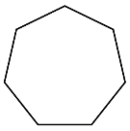
Computer Science & ENGINEERING

University of Nevada, Reno



Quantivity

Quantifying Productivity

Start developing discipline
by making better choices
using numbers.

Instructors:

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Team

Robin Brossard

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Friday, February 26th, 2021

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Contributions of team members: 19

Instructors: 1

Team 1

Abstract: (Mel)

Quantivity's goal is to provide a simple tool that users can use to maximize their productivity by gamifying their progress. We'll be talking about the high-level design processes, as well as the user interface by going in depth in the design process of our application. You will find that we've elaborated the technologies that were used in the process of developing the design of our application following it up with the application significance and impact to the user's life.

Recent Project Changes: (Mel & Robin)

Recent project changes include the change of features of our website. Instead of assigning points (0, 0.5, 1) for task completion, we decided to assign colors (green and gray) instead for the purpose of simplifying our user interface. We've come into conclusion that colors are simpler to implement. For the weekly analysis, the numbers on the y-axis will represent the number assigned to each task the user intends to complete within a day.

Summary of changes in project specification:

Changes that have occurred since CS 425 was a complete change of project and group. This proposal will specify the initial progress of our project.

Technical requirements specifications:

High Level Requirements

HLBR1. The application will display a record of the user's productivity. **HLBR2. The application will allow Quantivity members to edit their weekly agendas and see their own analysis of the week.** **HLBR3. The application will allow Quantivity members to assign colors dictating completion or non completion.** **HLBR4. The application will allow Quantivity members to edit their tasks allowing the application to be flexible to the user.** **HLBR5. The application will allow only Quantivity members to use its agenda.** **HLBR6. The application will feature a two day break, encouraging users to not overwork themselves 7 days a week.**

Requirements

FUNCTIONAL REQUIREMENTS

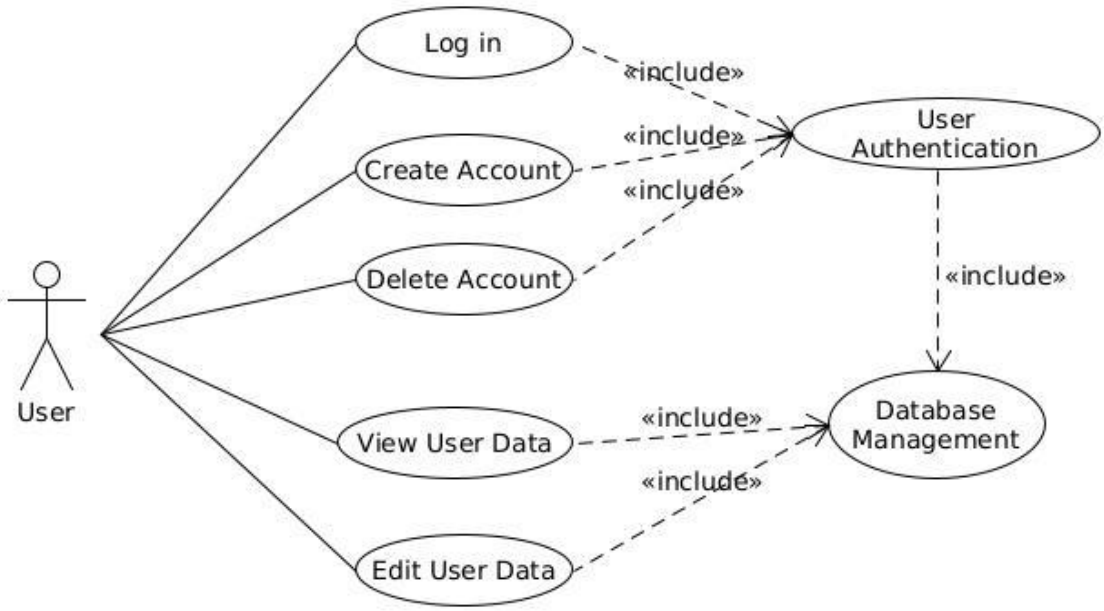
Level 1	**FR1. The application will allow users to sign up and become a member in order to use the program.** **FR2. The application will allow removal of certain colors of the day.** **FR3. The application will allow the ability to add colors (green and gray).** **FR4. The application will allow removal of certain colors for editing purposes.** **FR5. The application will allow input of certain colors / texts to define categories.** **FR6. The application will allow an update of the week to show current and past progress of the user.** **FR7. The application will allow us to save the data of the input from past days.** **FR8. The application will display a media clip entailing the purpose and instructions to use Quantivity.** **FR9. The application will allow import of project proposal pdf.** **FR10. The application will allow obtaining data of the week to present the line graph from weekly analysis.** **FR11. The application will indicate spell check errors when typing certain texts.**

Level 2	**FR12. The application will allow a locking method on the user's current agenda to prevent any accidental changes.** **FR13. The application will allow an unlocking method to edit the user's current agenda.** **FR14. The application will have user specific password authentication for security purposes.** **FR15. The application will implement a user authentication to protect their own data.**
Level 3	**FR16. The application's user authentication will allow the user to only get a view of their own data.**

NON-FUNCTIONAL REQUIREMENTS

Level 1	**NFR1. This project will be a web application.** **NFR2. The project will have a minimal and eye-candy user interface.** **NFR3. The project will run in all types of operating systems.** **NFR4. The project will not go overboard with the budget planned.**
Level 2	**NFR5. The database will use ReactJS and Express.** **NFR6. The front end will be developed through ReactJS.** **NDR7. The entire application will be open source to github.**
Level 3	**NFR8. The application will provide a minimal design for user comfortability.**

Use case modeling: (Mel & Robin)



Use Case Descriptions

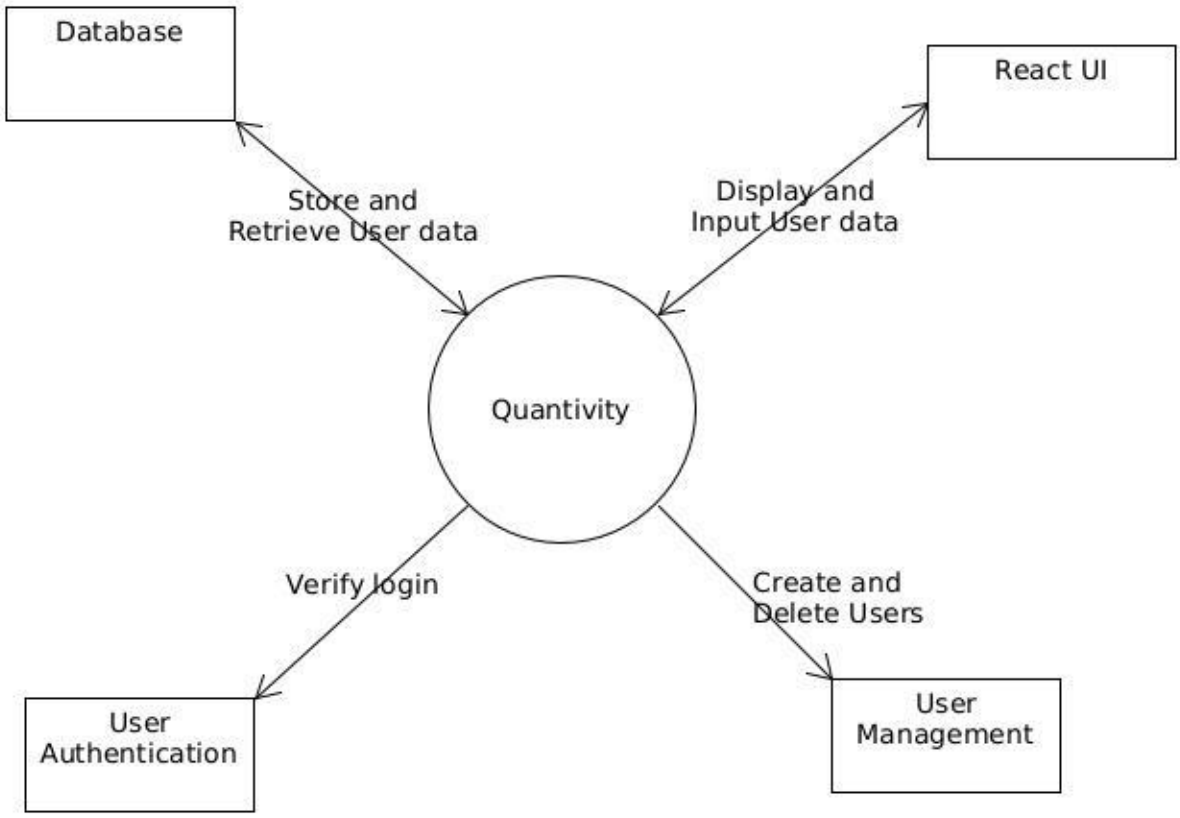
Use Case Description		
UC01	Log in	Quantivity will have a log in button for the user to log in once they've made an account. Their personal data will be accessible to them.
UC02	Create Account	The user must fill in the requirements in the form to create an account successfully.
UC03	Delete Account	The user has an option to delete their account once they no longer need to use the application.
UC04	View User Data	The user has the opportunity to view their personal data on their account once they've signed it.
UC05	Edit User Data	The user has the option to edit their data (assigning certain colors to their task to mark completion or non completion).

Summary of changes in project design: (Mel & Robin)

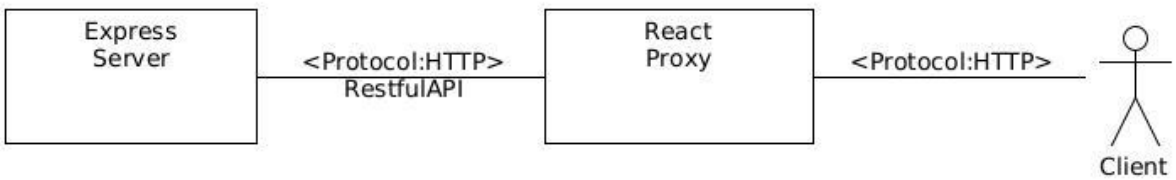
Changes include a project and group change. These changes were needed because we decided to work with something that's flexible for what we want to achieve out of this course rather than a sponsored project. Coming up with an idea and working on it together would be a rewarding experience to grow our skills as programmers and students for this class.

High-level and medium-level design: (Robin)

The application is responsible for displaying the UI to the user, authentication of user logins and retrieving and storing user data from the database



The system is broken into 2 major components: the React Proxy, which serves as the model view controller of the user interface; and the Express Server, which handles the database, as well as user authentication.



User management table

User ID (primary key)	User Name	Password Hash

User Data table

User ID (primary key)	Task List	Week List

The database design is likely to change dramatically as the application nears completion.

Updated user interface design: (Mel)

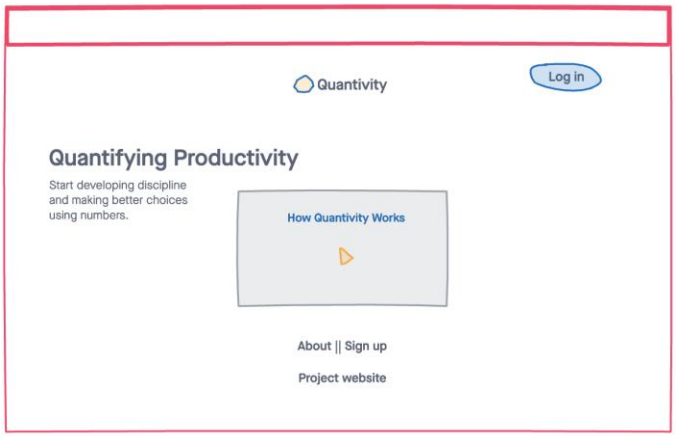


Figure 1: This will be Quantivity's homepage where the logo will be displayed on the upper middle part of the page. The user has the option to log in just by clicking the "Log in" button on the upper left corner. The video that's displayed on the homepage will present the main idea of the application. Below the video is what contains the hyperlink to the "About" page, the "Sign up" page, and below that is a hyperlink to the project website.

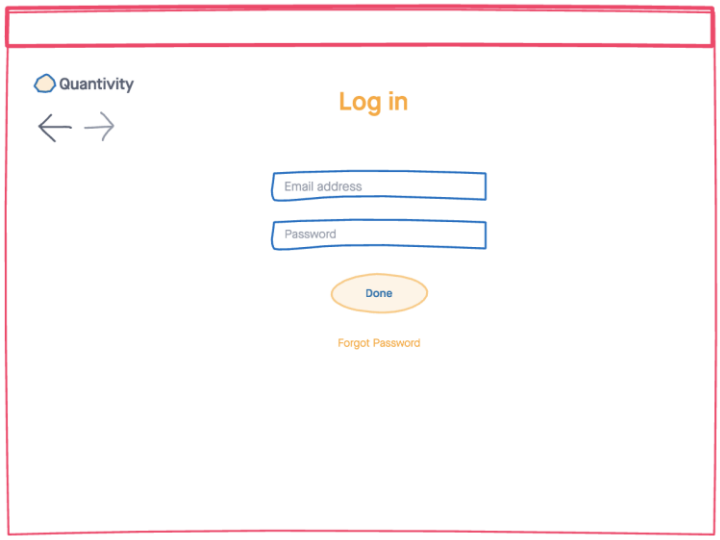


Figure 1.2: When the user clicks on the "Log in" button, it will take them to this page where they log in their email address and password. When the user is done typing all of that, they can then go ahead and click on the "Done" button. If the user somehow forgets the password, there's a hyperlink for it below the "Done"

button which they can click on so that they can have a password reset link sent to the email they used to sign up.

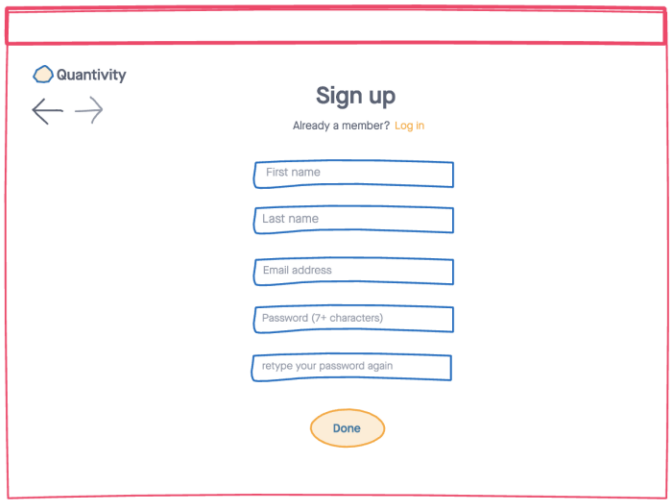


Figure 1.3: This is the signup page where the user can fill in the required information to become a member. When they're done, they can click the "Done" button below where they can proceed with the login process below.

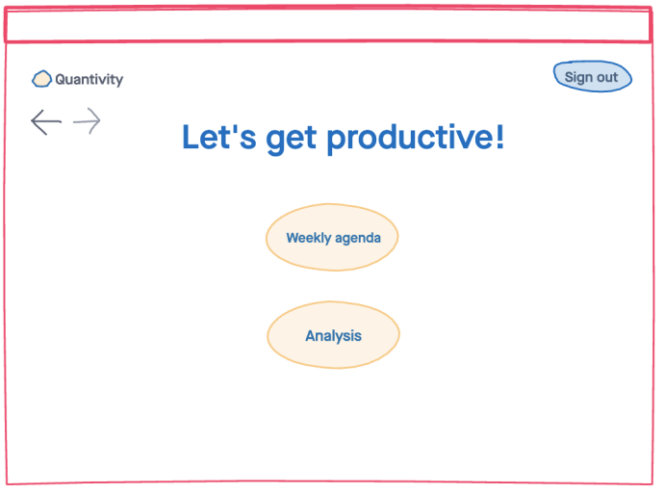


Figure 1.4: After the user's successful login, it will take them to the main page where they have two options: to check their weekly agenda and an analysis of their week.. A "sign out" button on the upper right corner is there incase the user wishes to sign out of their account.

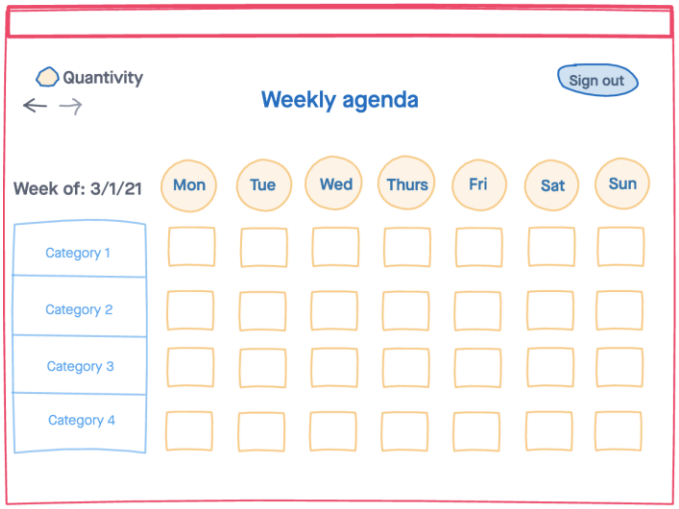


Figure 1.5: When the user clicks on the "Weekly agenda" button, it will show a grid layout of the week and tasks.

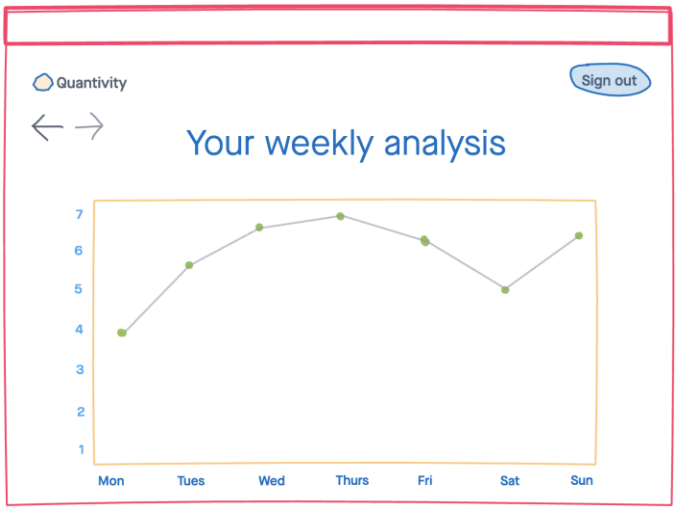


Figure 1.6: When the user clicks on the "Weekly analysis" button, it will show a line graphical representation of the days of the week and tasks. The numbers on the y-axis represent the amount of green boxes the user got that day out of the maximum number on the y-axis (7 in this case).

Glossary of Terms:

1. **User Interface**: where interaction between users and a system or program occurs.
2. **Web application**: an application that runs on a web server and can be accessed by a user through a web browser with an active internet connection.
3. **React**: A javascript library for building interfaces.
4. **Express:** Web framework that's written in javascript hosted within the node.js runtime environment.

Engineering Standards / Technologies:

To develop the user interface, we will be using React and use Node/Express API for backend purposes. Melina will create the React App (Quanitivity) and have a React application running on the local machine. Then Robin will create an Express app to also have it running on a local machine. This way, we can connect the React client to the Express API.

Project impact and context considerations:

This project is worthwhile because it will give us the opportunity to learn how to develop a functional health and wellness web application from scratch. It'd be interesting to pursue because we'll get an understanding of how products and services are developed and delivered. Getting an understanding of the needs of our users is essential to enhancing the quality of this application. Throughout the process of development, we use HTML, CSS, and Javascript to create a website that will be accessible to anyone, anywhere, and anytime. There will be 24/7 business hours where our users can access our website and use the services it provides and acquire the information they need. This project will help our professional growth in a sense that we are able to familiarize ourselves through the process of developing a web application; the frameworks, packages, and programming languages to use. The demand for programmers is growing because small businesses and global companies need online tools that are user-friendly and effective to grow the business. The new and innovative characteristics of our project is the feature of gamifying a user's progress. It is a bit similar to a grade point based system that most schools use for students to reflect on their class progress through a letter grade. With Quantivity, the user reflects on their personal progress through numbers and the average percentage of those numbers. Similar applications that are related to the process would be Google Sheets; Google Sheets has the qualities to take points, taking the average from those points, and presenting a line graph from the data set. The inspiration for the interface design is from headspace.com; an application that eases stress and anxiety through guided meditation practices. To determine the market potential of our product, we will keep track of the market size by understanding and getting feedback from our users and our competition with apps like Headspace and Google Sheets. The further development is still determined as we're just in the beginning of developing it. Once we launch it, we can then get an idea of the user experience from different backgrounds and skills. The social and environmental impacts it has is replacing tools like planners and avoiding the complexity use of spreadsheets like Google Sheets and Excel.

Updated List of References:

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Contributions of team members:

Robin Brossard: 4 hours

Melina Tan: 5 hours