**Project Retrospective Report**

Team 34

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Echooo is a forum for people who love gaming, sharing and making friends online. Users can post articles, build clubs chatting rooms, get the latest game news and add friends. All the content on the website come from our database. We will break down the website into sections and explain their features and design intent in detail.

Our website includes two types of users which are general user and administrator. Compare to general users, administrators have high access to the website. Therefore, the page they see will be different from general users.

In order to facilitate users to register and login to their own account any time while browsing the website, all the pages have the sign-up and login link on the top right corner. Also, there is a login link in the sign-up page and a sign-up link in the log-in page. The reason for this design is that if the user doesn’t have an account or already have an account but click into the wrong page, the link will help the user get to the right page immediately. When the user has logged into their account, they can go to their profile page by clicking their username. The logout button displayed on the right of the username. This allows the user to log-out anytime they want. Also, there is a envelope icon that is the private message link beside the username.

The search bar displayed under the sign-up and login button. Users are able to search for things by entering keywords in the bar. We have classified the search results into five categories which are users, posts, clubs, boards and articles. This helps users quickly find what they are looking for.

The footer includes the link of the homepage, contact us, terms of use and our social media link. However, the footer for the administrator is different from general users’ footer. In addition to the four functions mentioned above, administrators can also see Forbidden Words, administrator list and report list. These features will be explained in detail later.

**Home Page**

The main page has three main sections. They are announcements, popular boards and popular clubs. General users are able to view the latest website announcement posted by administrators. The administrator can post new announcements by clicking ‘Add New’. Popular boards section includes board name and number of post. It is ordered by the number of posts in the board. The popular club is ordered by the member number of the club. Users can see the club icon and club name in this section. It is worth mentioning that these popular posts and clubs have links. Users can go to specific posts and clubs by clicking them. At the bottom of each section, there is a ‘Find more’ button that will take the user to Board main page and club the main page.

**What’s New**

In what’s new page, all users see the same content. There are 4 sections in this page which are new posts, new clubs, new boards and new articles. All these sections ordered by time. Users are able to see the latest 10 posts in all boards, 3 newest clubs, 3 new boards and 3 latest news. Links allow the user to go to the specific post, board, club or news. This page is designed to allow users to check the latest content of the day easily and efficiently.

**Boards**

All users include guest users are able to see the board main page. Considering that most of the game available on multiple platforms, we finally decide to classify boards by platforms. In this way, users do not need to specify the platform information when posting in the board. So far, we have PC, PlayStation 4, XBOX, Nintendo Switch and mobile that includes both iOS and Android. Users can switch to different platform by clicking the link. Page number displayed under the board image. Users can click the page number or the left and right arrow to switch page. Only the administrator has the access to add board. The administrator has to choose an image for the new board, enter a proper board name and choose the right platform from the drop-down list. If the names of the image file uploaded by the different board are the same, the name of the file that uploaded later will be automatically changed.

Once the user clicks on the image to enter a gaming board, a page that contains all posts of that particular board will show up. As a general user, I will be able to create new posts, edit or delete posts that were created by myself, report other posts, and sort posts in this gaming board by time. As an administrator, I will able to perform all functionalities that a general user has and more. I will be able to not only edit or delete posts of my own, but also posts that were created by other users. Moreover, I will able to stick and unstick posts. The sticky posts will always be on the top of the first page and they will not be affected by sorting. There is a confirmation page before users delete any posts and administrators delete the boards.

The functionalities within each post are the same for both general user and admin. Once the user clicks on the title in board to view a post, users will be able to see the author, publishing time, and read the content of the post. Users will be able to view and send comments under each post. Users have to refresh the page to view new comments. In addition to the text sending function, users also able to like or dislike the post by clicking on "thumb up" or "thumb down" button. The total numbers of likes and dislikes are shown under the thumb buttons. If the user clicks on the "thumb up", the total number will add one and the "thumb up" button turns blue. The user can simply cancel the likes by clicking on the "thumb up" button again, the total number will minus one and the "thumb up" button turns back to its default state. The other way to change the likes is to click on the "thumb down" button, the system will change from likes to dislikes. Both total numbers of likes and dislikes and the color of buttons will be affected by this action.

**Clubs**

Although the club section is one of our medium prioritized features, we spent a fair amount of time on implementing and perfecting functionalities on this section. Both general user and admin share the same functionalities within the club section. Users will be able to use the search bar in club to find clubs that contain the keyword. Users can join multiple clubs or create their own clubs. The clubs that they have joined and the clubs that they have not joined are divided into two parts on the club's main page. Users will be able to view the club chatroom after they joined the club. They can leave the club whenever they want. The chatting history will be saved in the chatroom. The club owners can't leave their own club, but they can delete the club of their owns. The chatting history will be deleted as well as the club members will be dismissed. Each club should have an image, a club name, and a description. Only the club owner has right to edit the club while club members have the right to report the club to the admin of this site. Club owner can edit the image, club name, and the club description. All club members can view the club messages, the messages will be updated every 1.5 seconds with AJAX. Users don't need to refresh the page to view new messages, also, the messages that they sent will be updated automatically. Club members will also be able to see other club members' online/offline status on the side of the page.

**News**

Similar to posts in gaming boards, the news page allows users to view articles within this section. However, only admin can create articles in this section. Each news article should contain an image, a title, and some content. Also, only admin has the right to remove news article if there are any mistakes in the news article.

**Help**

The help page shows frequently asked questions and our answers. Both general users and admins are able to view the help page and find answers. Our team lists the most common questions which users may feel confused when browsing our website and arranges the particular answers. Also the help page contains the guide of our website. Users are able to send us questions and suggestions according to Contact Us page. Admins will collect the latest questions then offer the answers. Normally, the help page will be updated once a month.

**User Profile**

All general users and admins have their own user profile pages. The user profile page shows the basic information of users. The information includes clubs which user has joined in; user’s favorite posts, posts user has sent, user’s friends, and user’s social media. Only owners are able to edit their personal user profile. Owners can see the numbers of friend requests they received. Also, user can send friend request to another user by visiting others’ user profile page and click “Send Friend Request” button. After two users become friends, the “Send Friend Request” button will change to “Unfriend” button. If user does not want to be another person’s friend anymore, he or she can click the “Unfriend” and release the relationship. Furthermore, users can block other users. If the user and another user are friends, the system will first dissolve their friend status and add the target user to blacklist. If the user and another user are not friends, the system will add the target user to blacklist automatically. Users have rights to report other users if they have illegal practices. The reports will be sent to admin and admin will check whether the reports are facts. The user cannot report themselves. The user can send message to other users on others’ user profile page. When user clicks the “Send Message” button, the page will automatically turn to private message page and they can start conversation. Admin’s pages are different from general users. Only admin can set and remove other admin. If a user is not an admin anymore, these two buttons will disappear on the user profile page.

All general users and admins have edit user profile pages. In this page, users are able to upload the picture from their computer to change their icon. But they are only allowed to upload jpeg and png files. Gif files are will not show successfully. Every user has a unique username, which was used to log in and username is not allowed to change. Besides username, user can add a nickname, which will show on their personal profile page. Nickname is always able to change. Users can also add their region and it can be an unreal region. There is a drop down bar which users can choose their gender. The birth information is also a drop-down list. When user clicks the bar, a calendar will appear and user can add their birthday as the format of year, month and day. There is a box for users to add their personal description. Description can be 2 to three short sentences, which describes users habit or personality. Users are able to add links of Facebook as well as Twitter. If they feel they want to know others better and have more communication on other platform, they can visit others social media pages and have a deep relationship.

All general users and admins are able to view the friend request page. On this page, users are able to receive the friend request from other users. By clicking the username, user can visit the personal profile page of other users. User can decide whether they want to make friends with other users after viewing their homepage. If user is interested in another user, he or she can click “Accept” button, which means accept the friend request. Otherwise, user can click “Remove” button then the friend request will disappear. Other users will not receive any message if their friend request is rejected. After accepting friend request, users will be added to friend list.

The interface and features in the friend list page are the same for both general user and administrator. User can access the friend list from their profile page. In the Friend List page, user can access their friends’ profile, put their friend into blacklist, or send private message to him. On the same page, user can check them blacklist and remove user from their blacklist.

In the future, we can create a relationship feature for the user to divide their friends, like family, high-school friends, close friends …etc.

**Private Message**

All general users and admins are able to view the list of users who have got in touch with recently. This page shows the record of all the other users who have sent private message to the owner of this private message list. The order of users was sorted by the latest time of message sent. The private message list page not only shows the username of other users but also shows the content of the latest message.

The left top of the private message page shows the username of the user who sent private message to the owner of this private message page. Below the username, there is a list of all the friends and friends’ status, which indicates whether they are online or not. The right part of the private message page is the concrete record of the private message. Users are able to receive message without refreshing the page every time they send message. The private message page will update every 1.5 seconds with AJAX therefore user can send message with a refresh page. The message box shows the time of sending message and the icon as well as username of both users.

**Footer**

**Contact us**

Every user (included user who haven’t login) can send message to the administrator, by accessing the contact us page in the footer. User is required to type in their email, subject and content of the message, helping the administrator to fully understand the message and they can contact the user. Administrators can check all the “Contact us” message in the reports page. This function helps us to receive advice from every user and improve our website.

**Forbidden words**

Our website has a word censor to prevent inappropriate language in our website. When using the administrator account, they can access to the forbidden words list on the footer of the page. It is a list of all forbidden words of our website and only administrators can open this page, there will be caution message appears when normal user access to this page. In addition, Administrators can add new forbidden word or remove an existing forbidden word from the list. The forbidden words function is important for us to create a healthy environment in the website.

**Administrator**

Administrator is an important role of our website. With different reasons we may appoint another user to become the administrator. Therefore, we need a list to manage all the administrator in the website. When using the administrator account, they can access to this list on the footer of the page. On the page, it shows all the administrators of the website and you can remove their role on this page.

**Reports**

Within the footer of an administrator account, there are “ForbiddenWords”, “Administrator”, and last one which is “Reports”, these three features are hidden from general user’s footer. In the report page, admin can view all the reports which is sent by general users, user can report inappropriate posts, clubs and users. On the list, administrator will see the reporter’s username, the reported subject and the message left by the reporter. Since the message may be a long paragraph, administrator can view the whole message by clicking on the “View” button, it will open another page “viewReport.cgi” which shows all details of the report. After processing the report, administrator can delete the report by clicking the remove button on the righthand side.

“Contact Us” message also goes to this page. Administrators can view all “Contact Us” messages and remove them after their process, same as reports, administrators can view the whole “Contact Us” message by clicking on the view button.

**Word censoring**

Even word censor is on our medium priority, we think that it is an important feature in our website. Word censor will prevent inappropriate language occurs on our website, this feature is used on create account, create clubs, edit clubs, send club message / private message, create post and comment. Before user finish those action, the word censor will automatically check the contents, if there are inappropriate language, the website will return to the previous page and tell the user to change the content before they can implement the action. With this function, we wish to provide a health environment for our user to make friends and share their enthusiasm on games.

**Conclusion**

The four members of our team break down into two groups which are front-end group and back-end group. In the first few weeks, the front-end group started designing the website and make HTML and CSS. We needed to decide what font and what theme color to use on the website. Furthermore, what content we need to put on each page and what features need to be included in the page. Last semester, we found that many people refused to use the forum because they felt that the user of the forum was too complicated. Therefore, we spent a lot of time on user interface design. Since we have 7 main sections, so it is very important to well-organized all the contents. In order to prevent large design changes while the back-end group starts making CGI files, after we finished making the HTML, we found a lot of friends of different ages to do the usability test. The back-end group started to make CGI files after the front-end group completes the design. They needed to connect all the web pages and added all the features. In this process, we had encountered many difficulties and needed to learn a lot of new knowledge. So, we had group meeting 3-4 times a week. We gathered together to study the problem, share ideas and help each other. Always go to the office hour and check the online material really helps a lot on the coding. We spend the last few weeks on debugging. Everyone tested the website together, found bugs and solved them.

There are 17 high prioritized features in our features prioritized feature list. We managed to accomplished all of the high prioritized features on our website successfully couple days prior to the due date. We also completed many of the medium and low prioritized features. Moreover, we are proud of implementing the live chat functionality on our website using AJAX. Even though the project was not required to have live chat in our message system, we managed to make the message system more realistic and feasible by updating messages without refreshing pages. Out of all the features in our features prioritized feature list, we only have a few of them left uncompleted. If we have more time to work on this project in the future, we will add more medium and low prioritized features to make this website more complete. If we want to continue working on this project, we will figure out how to implement functionalities like IP banning, user tagging, gaming board subscription, and etc. onto our website. Our final product has met our expectations, and therefore, we are satisfied with the outcomes.

At the beginning of this project, we had designed plenty of features for our website because we believed those features are indispensable for a gaming forum. Therefore, we have a lot of features in the prioritized feature list. In the development process, we didn't expect that a single feature would take us many times on developing and debugging. Furthermore, errors occurred when we were connecting different features together or connecting features with the database, everytime we had to adjust the code in both cgi file and the database. On the other hand, everyone has their own coding style and their own way to achieve a function, working with other people means that we have to communicate and understand their codes, luckily we didn't have many troubles on this problem.

In our finished website, we have complete all the indispensable features without any bugs, the website is fully responsible to all devices and it is user friendly by applying javascripts like AJAX in our website. Overall, we considered our project as success and greater than what we have expected.

Although our team has completed most of the functionality we planed, we would have done something differently in retrospect. Firstly, we would make our homepage more fancy. Though the current homepage shows all the basic information clearly, but as a homepage, it is dull. If our team has a chance to redo the homepage, we would add more design, which can attract users to browse our website. Secondly, we would improve our website by changing the color scheme of our website and add a background. As a game forum, the forum could be more colorful. Furthermore, we might add row to club members. For example, every club might have a captain, several admins and general members. The owner of the club would become captain automatically. The captain would have the rights to set admins who could help him or her manage the club. Admins could remove members from the club or block a specific member for a period of time. Only captain could set or remove admins and delete the club.

According to the process of capstone, we have learned a lot as students in the capstone course. Firstly, all the members should attend the meeting as possible as they can. This is a basic task but also the most important one. Every group member has the responsibility to complete his or her part of the project. Not only the group meeting, but also the meetings with instructor and AI are important. That’s because instructor and AI can give the group suggestions and help find the problems. If all the group members are well prepared before meeting, the meeting will run smoothly and save a lot of time. Secondly, the group should make a schedule at the beginning of the semester. Our group only did a little work in early weeks, so that we met every day in Spring Break in order to finish all the high priority. Therefore as capstone students who have to finish a huge task in a semester, a schedule is a good guide to keep the project on right track. What's more, communicating with group members is necessary. A well-done project cannot be separated from communication. Before starting work, group members should communicate with each other and share ideas. When facing problems, communication is always the most effective way to solve problem.