Final Submission Report

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1. Overview about the submission structure

a. The submission structure is as follows. Everything is stored in our github repository here: https://github.com/NoahOConnor44/CapstoneProject. This repository has a readme which explains the submission structure. There are folders for the manuals, the report, and then the project code.

2. Project Report

a. Executive Summary

i. This project aims to create a recommendation system for video games. The recommendation system takes input from the user of a game they liked and returns them with a new list of suggestions that we think they would enjoy playing. Additionally, we created user profiles where the user could add games to their wishlist and see the reviews they have left on games. The game search function is the center of the project in which everything revolves. It allows the users to search for a specific title or partial search to find matching games. They are then presented the results of the search in a title and game image format where they can select a game and it will open to its webpage. The game webpage has a description of the game, the rating, genre information as well as recommendations for similar games that they may enjoy and user reviews. A user is also able to add a game to their wishlist and leave a review for themselves if they are logged in or create an account.

b. Final Requirements and comparison with initial requirements

    i.   Final User Stories

        1. As a user, I would like to search for a game with the purpose of finding more information about it.

        2. As a user, I would like to get recommendations from a selected game with the purpose of finding a new similar game to play.

        3. As a user, I would like to leave a review on a game with the purpose of letting others know my opinion about the game.

        4. As a user, I would like to store a wishlist of games on my profile with the purpose to be able to quickly access their pages.

        5. As a user, I would like to read descriptions about a game with the purpose of learning more about it.

        6. As a user, I would like my information to be stored securely

        7. As a user, I would like the choice of staying anonymous when using the online application.

    ii.   Comparison to initial requirements

        1. The following are the initial requirements we didn't end up implementing.

            a. As a user, I would like to store my favorite games on my profile with the purpose to be able to quickly access their pages

                i. Initially we wanted to add a favorites game list for each user however this naturally evolved into a wishlist idea of storing the games the user may want to try in the future.

b. As a user, I would like to have my gaming preferences compiled in a profile I can share with the gaming community.

    i. This is an idea we had at the start of the project but as development started it was quickly something that was forgotten as its end goal seemed so far away. By the time we made it to the end of the project we didn't remember we had the idea in the first place.

c. As a user, I would like to be able to adjust my security preferences

    i. This is an idea we still wanted to implement however as we reached the end of the project we focused more on bug fixing and ensuring everything else was working as it needed to instead of adding additional features.

c. Final timeline and comparison with the initial timeline

Final Timeline:

Week	Day	Topic	Deliverable	Project Progress
1	01/18/21	Plenary Session: Introduction, Group Formation, Project idea	Begin group formation	
2	01/25/21	Plenary Session: Project idea & discussion Project Plan outline	**Friday:** Group Members, Group Name	
3	02/01/21	TBD	**Friday:** Project Idea	
4	02/08/21	Plenary Session: Outlines: Individual Plan, Technical Documentation, Presentation 1		
5	02/15/21	Group Meetings 1A	**Friday:** Project Plan	Set up github and MongoDB including schemas for game data
6	02/22/21	Group Meetings 1B	**Friday:** Individual Plan	Load game data and configure communication between components
7	03/01/21	Group Meetings 1C	**Friday:** Technical Document	Add back end functionality
8	03/08/21	Plenary Session: Individual Presentations, Individual Report	**Friday:** Presentation 1	Add game reviews
9	03/15/21	TBD	**Friday:** Group Report 1	Add front end functionality
10	03/22/21	Group Meetings 2A	**Friday:** Group Report 2	Make webpage more aesthetically pleasing
11	03/29/21	Group Meetings 2B	**Friday:** Group Report 3	Set up basic user accounts and authentication
12	04/05/21	Group Meetings 2C	**Friday**: Individual Presentation	Set up viewable user profiles and game webpage
13	04/12/21	Plenary Session: Final Deliverables	**Friday**: Individual Report	Clean up code and fix any major bugs
14	04/19/21	TBD		Minor bug fixing
16	05/03/21	**Finals Week**	**Friday:** Department Questionnaire	

Initial Timeline:

Week	Day	Topic	Deliverable	Project Progress
1	01/18/21	Plenary Session: Introduction, Group Formation, Project idea	Begin group formation	
2	01/25/21	Plenary Session: Project idea & discussion Project Plan outline	**Friday:** Group Members, Group Name	
3	02/01/21	TBD	**Friday:** Project Idea	
4	02/08/21	Plenary Session: Outlines: Individual Plan, Technical Documentation, Presentation 1		
5	02/15/21	Group Meetings 1A	**Friday:** Project Plan	Set up github and MongoDB including schemas for game data
6	02/22/21	Group Meetings 1B	**Friday:** Individual Plan	Start working on loading game data and communication between components.
7	03/01/21	Group Meetings 1C	**Friday:** Technical Document	Set up basic user accounts and authentication
8	03/08/21	Plenary Session: Individual Presentations, Individual Report	**Friday:** Presentation 1	Set up viewable user profiles and game webpage
9	03/15/21	TBD	**Friday:** Group Report 1	TBD/Catchup on any late features and game reviews
10	03/22/21	Group Meetings 2A	**Friday:** Group Report 2	Clean up code and fix any major bugs
11	03/29/21	Group Meetings 2B	**Friday:** Group Report 3	Make webpage more aesthetically pleasing
12	04/05/21	Group Meetings 2C	**Friday**: Individual Presentation	Minor bug fixing
13	04/12/21	Plenary Session: Final Deliverables	**Friday**: Individual Report	TBD
14	04/19/21	TBD		TBD
16	05/03/21	**Finals Week**	**Friday:** Department Questionnaire	

Our timelines differ slightly from each other because we adjusted our priorities to fit with the natural order of the project. The main switch was we delayed adding users and viewable profiles until we had the front end working so that we would be able to test the users and their profiles. This also allowed us to shore up our backend and ensure that everything was connected properly.

d. Project results compared with expectations

i. The project we developed came really close if not exceeded our initial expectations. Going into the project it was apparent there was going to be a learning stretch. For a few of the members this included learning Angular, a framework we had never used, but overall we wanted to learn how to secure the webpage as well as connections between components on the webpage. This included implementing security protocols and limiting user functionality based on their access levels all while properly storing and hashing valued user information. These presented us good challenges but we were able to implement the project and these important details into a website that both functions smoothly and in my opinion looks good too.

e. Project process review

i. Our team process was pretty straight forward. We had timelines set in our project plan that we tried to stick to, however if a certain feature made more sense to implement at the time then we did that instead. During the time leading up to the deadline we had set for that week, we would update the team Trello board and break down the requirements into use

cases and tasks to work on. We then followed an agile software development approach using SCRUM to incrementally develop the features required at the time. During this process, we had our team meetings twice weekly where we can discuss the project, discuss issues we may be having or things we have started working on, and discuss possible solutions. We can also work on things as a group if need be. During these meetings we can also reevaluate our goals and ideas for the project and come up with questions we may have for the client. As members of the team work on items testing will be performed, github branches will be formed and committed to, and documentation will be created and updated. Overall this project process worked great for our group. We had really solid communication and everyone was comfortable expressing ideas and possible solutions with each other. This combined with our regular meetings allowed the project to develop smoothly and without many hiccups.

f. Work to be done

i. Work that still needs to be completed includes allowing the user to change their security preferences. Currently the user can set their security level at registration but it can't be updated. This would likely need to be implemented at the user dashboard. We could also go about cleaning up the HTML a bit. We spent a decent amount of time on trying to make it presentable and formatted correctly however there are a few areas that are in need of improvement. Additionally, we would like to implement rating adjustments. We currently have ratings for each game and the user can

leave a review but we don't have any way for the user to numerically rate the game and for the community feedback to affect the overall rating. We could also implement different types of search. Currently we have everything working off of game title search but support for genre searching and seeing the top rated games would be a good addition as well.

3. Manuals

a. User/Administrator Manuals

A user manual for both the user and administrator is available within the following github repository:

https://github.com/NoahOConnor44/CapstoneProject.

Alongside this report and the manuals is the source code for the project. Additionally, for each of the following services available within the api-gateway, a separate README file is accessible from the following directories:

    i.   CapstoneProject/api-gateway/api-service

   ii.   CapstoneProject/api-gateway/game-service

  iii.   CapstoneProject/api-gateway/reviews-service

  iv.   Capstone Project/api-gateway/user-service

These README files describe the functionality of each service to assist with maintenance in future versions of the application.

b. Deployment/Installation instructions

The deployment instructions are available in the main README.md file in the
CapstoneProject directory of the GitHub repository. These instructions are also
copied below:

2) Installation (Prerequisites)

- NodeJS (v. 15.9)
- Angular CLI (v. 11.2.9)

3) Running the application

- Unzip the GitHub repository files onto your PC.
- Navigate to each repository in your terminal (bash or command prompt) (you are going to need 2 terminals, one for recon client and one for the gateway).
    Services directory:
    1) CapstoneProject/api-gateway
    2) CapstoneProject/recon-client

- Change directory in each terminal to each directory listed above then type "npm install" to install the dependencies for the service
- Type "npm start" to run each service.
- Once each service is running open your web browser and navigate to https://localhost:4200 to visit our website!
- **Note: Before accessing the webpage in Chrome.. navigate to chrome://flags/ and ENABLE Allow invalid certificates for resources loaded from localhost.**
    - This allows our self signed certificate to be validated by Chrome so HTTPS works. If this isnt done the website wont function as expected.

4. Code & Scripts

a. Source code

The source code for the application Project Recon can be accessed from the

following GitHub link: https://github.com/NoahOConnor44/CapstoneProject

b. DB and scripts

The MongoDB collection contains three separate databases for the Project Recon

application: games, reviews, and users.

For the Project Recon application, we require a simple script of "npm start" to be

executed in two separate file directories to execute the application.