Abstract- As we concern that past few board exams in our country the exam questions were leaked before the exam starts. So our main target is to send the question paper in the exam center with maximum security so that the question will not be leaked. For this purpose, we built a website and we called it the **'QuestionProtector'**. In this website, general people can visit and do their work like the current education board website but in the login section, only the validate user can access. In this login section, the board will send the question and the valid exam center can see the question by confirming the every security steps. Furthermore, **QuestionProtector** is enough user friendly website so any one can visit this website and do their works.

Technologies Used:

- ✓ **Language:**
  - I. HTML
  - II. CSS
  - III. JavaScript
  - IV. Bootstrap
  - V. JSP
  - VI. Java Spring MVC
  - VII. SQL
- ✓ **Compiler:** NetBeans 8.2
- ✓ **Framework:** Java Spring Framework
- ✓ Commons-fileupload-1.3.3.jar
- ✓ Commons-io-2.6.jar
- ✓ Itextpdf-5.1.0.jar
- ✓ Java-json.jar
- ✓ Javamail-1.4.6.jar
- ✓ Mysql-connector-java-8.0.11.jar

Hardware:

- ✓ Processor : Intel(R)Core(TM) i3-6100U CPU @2.30GHz 2.30GHz
- ✓ RAM : 4.00GB

Methodology:

In this website actually there are 3 sections and this sections are given bellow:

- ✓ General user
- ✓ Admin panel
- ✓ Validate user panel

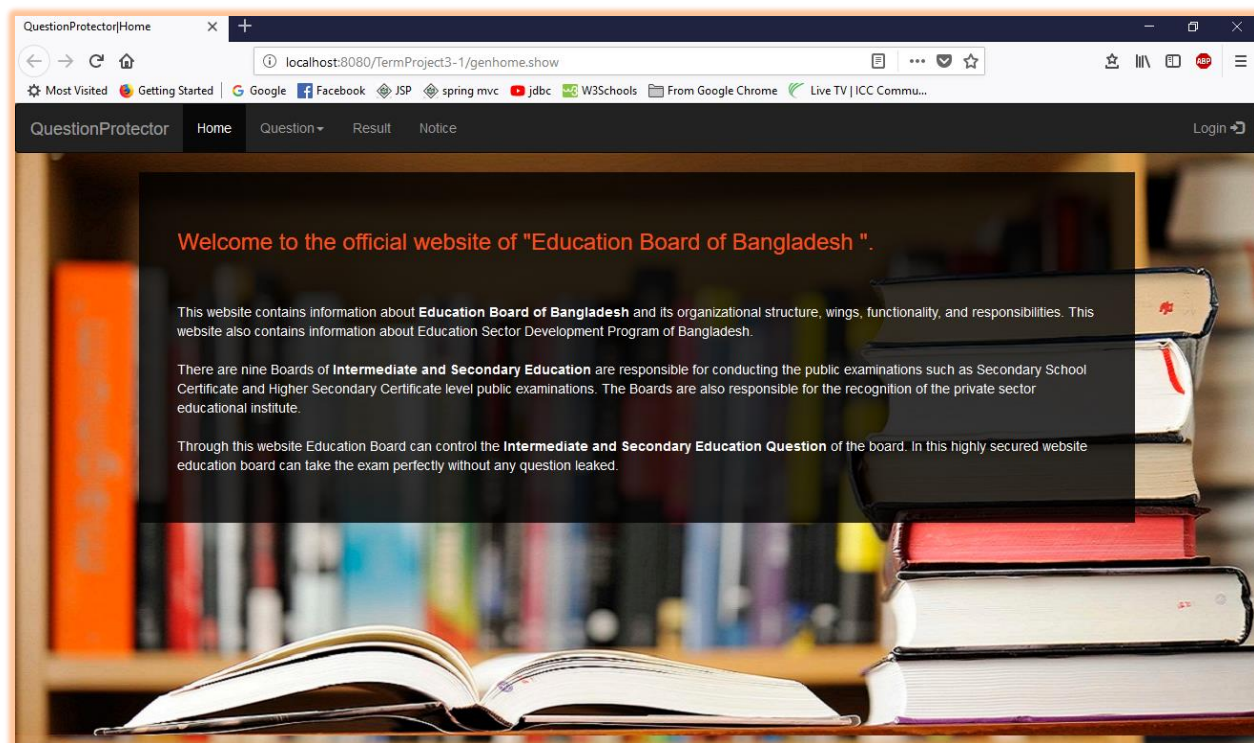The general user **home page** is given below:

Figure 1 Home page for general user

As we are using **java spring framework** in this website. This framework will make the website more secure. This framework working steps are given below:

- ✓ Handler Mapping
- ✓ Controller
- ✓ View Resolver
- ✓ View

In this framework, dispatcher servlet handles all the HTTP request and response. After receiving the HTTP request, DispatcherServlet consults the HandlerMapping to call the appropriate
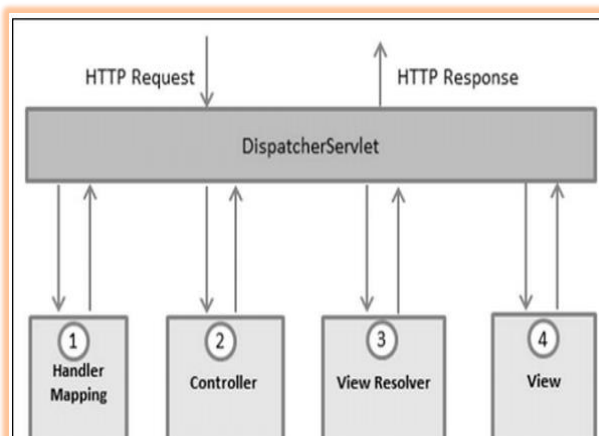

Figure 2: Java Spring Framework working procedure

controller. The controller takes the request and calls the service methods based on used GET or POST method. This service method will set model data based on defined logic and returns view name to the DispatcherServlet. The DispatcherServlet will take help from ViewResolver to pick up the defined view for the request. Once the view is finalized, the DispatcherServlet passes the model data to the view, which is finally rendered, on the browser.

General user Section:

❖ **Question:** In this section the general user can see the previous year question by selecting the subject in the question subsection. The question will be shown in the table & the user can show them by clicking the name of the file. If there is no question in the selected subject the table will be empty. The question in the table will be shown according to their date where the date will be sorted in descending order.

Figure 3: Previous Year Questions

The user can see the question by clicking the name of the question and the File Show window will open where they can see the question, download question and print the question.

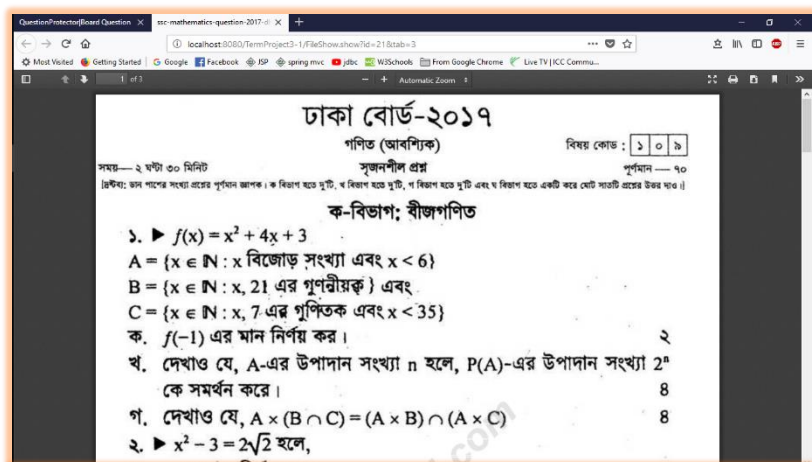*Figure 4: File Show page*

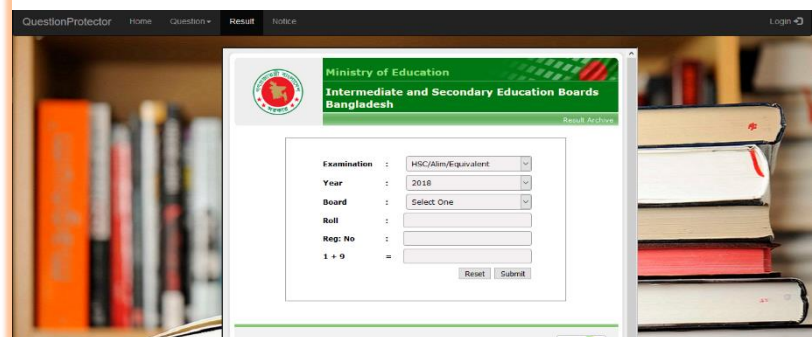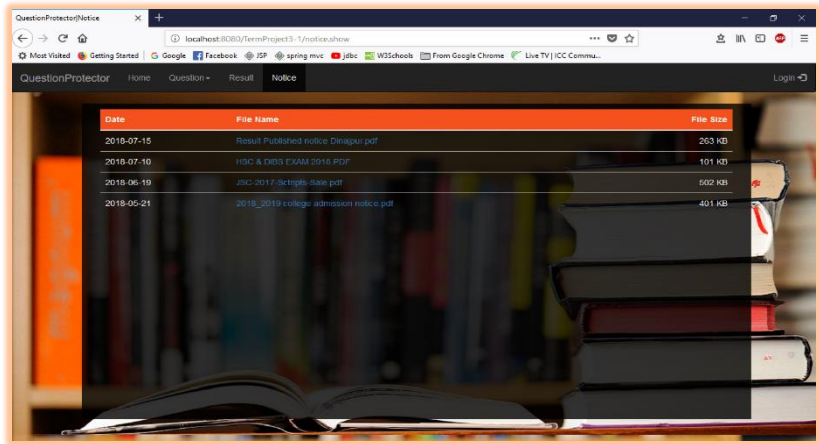❖ **Result:** In this page, any one can search the board result.

Figure 5: Result show page

❖ *Notice:* In this notice page the user can easily find the notice and the notice are sorting in the descending order according to the date. The notice will show in the **File Show** page by clicking the file name in the notice page table.
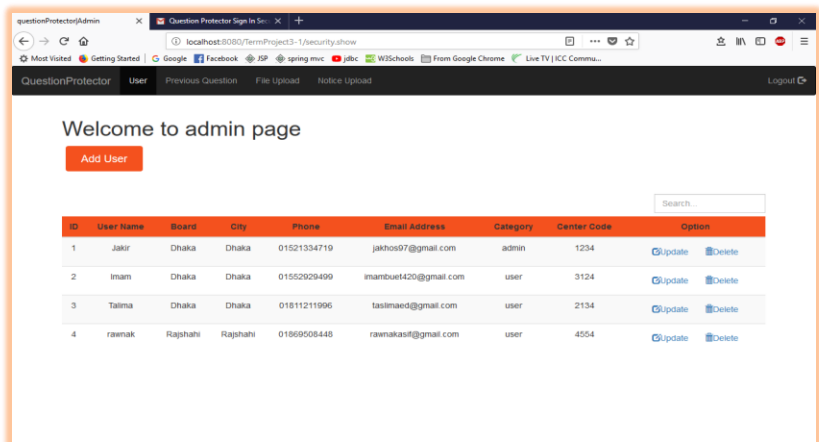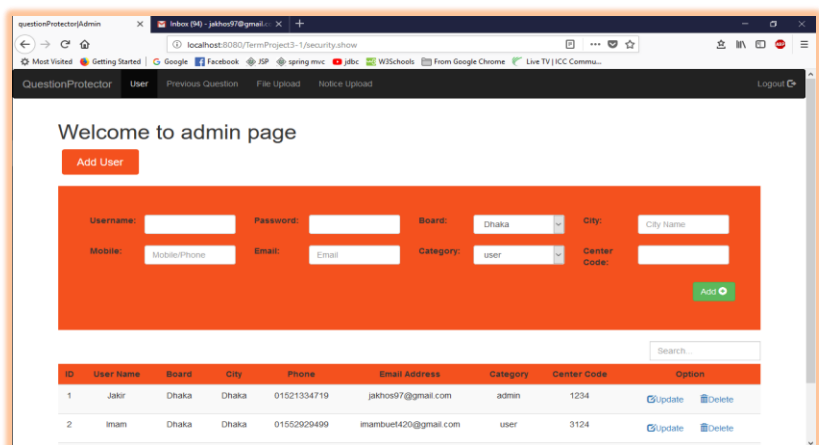

Figure 6: Notice Page

Admin Panel:

❖ *User:* In this user page admin can control the user. Admin can add the user, delete the user & also update the user info. In the user table admin can see the user info and in the search, box admin can search the user by giving any kind of user info.

Add User- By clicking the add user button an add user panel will show where the admin can write the user info and by clicking the add button the user will be added if there is no error. The user table will update if a new user added or an error message will be shown at the top of the page if something goes wrong.

Figure 7: Admin page

Figure 8: Add User Panel

Update User Info: In this section after clicking the update option from the user table row the update panel will be shown and the admin can update the user info. When the update button will be clicked the given information will be saved in the database. If any error occurred an error message will be shown in the top of the update panel.
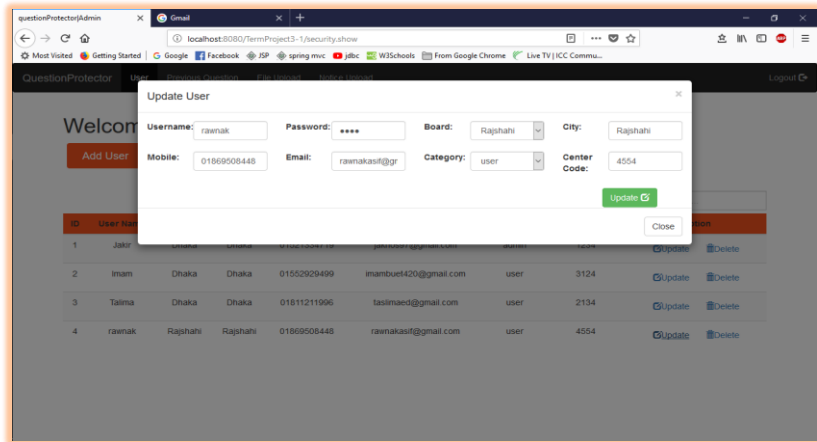

Figure 9: Update User Panel

Delete user: In the delete, option admin can easily delete any user if he/she wanted. When admin click on the delete button a confirmation window will show and confirming it the user will be deleted and the table will be updated.

❖ **Previous Question:** In this page, admin can upload the previous year questions by clicking the upload previous board question button and the upload question panel will open. Then admin must be given the question date, subject code & board or an error message will be shown in the panel. After uploading the question the previous

Figure 10: Previous Year Questions

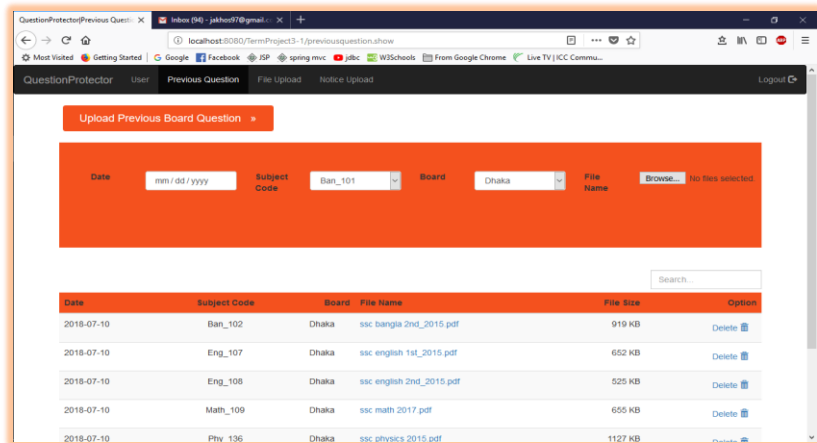year question table will be changed automatically and the question will be saved in the database.

❖ **File Upload:** In the file upload page the admin will upload the next exam question paper by selecting the board name, subject code, file and **most importantly the exam date & time.** According to this date and time, the validate user (Exam center) can show the exam question. When the question will be uploaded the question info will be shown in the table and there will be a delete option in every

row of the table. If an admin wants to delete the question from the server he/she can click on the delete button and after confirming the delete window the question will be deleted from the server and the table will be updated. There is a search box

Figure 11: File Upload Page

on this page at the top of the table. In this search box, admin can search the file in the table by changing either on a date or subject code or board name.
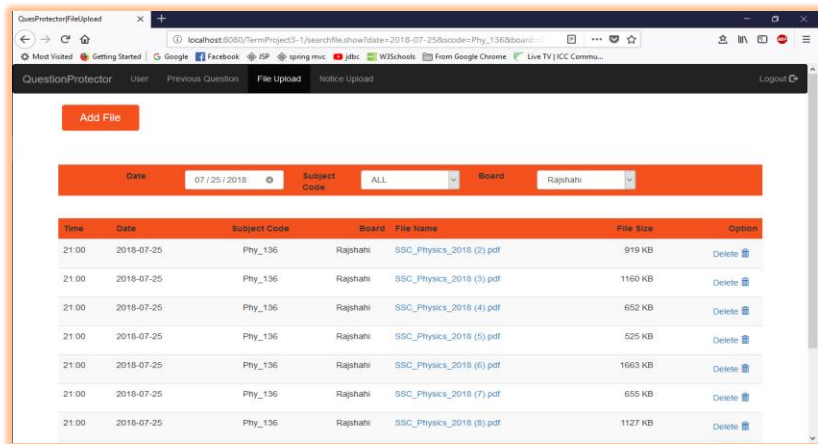
Random file select: In the file upload page at the bottom of the table there is a section for randomly file selection option. After clicking on **creating random button** a file will be selected and the file name will be shown in the text area and the

Figure 12: Random File Selection

selected file will be colored in the table. Then click the send file button the selected file will be sent to the user according to the question board.
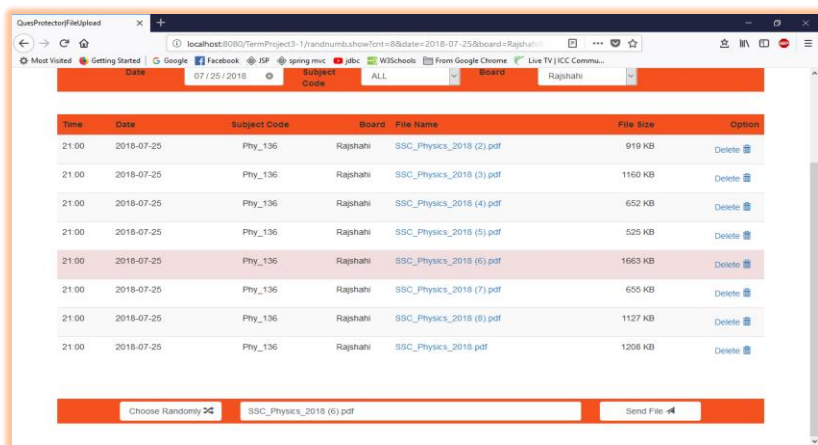
❖ *Notice upload:* In the notice upload page admin will upload the notice and he/she can see the notice by clicking on the notice file name and also delete the notice from the table option column. There is a search box at the top of the table where
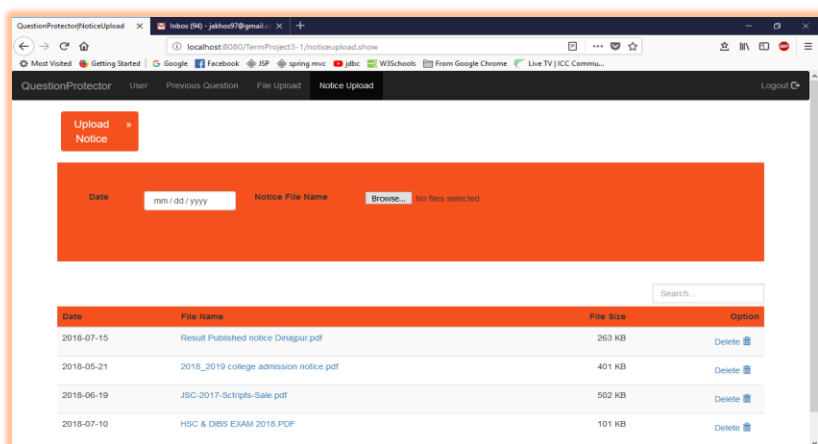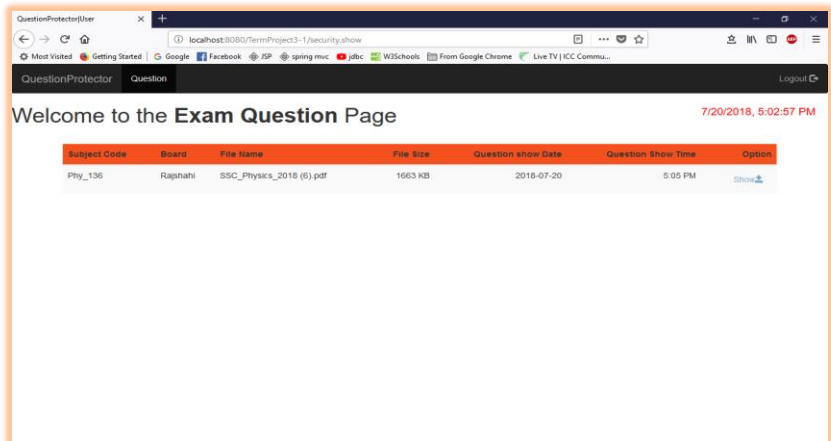

Figure 13: Notice Upload

the admin can search any notice by giving any kind of file information according to the table.

Validate User Panel:

Only the validate user can see this page after confirming there security in the login page. If the admin sends any question for this board exam the question will be shown in the table. But the user can't see the question until the question show time arrives and the table show option enabled. When the current time and date will arrive at the question show time and date the user must need to reload the page and show button in the options column will be enabled. By clicking in the show button the question will show in the File Show page (Figure 4).

Figure 14: Validate User page

Security check:

Since the education board will send the exam question paper in the exam center trough this website so we have to take some security steps. In this website, we take 3 steps of security.

- ✓ Dispatcher Servlet security
- ✓ Mail security in login
- ✓ Question show security check

Dispatcher Servlet Security: This types of security will show in the webpage url link http://localhost:8080/TermProject3-1/genhome.show. In this link, we see that the page type is **.show** that's why nobody will know the actual page type. The page type converts to its main page type in the dispatcher servlet.

Mail Security in login: In the login page the user must give the user name, password and it will be checked in the control page by accessing the database (Figure 15). If the username and password check function return true then the security page will arrive (Figure 16) and a security code will be sent to the mail address (Figure 17) and this security code will be also saved in the database. When the user enters the security code it will check the security the in the control page by accessing the data base. If both security code match with one another user can see the next page. If the user category is admin he/she will see the admin page or they will see the user page.
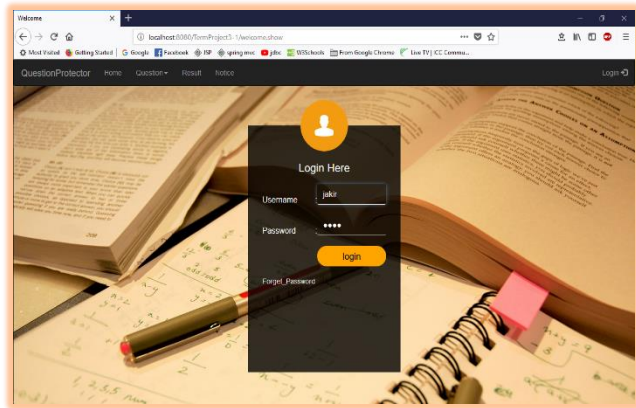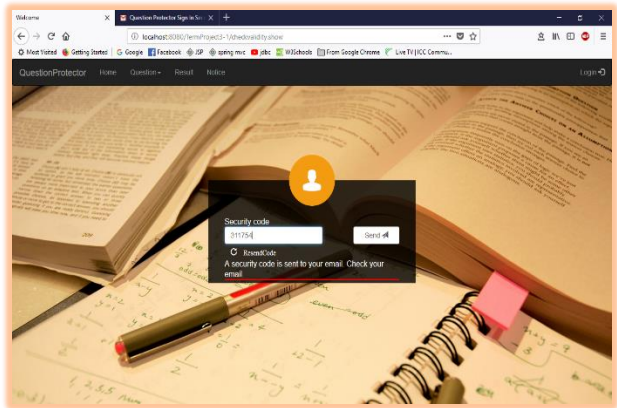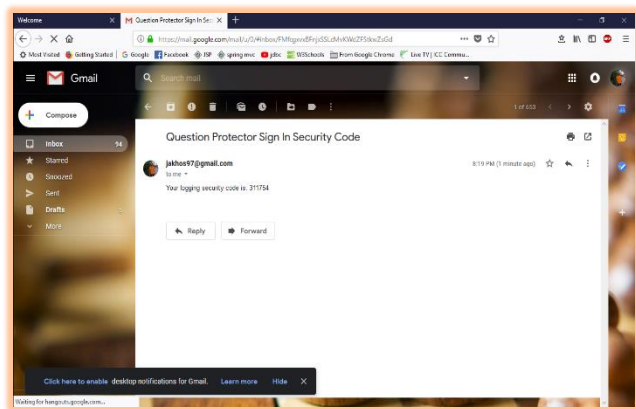
Figure 15: Login Page

Figure 16: Security Check
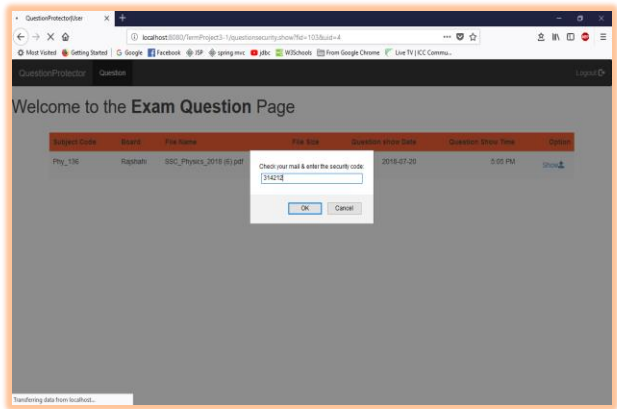

Figure 17: Mail

Figure 18: Question Security Window

Question Show Security Check: When the question show time and the real time will be the same the validate user can see the question. At this time the show button will be enabled and when the user will click on this button the security window will show because a security code will send to the mail and the user must have to confirm the security code (Figure 18). If the user can confirm the security code he/ she can see the question.

Database: In the database, we create a questionprotector database. In this database, there are total 5 tables and these tables are almost redundancy free.

Figure 19: Database Table

Future Work:

In future, we will

- ✓ Try to add encrypt and decrypt system to the question.
- ✓ Try to take the exam on this website securely.
- ✓ Try to add more security to the login page.
- ✓ Try to make the website more secure from any kind of risk
- ✓ Try to make the more dynamic & user friendly

Conclusion: We try to build this website user friendly and try to make this website more secure. In this website, the education board can send the question paper to the exam center without any question leaked and the general people can easily use the general side of this website.