

# CPSC 304 Project Cover Page

Milestone #: 3

Date: March 5, 2024

Group Number: 103

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

# Project Summary

Our project allows users to filter, search for, and compare computers/parts from various retailers that meet particular specifications. Stored computer information includes CPU, GPU, storage, and monitor details as well as the location at which it is sold. Our database also allows users to share their experiences regarding the performance, design, and satisfaction of each component to help other users make informed purchases.

## Timeline

**Tentative completed project date:** March 31

**Tentative draft project date:** March 17

### Queries

- Insert
  - insert user review (form entries)
- Delete
  - delete user review
    - from a list of reviews for each user (implement user login)
- Update
  - edit user review
- Selection
  - compare computers
- Projection & join
  - Find all names of people who wrote a review on some computer
- Agg

## Frontend (GUI) - Paul

**Mar 10**

**Create a general design in Figma**

- Color palette
- User flow

**Mar 12**

**Learn React fundamentals**

**Setup React project**

- Collaborate with the backend to complete API setup for endpoints

**Mar 15**

**Setup Google login**

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- Send User identification data to the backend (see **Communication between FE, BE, and DB** also)

## **March 17**

### **Create a mockup of the laptop search feature**

- Implement the design based on Figma
- Add responsiveness to the interface

## **March 20**

### **Create a mockup of the comparison feature**

- Implement the design based on Figma
- Add responsiveness to the interface

## **March 24**

### **Fully implement search & comparison from end to end**

- Ensure business logic communication
- End-end testing

## **Backend & Platform/Cloud**

## **March 10**

1. Choose a cloud platform (Junsu)
2. Setup network for backend (John)
3. Setup VM (Junsu)
  - Choose VM
  - Make scaling plan
4. Setup database (John)
  - Choose database
  - Decide how we should interact with db (ORM? hard SQL?)

## **March 12**

### **Configuration (Junsu)**

- Configure firewall
- Configure route table
- Configure access policy
- DB access policy configuration

### **Communication between FE, BE, and DB (John)**

- Decide on a framework/method to achieve endpoints (e.g., XMLHttpRequest, Fetch API, Axios)

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- Consider methods to connect the database server to the backend server
- Create endpoint prototypes based on FE needs

## **March 16**

### **Setup server**

- Choose framework/language (Junsu)

## **March 18**

### **Business logic** (Junsu & John)

- Discuss the list of requirements with FE
- List APIs we need

### **Architecture Design** (John)

- N-tier architecture?
- Microservices?

# **To-dos and Challenges**

## **Things Left to Do**

### **Frontend Development**

- Finalize the UI/UX design in Figma based on TA feedback and usability testing.
- Implement responsive design to ensure the application is accessible on various devices.
- Integration testing with backend APIs to ensure seamless data flow and error handling.
- User authentication and security measures for protecting user data and reviews.

### **Backend Development**

- Finalize the choice of the cloud platform and ensure it supports the scalability and security needs of your project.
- Complete the server setup and ensure it can handle concurrent user requests efficiently.
- Implement comprehensive testing for the backend, including unit, integration, and stress testing to ensure reliability and performance.
- Security measures to protect against SQL injection, Cross-Site Scripting (XSS), and other potential vulnerabilities.

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### **Database**

- Determine the final schematic of the database based on TA feedback for Milestone 2
- Finalize database schema and ensure normalization to prevent redundancy.
- Implement backup and recovery strategies to protect against data loss.
- Ensure the database is optimized for fast queries, especially for the search and comparison features.

### **Integration and Testing**

- Set up a continuous integration/continuous deployment (CI/CD) pipeline to automate testing and deployment processes.
- Conduct end-to-end testing to ensure all components of the system work together seamlessly.
- Plan for user acceptance testing (UAT) to gather feedback from potential users on the functionality and usability of the application.

## **Challenges**

### **Scalability**

As the number of users grows, we would like to ensure the application scales effectively to handle increased load without performance degradation.

### **Security**

Protecting user data and ensuring the application is secure against potential attacks can be challenging, especially with features like user reviews and personal information storage.

### **Data Consistency**

Ensuring data consistency across the application, especially when dealing with real-time data updates from multiple sources including users and reviews.

### **User Experience**

Designing an intuitive and efficient user interface that caters to a wide range of users, from novices to tech-savvy individuals.

### **Integration Complexity**

Managing the complexity of integrating various components, including frontend, backend, database, and third-party services such as Google O'Auth.

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## **Feedback and Iteration**

Incorporating user/TA feedback into the development process and being ready to iterate on design and features based on this feedback.