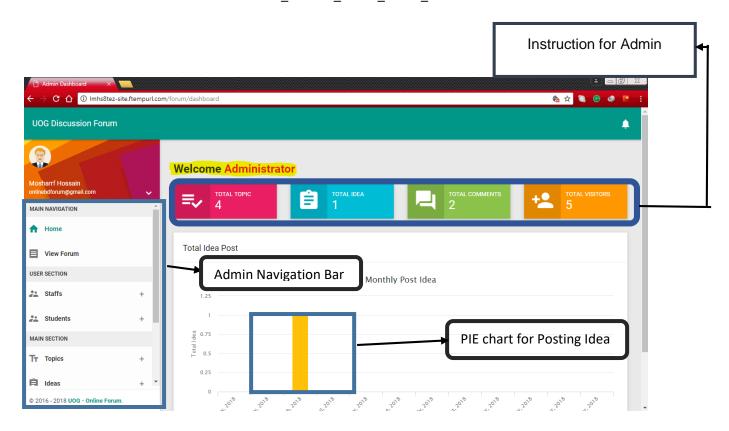


Figure 46: All Functions are available here for Admin to manage

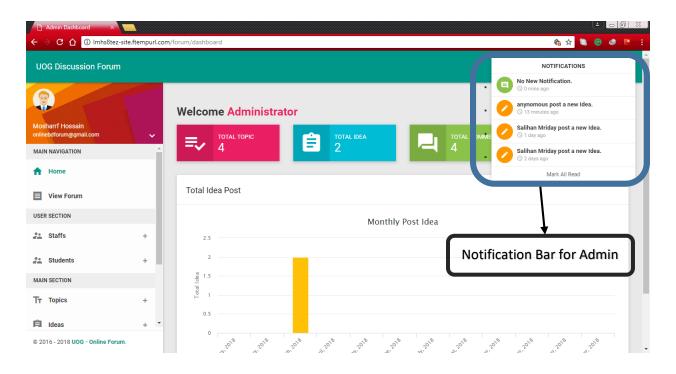


Figure 47: Notification bar for Admin

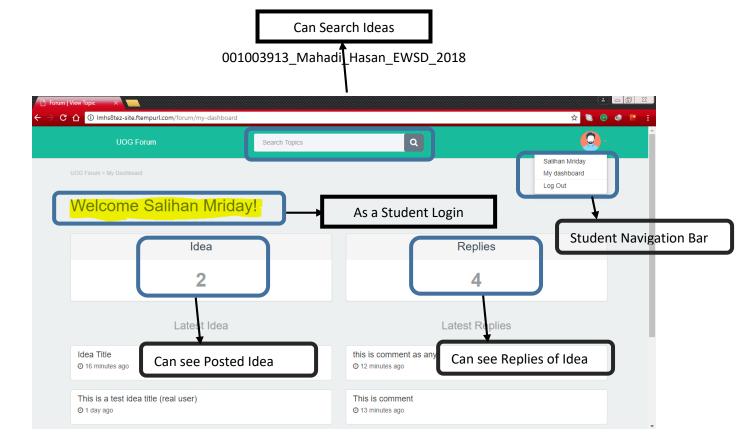


Figure 48: Correct Student Managing functional are available here

## **Database Testing:**

This testing involves the database connect successfully to the system. It performs module testing of database functions, triggers, views, SQL queries. It validated database tables, data models, database schema etc. Determining system by CRUD which more efficient database. Particular database testing of the system is shown here –

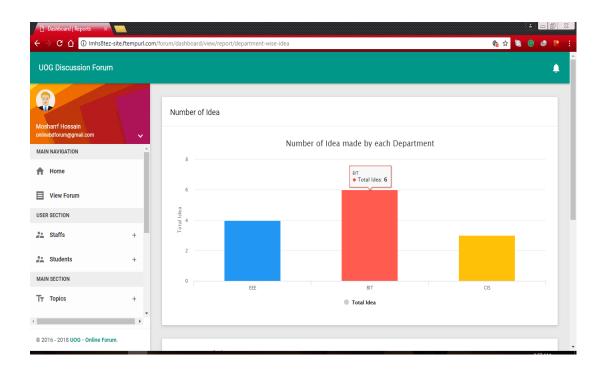


Figure 49: Successfully connected to the system



Figure 50: Query run successfully in the database

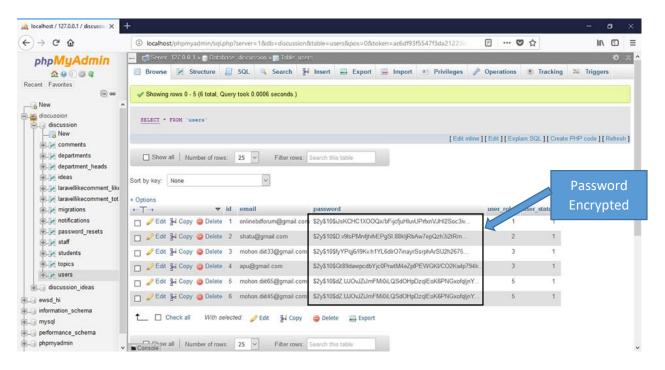


Figure 51: Encrypted password in Database

#### **Block unauthorized testing:**

It means if any one tried with wrong information can't access in the system as well as uncertainty a person input wrong information at least 5 times then system will block this unauthorized person for 18 second. Here few testing of it is shown –

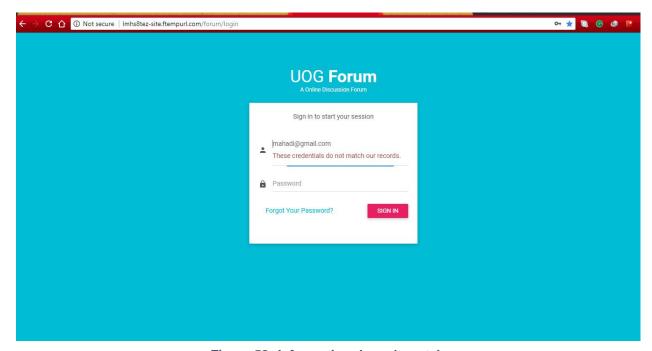


Figure 52: Information doesn't match

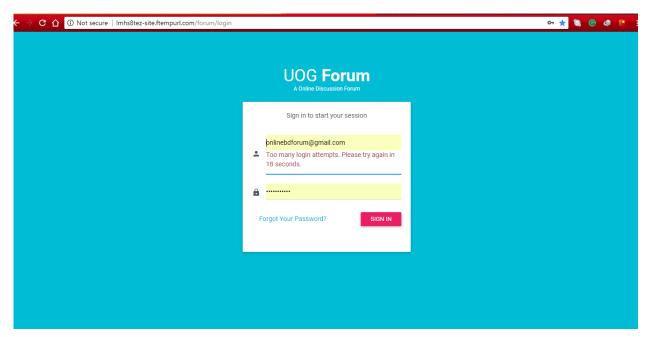


Figure 53: Block Unauthorized users for few time

#### **SQL** Injection testing:

This is consists of insertion or injection of a SQL query via the input data from the client to the application. This testing is need for seeing how much my database is strong enough to protect attack.

#### Report

```
{1.2.3#stable}
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is
illegal. It is the end user's responsibility to obey all applicable local, state and federal
laws. Developers assume no liability and are not responsible for any misuse or damage caused
by this program
[*] starting at 20:00:40
[20:00:40] [WARNING] unable to create output directory '/srv/http/.sqlmap/output' ([Errno 13]
Permission denied: '/srv/http/.sqlmap'). Using temporary directory
'/tmp/sqlmap4G06mG6384/sqlmapoutputsp2K3w' instead
[20:00:40] [INFO] testing connection to the target URL
sqlmap got a 302 redirect to 'http://lmhs8tez-site.ftempurl.com/forum'. Do you want to
follow? [Y/n] Y
[20:01:00] [INFO] checking if the target is protected by some kind of WAF/IPS/IDS
[20:01:05] [INFO] testing if the target URL content is stable
[20:01:10] [CRITICAL] no parameter(s) found for testing in the provided data (e.g. GET
parameter 'id' in 'www.site.com/index.php?id=1')
[*] shutting down at 20:01:10
```

Figure 54: SQL Injection Test Report

## **Crowd Testing:**

This testing is directed by analyzer in related with a gathering of non-specialized individual. This follows how the gathering tell about the item and their input about your product. Additionally guarantee the execution, convenience of the framework from their point of view on the off chance that they can rest easy.

# Test log:

Test	Test Name	Specification	Outcome	Result
N0.				
1.	Integration Testing	Integration of the system	Under control	Passed
		has been checked	the test	
			effectively	
2.	Security Testing	Check all the security test	Many other test	Passed
		for the system	is occurred here	
			and passed	
			successfully	
3.	Crows Browser Testing	Different browser screen	Overcome the	Passed
		tested for the system	test positively	
4.	Validation Testing	Exact Validation of the	Testing is	Passed
		system is tested and	complete with	
		established	success	
5.	Responsive Testing	Several screen resolution	Verified in all	Passed
		confirmed for	test with	
		responsiveness	effortlessly.	
6.	Performance Testing	Online implements are	Well passed	Passed
		tired for this testing		
7.	Functionality Testing	Functions of the system	Verified	Passed
		work well	successfully	

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8.	Compatibility Testing	Tried server OS platforms		Passed
		for testing		
9.	Usability Testing	Test usability for the	Tested very	Passed
		system efficiently	smoothly and	
			succeed in	
			testing	
10.	Database Testing	Check all the section	Tried constantly	Passed
		efficiently	with success	
11.	Block unauthorized	Checking for Security	Passed in this	Passed
	Testing	purpose	test part.	
12.	SQL Injection Testing	Check for valid query in	Good enough in	Passed
		database.	testing	

# For More Information Visit below Repository link:

https://github.com/mhmohon/the\_ultimate/tree/master/Tester