Kaizen Habit Tracker

ENSE 374: Final Project Report

-Team crusher-

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1.0 Introduction

Everyone has the potential to become a better version of themselves by reflecting on their good and bad habits and using them as a stepping stone to work toward an improved lifestyle. As many people know from experience, setting goals and sticking to them is a difficult task to maintain.

At the beginning of every year, resolutions and promises are made to improve ourselves in aspects like physical, mental and emotional health as well as behaviour. However, reverting back to our old ways a few weeks later is often the case. The simple fact is people want to improve their habits, big or small, as they can lead to health benefits in many aspects within a person.

1.1 Project Purpose and Objectives

Most people want to erase bad habits within themselves and replace them with good habits. However, changing habits can be a difficult journey. Motivation to continue on with a task is more easily attained when the progress already made can be seen. This habit tracker will provide that level of motivation by illustrating the progress the user has made

1.2 Guidelines and Procedures:

The guidelines for this project were outlined through the course and project portal on URCourses. Guidelines and procedures were followed methodically with each deliverable activity as the project progressed. The learning opportunities in the lab section of this course provided some of the software construction procedures and requirements needed to create clean and code.

1.3 Timeline:

The timeline of the project was set as 10 weeks; starting the week of September 26th and final deliverables due by December 6th. Throughout the timeline of this project, update deliverables were expected on a biweekly basis with the first initial deliverables due by October 1st. Based on these project updates, the scheduling of each phase was more concrete to ensure that the next phase could be started on time.

The initial documents for the first deliverable date were started by September 27th which outlined the idea of the project along with the appropriate project proposal documentation such as Project Scope and Business Case. For each of the following due dates, a video log was created to outline the current focuses that were submitted. A Presentation and Demonstration of the application was delivered on November 30th and Final Submissions on December 6th. Chart 1 below shows the progress of each phase of the Kaizen Habit Tracker Project.

2.0 Project Planning

Once a project idea was created and decided on, the first steps were to document the initial details surrounding the project. This documentation provides the public with the overall idea and scope of the decided project.

2.1 Business Case

The first document required at the start of this project is the business case. Information included in the business case along with the background of the project, is also the expected business opportunity, the options considered along with a cost-benefit analysis of each option.

For the Kaizen Habit Tracker Application, the business opportunity is to help users continue and accomplish personal habit goals that can often be difficult to see through. This tracker app will provide milestones and show the progress to provide motivation to continue with their goals.

From a design standpoint, there were no real alternatives to the overall idea of the application. However, the methods of how to construct it and the programming used was to be decided on. The options for programming included using languages that the team was already familiar with, such as C or C++ or to use languages that would be taught concurrently to the project timeline. For both of these options, the cost-benefit analysis of each would be calculated in the time allotted for the project in each scenario. This was more applicable since there was no real monetary value to be considered for either option.

By using previously familiar programming methods, an estimated five hours was allotted for refresher time for both previously learned programming methods, and previously known project design methods. This method would cost approximately 10 hours of time plus the construction time which was still to be determined.

By using methods that would be learned at the same time as the project timeline, an estimated 63 hours would be spent learning the programming based on the number of hours a week that is assigned to both the Lectures and the Labs. However, these newly learned methods would be more recent in programmers minds as well as more access to resources such as instructors should assistance be required.

The decided option to use new methods and languages being learned presently was decided on since these methods were known more recently and would be more applicable to the project.

2.2 Project Scope

The project scope outlined the overall size of the project along with the deliverable milestones along the way.

The first milestone outlined in the project scope was to submit the initial documents such as the Business Case, Stakeholder Register and also including the original project scope document. In addition to these, some deliverables in the software aspect were also to be delivered at this milestone such as an initialized GitHub location for most of the files.

The second deliverable date that was projected in the overall project scope needed to include software architecture diagrams such as Model View Controller (MVC) and Unified Modeling Language (UML) diagrams.

With proper class diagrams in place, the scope of the project went on to discuss the final deliverable date with the presentation day and final changes to the documentation surrounding this application project. Development of the habit tracker app was to be completed within these two projected deliverable dates.

2.3 Stakeholder Register

The stakeholder register outlined the members of the team and other influential people that would be affected from the outcome of this project.

The first stakeholder was deemed to be Dr. Tim Maciag, the professor of this course and the main sponsor and advisor to the project. Maciag would have a high level of power into the project, with the ability to approve of the scheduled deliverables as well as offer suggestions to solve different problems that may arise. His level of interest was deemed to be relatively low since he would not be responsible for the success of failure of the project.

Other stakeholders were determined to be the general public and the users who would subscribe to the application. Their level of power was low level as they would not have input to the initial design and construction of the app. However, the level of interest was rated as high as the users would make up the entire targeted audience.

Finally, the design team that would be developing the app were the last set of stakeholders. They would have both a high level of power since the developers have input in what they implement and a high level of interest in this project as the final review and evaluation would affect them directly.

2.4 Project Roles and Responsibilities

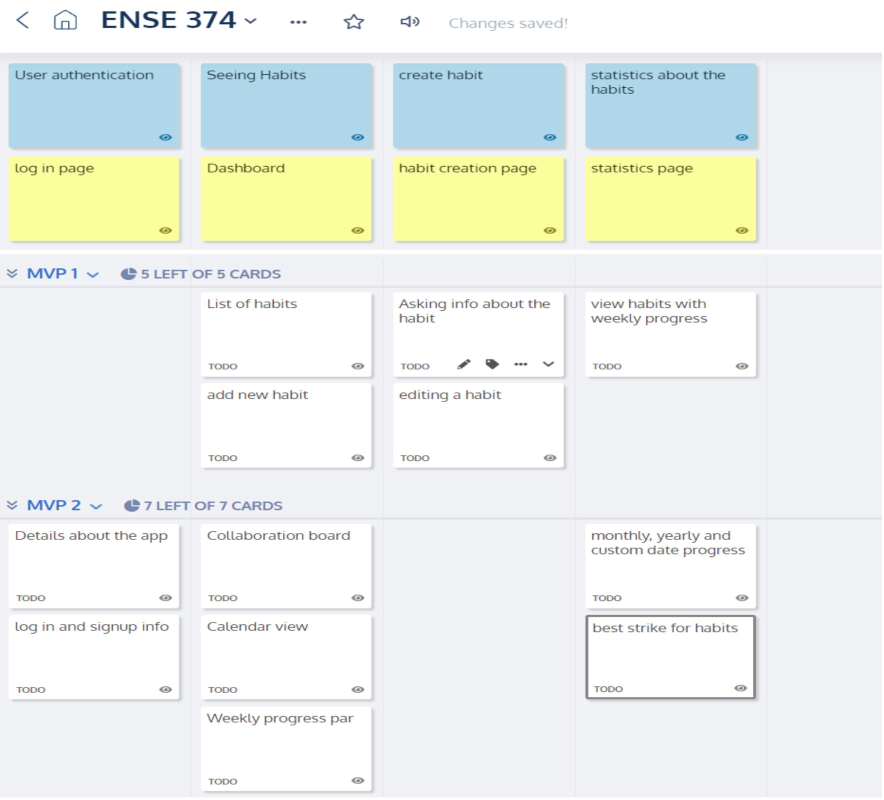
The tasks assigned to each team member was outlined in the Roles and Responsibilities Document. The tasks and responsibilities were divided at the beginning of the project with the mutual agreement that collaboration and assistance between divisions was strongly encouraged if required.

Within the development team, Alireza Hezaryan was appointed to the project manager role unanimously. In addition to taking on the overall management role, Hezaryan would also be involved in the front end development of the application. Dillan Zurowski and Brandon Morgan chose to work on the back end development while Brandon Hillbom would join Alireza on the front end.

2.5 Minimum Viable Product Goals

During the planning phase of the project, the development team set goals for what the Minimum Viable Product would be and the features that could be added to the next MVP. The figure below shows the MVPs that were planned for.

Fig 1 - MVP



ENSE 374 Changes saved!

	User authentication	Seeing Habits	create habit	statistics about the habits
	log in page	Dashboard	habit creation page	statistics page
MVP 1 5 LEFT OF 5 CARDS		List of habits TODO add new habit TODO	Asking info about the habit TODO editing a habit TODO	view habits with weekly progress TODO
MVP 2 7 LEFT OF 7 CARDS	Details about the app TODO log in and signup info TODO	Collaboration board TODO Calendar view TODO Weekly progress par TODO		monthly, yearly and custom date progress TODO best strike for habits TODO

In the first Minimum Viable Product, it was planned to at least be able to view the list of habits, create new and edit existing habits as well as mark progress on the habits as the user carries out their task. By the second MVP, signup and login functionality was to be added as well as be able to customize the habit updates to include monthly and yearly progress checks along with the weekly updates. This second MVP would also aim to have a calendar view so the user can see a more illustrated view of their progress throughout the set timeline.

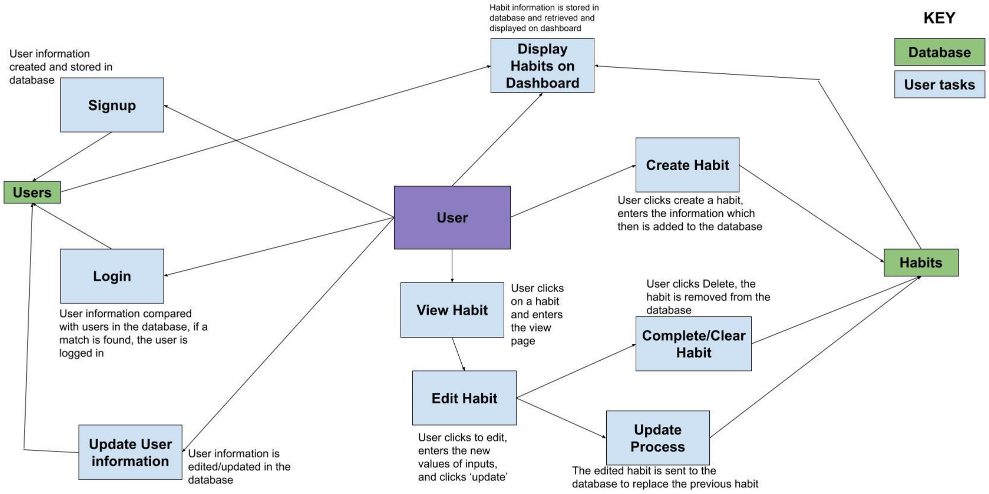
3.0 Project Design Architecture

For the next phase in the project planning, the design of the software architecture was to be devised. This would include diagrams and structures that would help to understand the layout and interaction of the data between the front and back ends of the application.

The Model View Controller (MVC) is the diagram that shows the interconnections between the program elements. In regards to this project, a simple diagram was drawn to show some of the basic aspects in each element and how they would cycle through and communicate with each other.

The Unified Modeling Language (UML) Diagram shows more detailed visualization of the project and the flow of data throughout. The figure below shows the UML for the Habit Tracker app.

Fig. 2 - UML


Habit information is stored in database and retrieved and displayed on dashboard
KEY
Database
User tasks
User information created and stored in database
Signup
Display Habits on Dashboard
Users
Create Habit
User
User clicks create a habit, enters the information which then is added to the database
Habits
Login
View Habit
User clicks on a habit and enters the view page
User clicks Delete, the habit is removed from the database
Complete/Clear Habit
User information compared with users in the database, if a match is found, the user is logged in
Edit Habit
Update Process
Update User information
User information is edited/updated in the database
User clicks to edit, enters the new values of inputs, and clicks 'update'
The edited habit is sent to the database to replace the previous habit

4.0 External Feedback

During the development of a new application, the feedback from colleagues proves to be valuable in allowing a new perspective to solving the client problem or even bugs that may arise during construction. The feedback received for this project served as important reminders not to stray from our MVP’s and ensure clean code when construction started.

5.0 Software Construction

As the project progressed and the programming was initiated, some of the roles did change to more effectively complete different aspects of the application. Hillbom and Zurowski move toward more hybrid roles involved in both the front and back end development of the project. Morgan, who unfortunately was unable to contribute to the programming, moved into an administrative role and completed the rest of the outstanding documentation that was required for the final deliverables.

During development of the front end software, Hezaryan and Hillbom begin with HTML and CSS files to ensure a clean and sharp style to the pages. Following that, a simple JavaScript file was added which allowed for login functionality right from the start, despite not being included in the original MVP.

Work continued to create proper EJS views of each aspect of the app including the dashboard, an Add Habit page, and eventually a statistics page by the second MVP milestone. Post and get routes were used in a javascript file to ensure each function across these files could interact and deliver the working webpage.

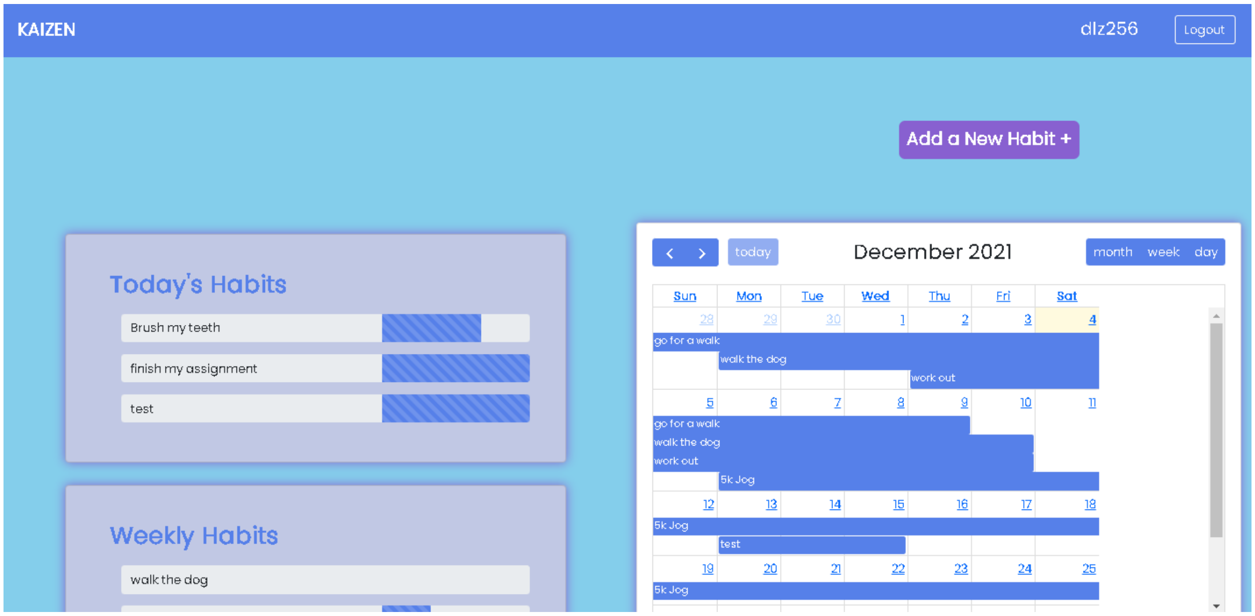
Once the front end was in place, the back end database aspects were started. By using MongoDB software, a database was created to contain the user login information for whoever subscribed to the application as well as the created habits for each user.

6.0 User Operation

Once the application is loaded, the user will be prompted with options to either log into an existing account or create a new one. If the user is creating a new account, they will be required to enter new credentials that will be saved to the database and ready for future login attempts. When the user is logging into the app, the app will redirect to the user’s personalized dashboard, assuming the login credentials are correct and authenticated.

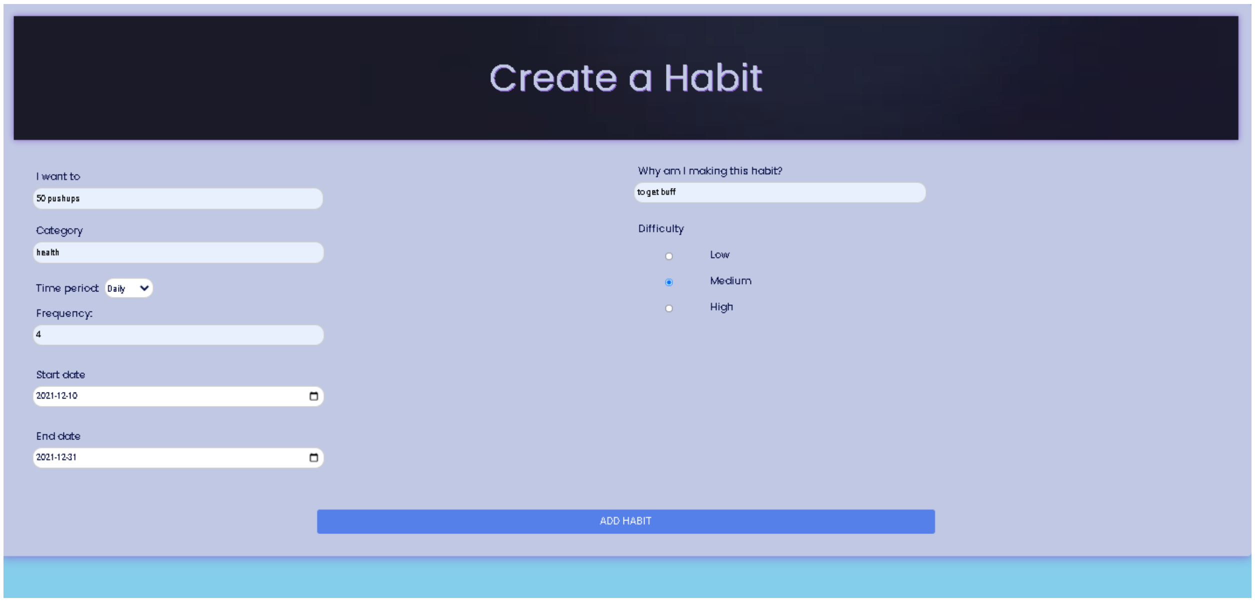
On the dashboard page, the user will see a list of their current habits with the ability to mark their progress for each habit. The dashboard also features a calendar view so the user can see the progress record and remaining goals ahead in a more organized manner. Below is an image of what a typical user might see on their dashboard.

Fig.3 - Image of the main dashboard with pre-filled habits



The user also has the ability to add new habits by clicking on the “add a habit” button. This will take the user to a new page which allows the user to enter a new habit with all the required details needed for proper tracking and analysis, such as start and end dates, frequency of work towards the habit, and the option to work on the habit on a daily, weekly, or monthly interval.

Fig 4 - Image of the Create Habit page with some example values filled in



Create a Habit

I want to: 50 pushups

Category: health

Time period: Daily

Frequency: 4

Start date: 2021-12-10

End date: 2021-12-31

Why am I making this habit? to get buff

Difficulty

○ Low

● Medium

○ High

7.0 Conclusions

The Kaizen Habit Tracker application was designed with the intention to help people continue improving themselves by providing the motivation they may be missing. Over the course of the project timeline, this application was planned, developed and implemented as a functioning habit tracker web application.

The planning phase contributed to much of the timeline, with initial documentation such as the Project Scope to outline the extent and goals the development team aimed to accomplish. With approval from stakeholder and main project sponsor, Dr. Maciag, the habit tracker could proceed.

The internal architecture of the application needed to be planned out as well. By using management concepts learned throughout the timeline such as the MVC and UML, a clear visual of the data flow could be better understood. The programming would prove to be a much smoother process using these diagrams.

The programming of the habit tracker consisted of front end files like the base HTML and CSS files to ensure a memorable and professional looking web page. The back end made use of MongoDB and Passport to ensure that users could register and login to see their personalized dashboards. Successful implementation of the project planning and programming could be seen in the demonstration.

This project was deemed successful by the development team. Each milestone and deliverable date was met accordingly with appropriate materials. When the team was faced with programming obstacles, assistance was easily found among the other members of the team to ensure the application would be successful. At the finishing point of the project timeline, the Kaizen Habit Tracker application is a success and ready for deployment.