340 Project Final Report

CorrugatedPaper

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https://github.com/cs340-25/CorrugatedPaper

I. Introduction

Project Overview

This project is based on Paper.nu, a class scheduling tool for Northwestern University, in an effort to improve the University of Tennessee, Knoxville's (UTK) class scheduling interface. Our tool is intended to allow users to access information about classes at UTK and to create a schedule based on this information.

Motivation

This project was motivated by the team's collective dismay at UTK's class scheduling interface. Currently, UTK's class scheduling interface is very difficult to use and requires the user to wait for periods of time while the tool searches for classes. This makes registering for classes difficult and can cause frustration at the design of the tool. The interface is also visually unappealing and lacks modernity.

Approach

The first step was collecting the data to be used for scheduling. This step was done using scripts that scraped the UTK course catalog as well as the UTK class search list. This information was then stored in a remote database to allow for easy access. After this, we then designed and implemented the frontend to allow the user to select classes, and to properly display the contents of the database and allow the user to create a schedule.

Results and Conclusions

We believe this project was for the most part a success in meeting the goals we initially set out to achieve. Corrugated Papers features a seamless and intuitive user interface that enhances ease of use, ensuring users can navigate the platform effortlessly. It also features a comfortable and minimalist GUI enhancing user experience by removing ugly formatting. Users are also able to access information about classes they wish to take such as the time, instructor, location, and number of remaining seats, as well as other useful information. These functionalities successfully fulfill the project's core requirements, but there are more aspects that may be useful for a user.

II. Customer Value

CorrugatedPaper is aimed to improve the course planning experience for students at the University of Tennessee, Knoxville. It addresses limitations in the current myUTK scheduler by offering a more user-friendly and visually organized interface. Modeled after the successful *paper.nu* platform used at Northwestern University, CorrugatedPaper aims to provide a tested and effective alternative. As of April 29, 2025, the project's customer value remains unchanged.

III. Technology

System

CorrugatedPaper allows users to select classes from a list of classes in the EECS department and will create a schedule from the classes. It also allows users to create schedules for future semesters using extrapolated class time data. CorrugatedPaper contains a frontend that enables and enhances the user interface and experience. The frontend also contains most of the logic required for our application to be functional. A database is also used as a storage point for all the data involved in the application.

Tools

The original design was to use the React Framework to build the frontend, while using Django for the backend, and MongoDB as the database. However, we later chose to forgo the backend and instead allowed the frontend to talk directly with the database. We also decided to use vanilla JavaScript instead of React because we found that this made the design much simpler. These decisions were made in efforts to not complicate the software development process. We used Figma to design the application, allowing for an easy integration with the rest of the application

We were able to successfully implement a database using MongoDB. A Python script was used to scrape the UTK course catalog page to enter into the database as well as class data from MyUTK. The below image shows the command to start the database server, allowing the frontend to pull data from the database.

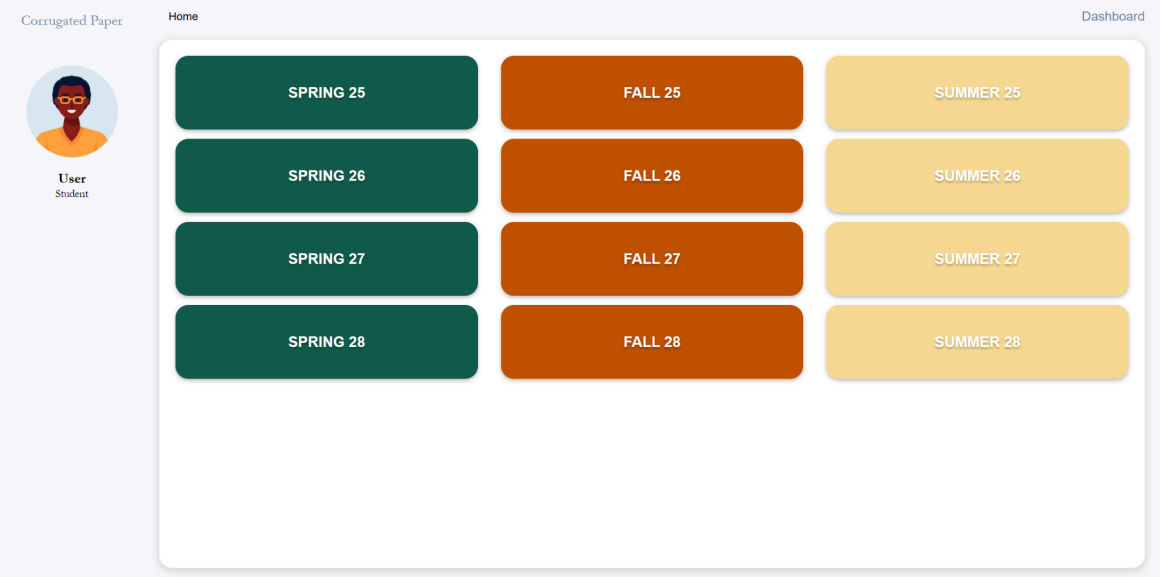
```
PS ~\Documents\College\2025_1SP\COSC 340\CorrugatedPaper\backend> npm start

> backend@1.0.0 start
> node server.js

Server is running on port 5000
Pinged your deployment. You successfully connected to MongoDB!
```

Command to start database server

The frontend requires no setup to run and uses HTML documents making the frontend very simple to use while containing all necessary functionality. The below image shows the homepage for CorrugatedPaper.



Tests

The tests we ran included verifying the database contains all the classes listed on UTK's course catalog page, ensuring the database server and frontend server are able to communicate with each via requests, and making sure the functionality of buttons, menus, drop/drops, ect, work as intended to. While we were not able to test our project with other users, these results proved that we had indeed created an application that is effective in accomplishing the goal we set out to do.

IV. Team

Roles

The database was primarily implemented by Mung-Shu Shen and Jonah Weston. Mung-Shu was responsible for creating the repository, initializing the frontend and backend, and scraping data from the UTK catalog. Jonah Weston was responsible for scraping data from MyUTK and creating a program which allows users to login and update the database. This program was not incorporated into the final version due to time constraints.

The frontend was primarily implemented by Madina Mirusmanova and Ashwin Vinod. Ashwin was responsible for designing the frontend in Figma and transferring it to our application. Madina was responsible for transferring the Figma interface to our application and improving the connection between our frontend and the database.

Each team member also made smaller contributions to other sections of our project to ensure equal exposure to new technologies.

V. Project Management

Despite planning for a plethora of functions for the project, we were not able to complete them all. This can be attributed to difficulties such as time constraints, difficulty communicating, and heavy class loads. Many times our team was unable to meet due to various circumstances. Nevertheless, the functions we did manage to implement were completed with care and attention to detail, and we believe they lay a strong foundation for future expansion.

VI. Reflection

This project was very enriching as it exposed the team to the various stages and components of software development. Each team member was able to contribute and learn new technologies by working on different parts of the project. Although our team dynamics were not ideal, the whole team was still able to gain experience working with others resulting in a well-thought-out project.

All things considered, we would consider that this final project was a success. The project has allowed us to learn new technologies, experience working in a collaborative environment, and develop a meaningful product. If we were to continue on this project, the next features would include allowing users to login through UTK's CAS system and automatically creating schedules based on the UTK catalog's uTrack.