University of Sunderland

School of Computer Science

CETM74 Web Design and Development

ASSIGNMENT 1 – Server side and Database Development

School IT Helpdesk Server side and Database Development: WearView Academy

Part B – Testing Table

Part C - Critical Evaluation: Strengths and Weaknesses

STUDENT NUMBER: 209449879

Part B – Testing Table

Test Number	Test title	Test description	Predicted result	Actual result	Fix
1.	Debugging the PHP codes	Test if code is bug free.	Bug free	Error in codes	Make changes suggested by the source-code editor.
2.	Debugging all PHP code in my webspace	Test if code is bug free.	Bug free	Error in database	Change column for case "status" to "statu". Status is a keyword.
3.	Debugging all PHP code in my webspace	Test if code is bug free.	Bug free	All pages opening in browser successfully	N/A
4.	Staff member Log in	Testing the standard user log in with wrong ID	Invalid username or password	Invalid username or password	Log in with correct Staff ID
5.	Admin Log in	Testing the admin log in with wrong ID	Invalid username or password	Invalid username or password	Log in with correct Admin ID
6.	Staff member Log in	Testing the standard user log in with correct ID	Successful log in with the correct ID	Successful log in in with the correct ID	N/A
7.	Reporting Issue - Case 1	Testing that Katy a teacher can creates a complaint – "Failed Wi-Fi connection on laptop"	Case Submitted successfully	Case Submitted successfully and saved in database	N/A
8.	Admin Log in	Testing the admin log in with correct ID	Successful log in	Successful log in in with the correct ID	N/A
9.	Close Case 1-Admin	Testing the Case Status Update page of admin – mark case as "close"	Case updated successfully	Case updated successfully and saved in database	N/A
10.	Modifying database – delete case 1	Testing that the database can be modified. Admin deleted the reported case from database.	Case deleted successfully	Case deleted and database modified successfully	N/A
11.	Reporting Issue – Case 2	Testing that Katy, a teacher can create a complaint – "unable to log in to the MS Teams"	Case Submitted successfully	Case Submitted successfully and saved in database	N/A
12.	Reporting Issue – Case 3	Testing that a teacher can creates a complaint "Projector not powering ON"	Case Submitted successfully	Case Submitted successfully and saved in database	N/A
13.	Case History page - User	Testing that the Case History page of user is	Only two cases should be seen as previous one	Only two cases are in the user case history page.	N/A

		updating, and deleted case 1 isn't showing up.	has been deleted.	Hence, database is updating.	
14.	Close case 2 - Admin	Testing the Case Status Update page of admin – mark case as "close"	Case updated successfully	Case updated successfully and saved in database	N/A
15.	Reopen a case that has been marked close by admin	Testing the Case Status Update page of staff member is working.	Case reopen marked "open" and submitted successfully	Case updated successfully and saved in database	N/A

Part C - Critical Evaluation of the Web Information System

An IT helpdesk is the point of contact within an organization that caters for internal technical queries and being a teacher and parent in one of the (GEMS Education, n.d.) chains of schools here in the UAE, I have had cause to contact the school IT helpdesk in both capacities to resolve a variety of technical issues.

1. Client side and Server-side Web Development

When I started with the client-side design and development (i.e., assignment 1), I had a good grasp of HTML and Cascading Style Sheets (CSS) and was able to develop an attractive IT helpdesk "**Homepage**" using random online images of school, students, and the IT support Team. The aim is to create an IT helpdesk page that will allow the standard **Users** (consisting of all the staff members excluding the IT support and parents of the already enrolled students) to lodge IT complaints and **Admin** (i.e., the IT Support Team) to respond as early as possible. However, while the website was working fine on desktop and laptop it wasn't responsive and adapting to screen resolution for tablets, and mobile phone, hence, I explored online resources to achieve a responsive website design (Jay & Mike, 2012).

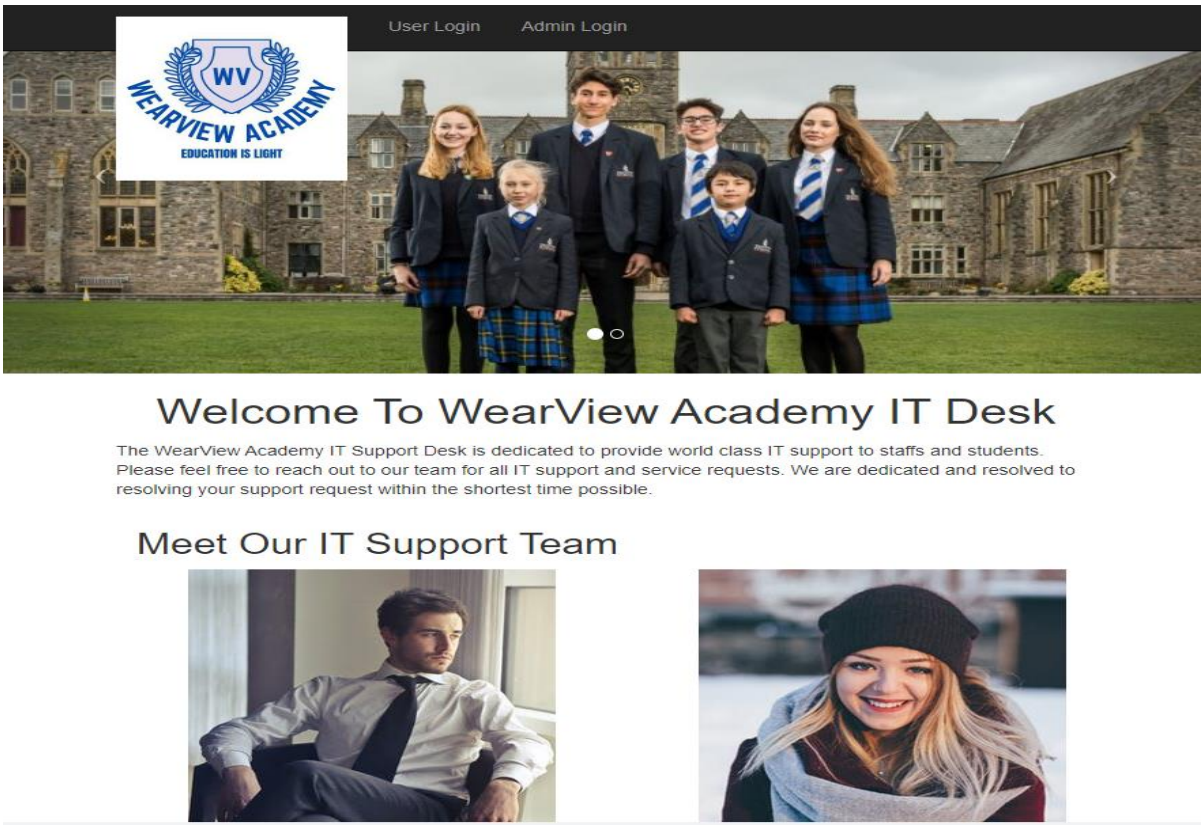


Figure 1 Website Homepage

The book “Bootstrap: responsive web development by (Spurlock) came handy for learning more about the Bootstrap’s file structure, grid systems, and container layouts, tables, forms, buttons, navigation and use jQuery plugins for features such as revolving slideshows, dropdown menus etc. The (Bootstrap Front-end framework), Cascading Style Sheets and JavaScript files were used in addition to the ones I had created i.e., **“mystyle.css”** and **“myscript.js”** to develop a responsive and easy to navigate webpages. More so, I found the (PHP: Hypertext Preprocessor) manual highly helpful to program the PHP codes for the website. So, it was easy to navigate from the “**Homepage**” to “**Login**” page by selecting the option that matches user’s status i.e., non-administrative “**User Login**” or “**Admin Login**”.

2. The Website Database Development

At the start of creating database for this website, **server name**, **username**, **password**, and **database** were set. Then, “**mysql_connect**” function was used to connect the PHP script to the database. **MariaDB database server** (localhost:3306) with the name “**admin_wearview**” was used to provide a Structured Query Language (SQL) interface for accessing the data. The database has three tables - **admin_tbl**, **users_tbl** and **case_tbl respectively**. A strict access control was used to help protect the system against cyber threat and ensure that only people with valid identification are able to access the school helpdesk - all staff members and parents must provide a valid **“username”** and **“password”** unless they are already signed in with their respective IDs. **One-way hashing** algorithm was used to encrypt the password for admin staff David (heretohelp!456) and staffmember Katy (letmein!123) (Gilchrist, 2004). This is a way of converting a simple password into a complex string that is irreversible to the original password, hence, can be saved securely into the database as the hashed password.

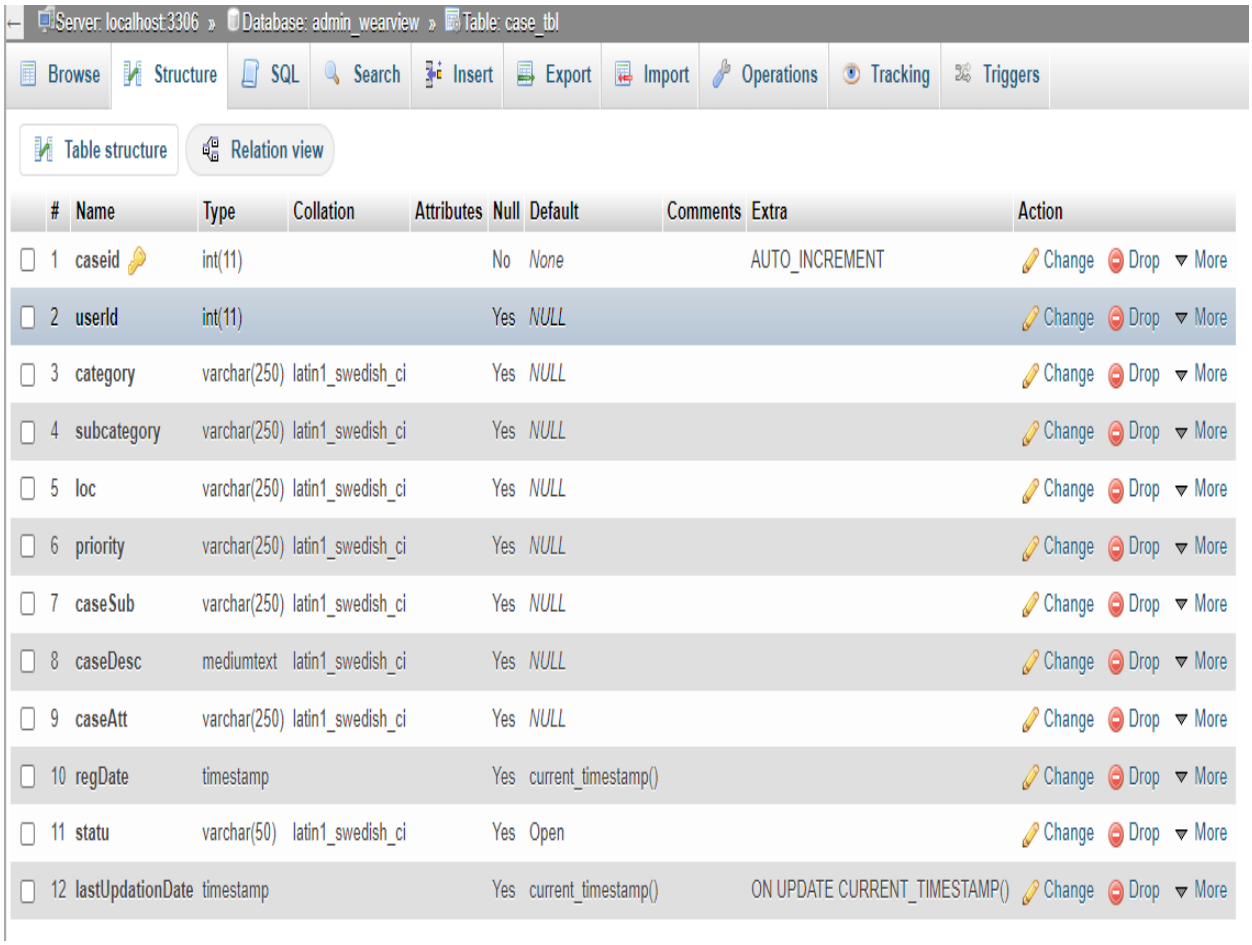
id	fullName	username	password	userImage
1	David	admin	$2y$10$/ytd68WbU8Rsxx55IYMazeHzshRPpq/iq7d7mHtsNFk...	*NULL*

id	fullName	username	password	userImage
1	Katy	staffmember	$2y$10$ntMIQLxPIUi/qLJI0RUeI.GfM4.41/Ysifiz/mXdHbi...	*NULL*

Figure 2: Users information showing the encrypted passwords

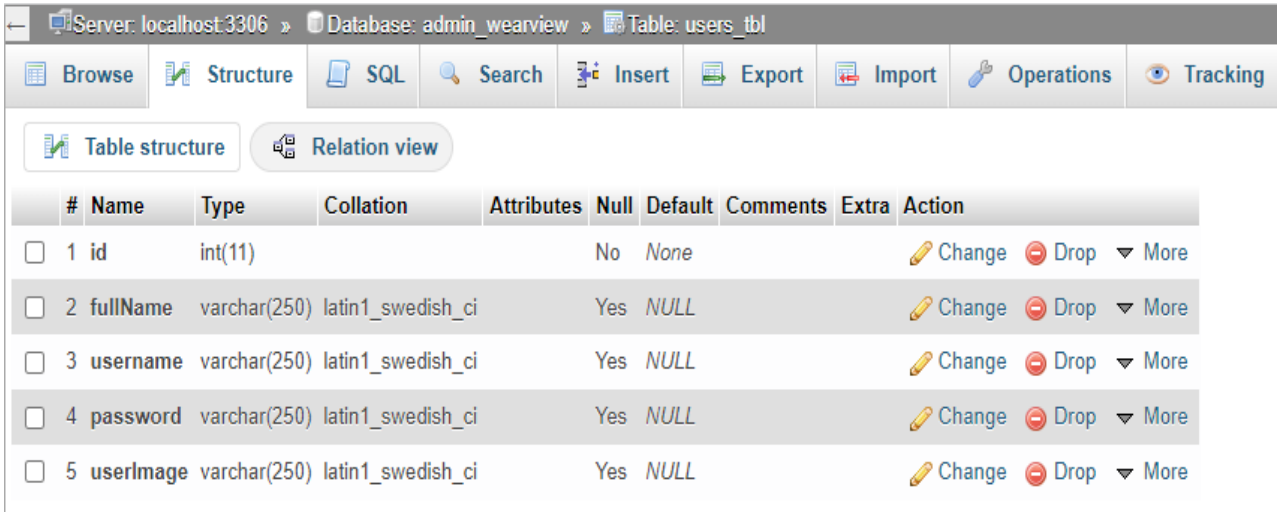
In addition, the database included a variety of SQL data types including integers (**int**) and string (**varchar),** which is a more flexible datatype. The varchar was used to save space (bytes of storage) because of its variable length (i.e., will only hold the characters that has

been assigned to it) unlike the character (char) that is of a fixed length and will use up all its bytes of storage assigned characters regardless of the assigned.



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	caseid	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	userId	int(11)			Yes	NULL			Change Drop More
3	category	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
4	subcategory	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
5	loc	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
6	priority	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
7	caseSub	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
8	caseDesc	mediumtext	latin1_swedish_ci		Yes	NULL			Change Drop More
9	caseAtt	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
10	regDate	timestamp			Yes	current_timestamp()			Change Drop More
11	statu	varchar(50)	latin1_swedish_ci		Yes	Open			Change Drop More
12	lastUpdationDate	timestamp			Yes	current_timestamp()		ON UPDATE CURRENT_TIMESTAMP()	Change Drop More

Figure 3 - The case table (case_tbl) consists of twelve columns



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	id	int(11)			No	None			Change Drop More
2	fullName	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
3	username	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
4	password	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More
5	userImage	varchar(250)	latin1_swedish_ci		Yes	NULL			Change Drop More

Figure 4 - The user table (user_tbl), also consists of five columns

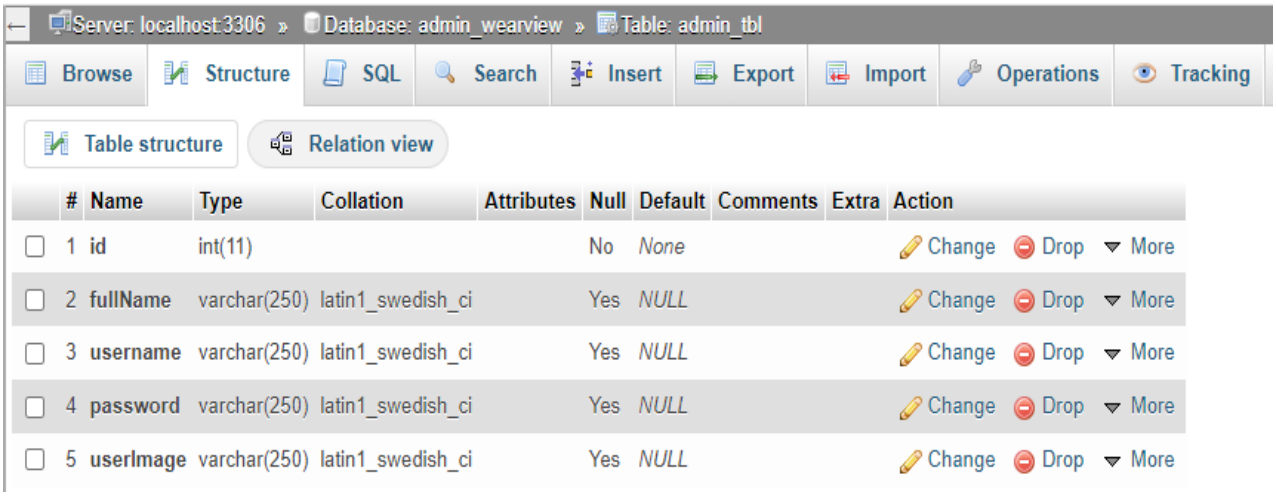


Figure 5 - The admin table (admin_tbl) consists of five columns

There were challenges with the creation of the database but by exploring as many resources as possible, connection was established, table was created, information was saved, and modified successfully in correct tables. While performing the testing, the use of keyword "**Status**" in column 11 in the case table (**Figure 5)** was causing the program not to run, so, it was changed to "**Statu**" to fix the bug.

3. Website Information System

The **Wearview Academy** (model website) has **admin page** that consists of three responsive webpages – i.e., Login, Cases History, and Cases Update. Admin can mark any of the cases **Open**, **In Progress** or **Close** depending on the status of the complaint i.e., whether they have been resolved or not.

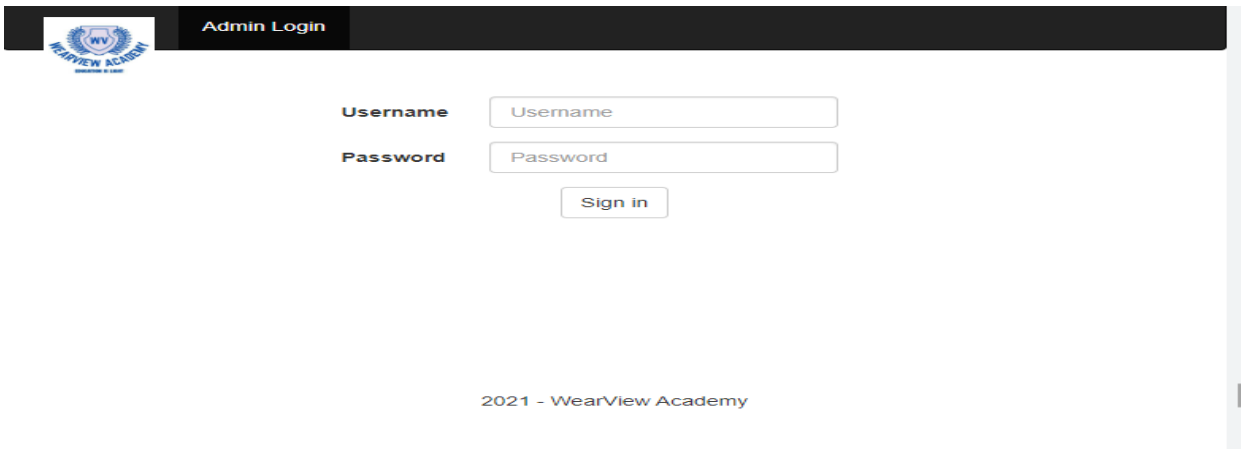


Figure 6 – Admin Login Page

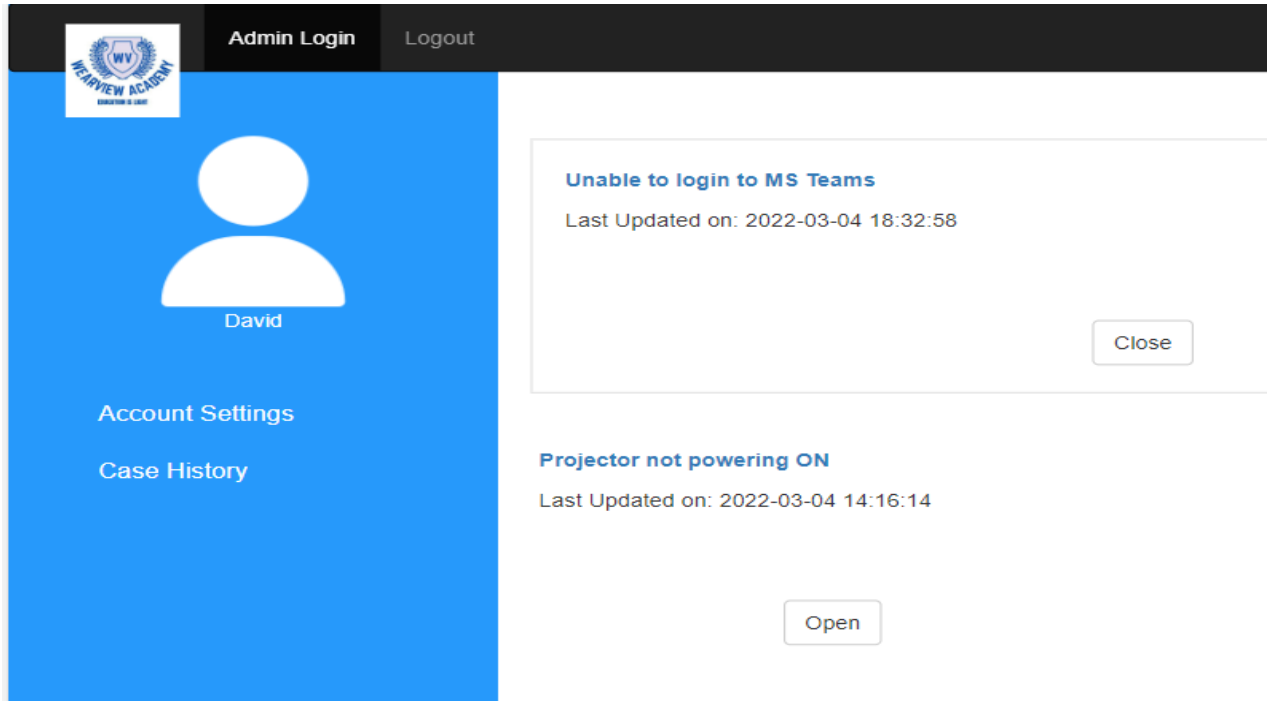


Figure 7 – Admin Case History Page

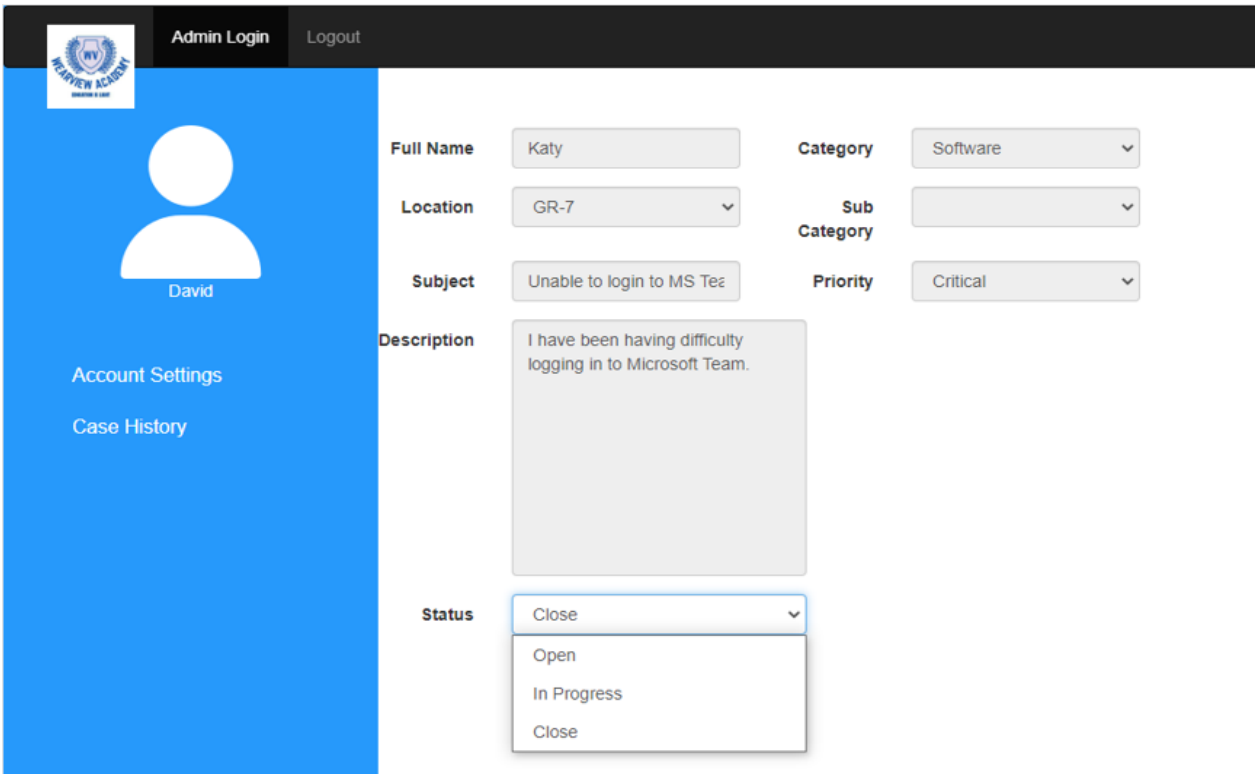


Figure 8 – Admin Case Status Update page

The **non-admin user** in the school can access four responsive webpages i.e., Login, Case Submission, Cases History and Cases Update.

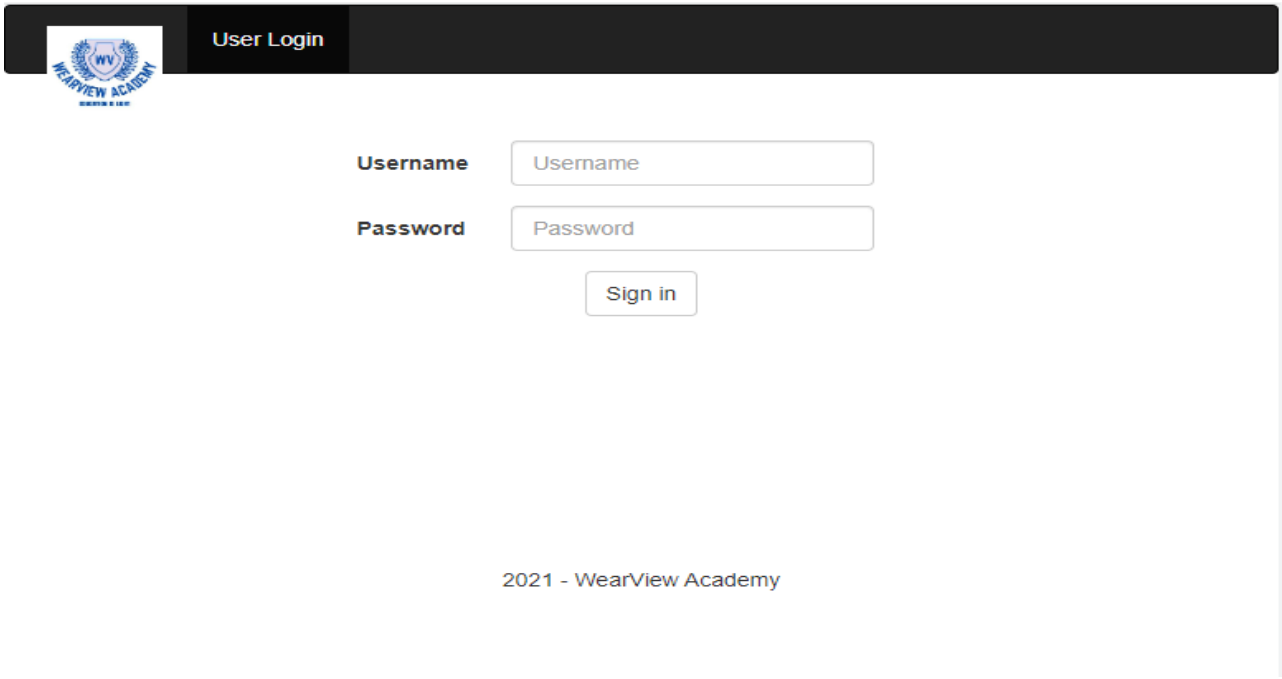


Figure 9 – User Log in Page

But unlike the admin, a staff member only has the option to "**Open**" or "**Close**" cases and by default, when any complaint is created by them, it will be marked as "**Open**".

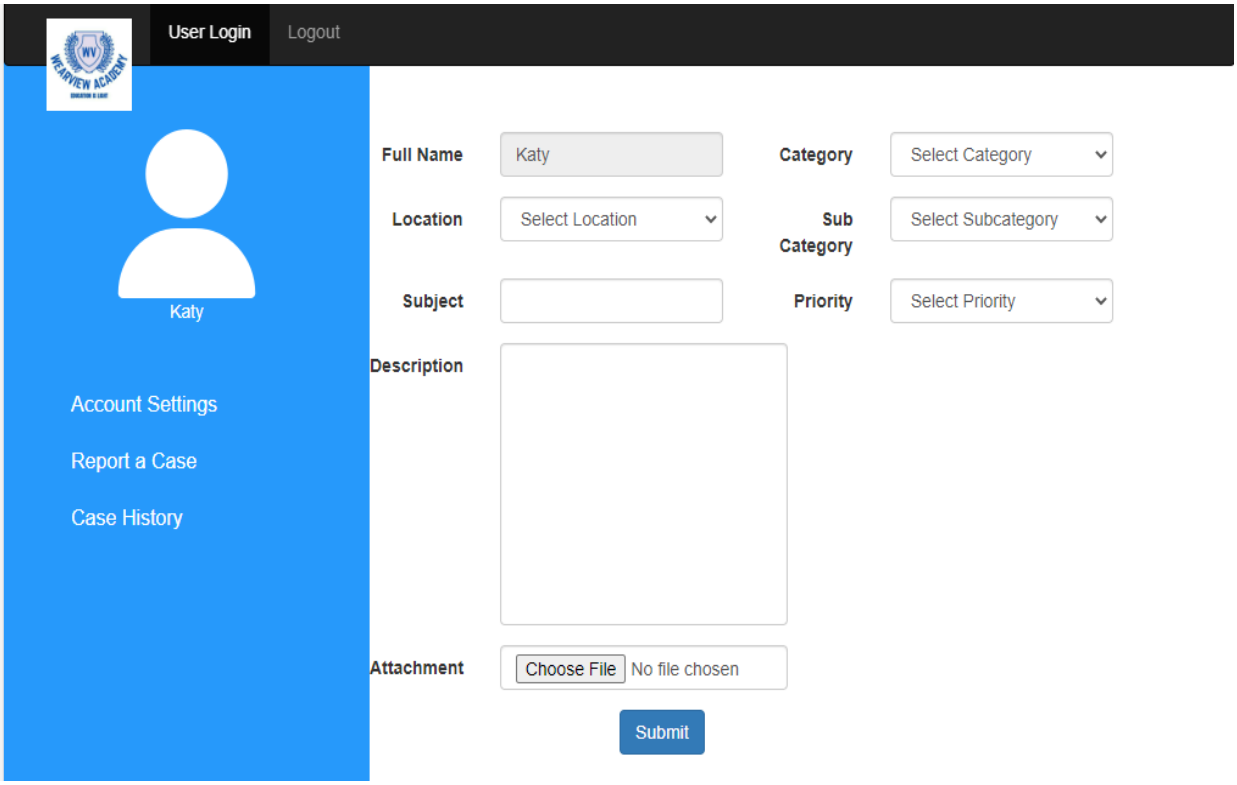


Figure 10 – User IT Case Reporting Page

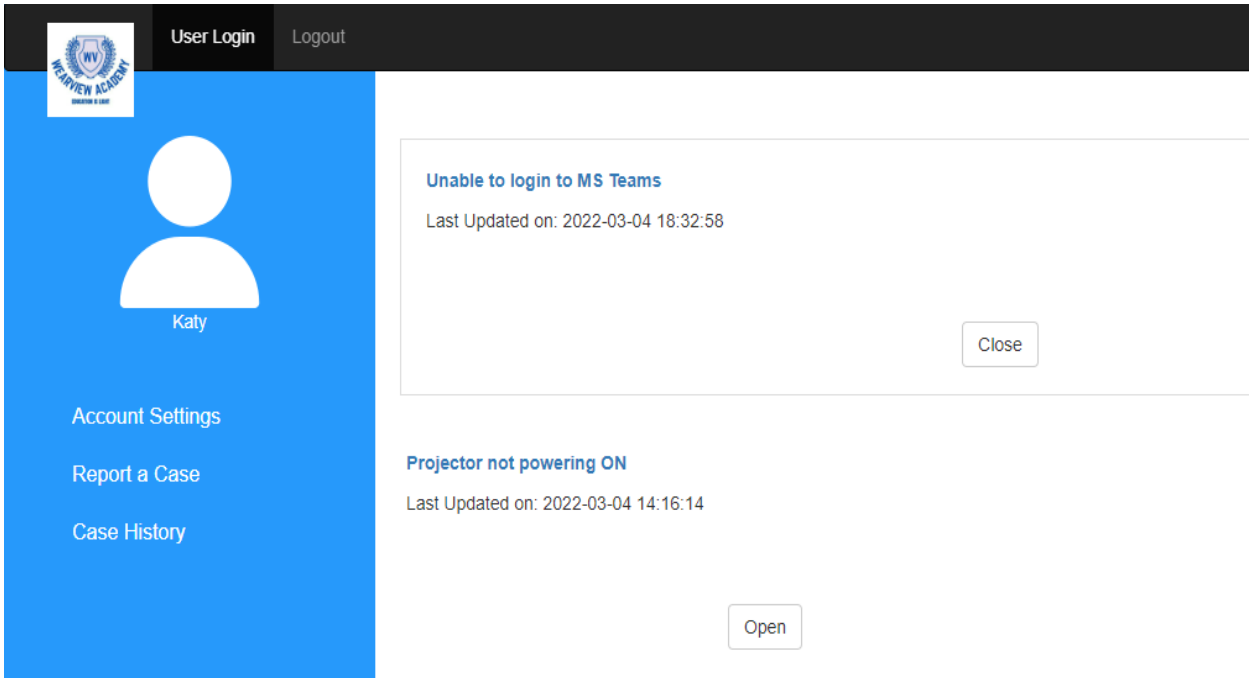


Figure 11 – User Case History Page

Also, standard users will be able to view the past IT support requests in the "Case History" whenever they signed into their account. Furthermore, they can update status of their complaint by marking a case "**close**" if the issue no longer exists (i.e., if issue has been resolved) or re-open a complaint that has not been resolved but inadvertently marked "**close**" by the administrator by clicking on to get to the update page.

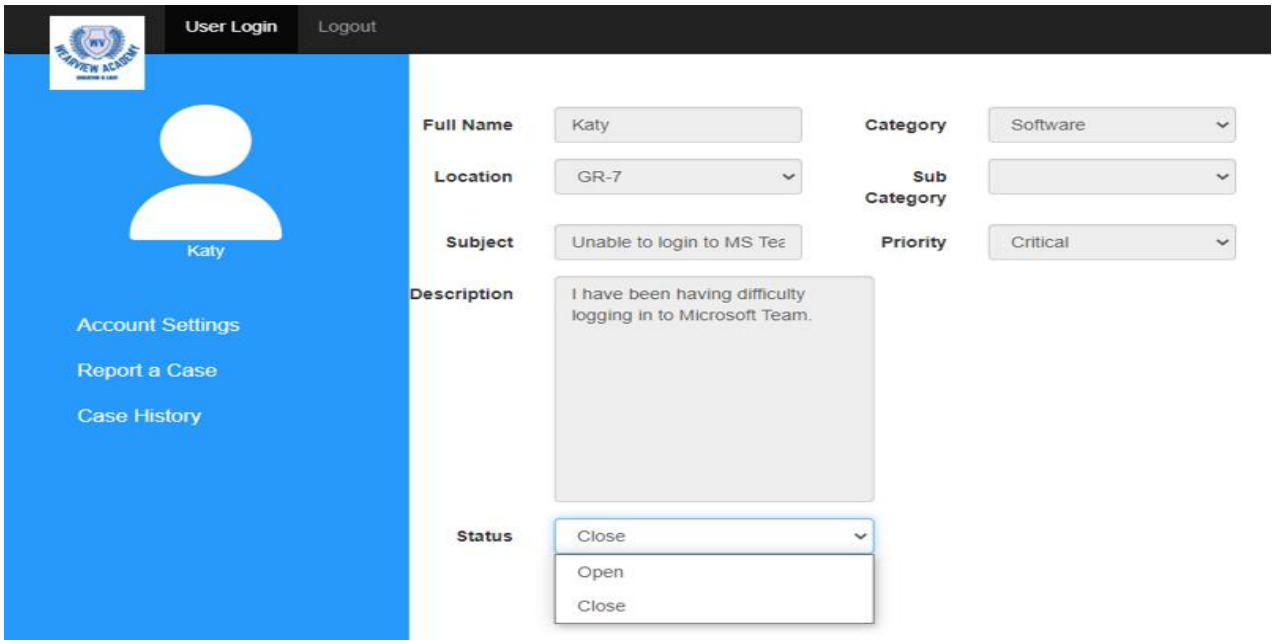


Figure 12 – User Case Status Update page

4. Conclusion

With the help of numerous resources including books, lecture videos and other online website development resources, I was able to create a relatively good looking and easy to navigate IT helpdesk. However, it would have been better to have a self-help or information page that will provide quick tips for standard users to resolve minor IT issues. For example, the reported case of "**Unable to login to MS Teams**" which might just require the user to check if he/she is using the correct log in detail or just restart the device and then attempt the log in again.

References

1. Bootstrap Front-end framework. (n.d.). Retrieved from https://getbootstrap.com/
2. GEMS Education. (n.d.). Retrieved from GEMS Education: https://www.gemseducation.com/
3. Gilchrist, J. (2004). Encryption: Hash Function. In H. Bidgoli (Ed.), *Encyclopedia of Information Systems* (pp. 87-100). Ontario: Elsevier. doi:https://doi.org/10.1016/B0-12-227240-4/00054-X
4. Jay, B., & Mike, J. (2012). Responsive Web Design. *Pro HTML5 Performance*. doi:https://doi.org/10.1007/978-1-4302-4525-4_4
5. PHP: Hypertext Preprocessor. (n.d.). PHP Manual. online. Retrieved 2022, from https://www.php.net/manual/en/index.php
6. Spurlock, J. (n.d.). Bootstrap: Responsive Web Development.

Appendix

ITsupport Homepage HTML - https://22m74bh91lx.uoswebspace.co.uk/WearView/ITsupport.html

Users login PHP: https://22m74bh91lx.uoswebspace.co.uk/WearView/users/index.php

- Username: staffmember
- Password: letmein!123

Admin login PHP: https://22m74bh91lx.uoswebspace.co.uk/WearView/admin/index.php

- Username: admin
- Password: heretohelp!456