CST-451 Capstone Project Proposal

Patrick Garcia

Grand Canyon University

Instructor: Professor Mark Reha

Date: 3/12/2022

**ABSTRACT**

The modern student faces many challenges. Balancing school, work, and life is no easy task. For this to properly be accomplished, students must get organized. While traditional organizational tactics, like day planners, calendars, etc., are effective for some students. Others may opt for a more digital approach. There are a litany of applications that offer organizational tools. However, many of these applications are not free, or are simply bloated with unnecessary features. Students must be provided with a clear and simple UI, and clearly outlined and useful features to encourage them to actually utilize the app for its intended purposes.

It is the aim of this project to create a tool that students may use to help them organize their schoolwork to ensure *nothing falls through the cracks*. As stated in the previous paragraph, there are many tools already on the market for organizing daily events, and even schoolwork. However I felt their interfaces and features resulted in an unpleasant user experience, that eventually led to the application being removed from my devices unused. Taking inspiration from the Grand Canyon University LoudCloud portal, this application will display a student's upcoming assignment clearly, and even provide alerts when due dates are close. Students can add course details and notes, and past courses will be automatically organized to provide easy access for later use. Simplicity and function are the key points here. As someone who has a hard time committing themselves to organizational tools, I aim to create something that even I will love using.

| History and Signoff Sheet |
| --- |

**Change Record**

| **Date** | **Author** | **Revision Notes** |
| --- | --- | --- |
| 3/6/2022 | Patrick Garcia | Initial draft for review/discussion |
| 6/28/2022 | Patrick Garcia | Updated Sections: *Project Overview, ProjectScope,* |
|  |  |  |

| **Overall Instructor Feedback/Comments** |
| --- |

| **Overall Instructor Feedback/Comments** |
| --- |

**Integrated Instructor Feedback into Project Documentation**

☐ Yes ☐ No

**Project Approval**

☐ Professor Mark Reha

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**Project Overview and Project Objectives**

**Problem and Background**

Organization is key for the modern student. However, many of the tools offered to students are not streamlined, or contain unnecessary features. Bloating an application with a bad UI, paywalls, excess features, etc., may not encourage students to remain organized. As someone who is very disorganized, I often found myself working throughout the night to finish an assignment that had slipped my mind. Traditional organizational methods can be useful for combating this issue, but in our digital age, a tech approach seems more appropriate. Providing a clear and simple UI, assignment tracking features, a calendar view of upcoming assignments, an archive system for past classes and their associated files and projects, and even email notifications for upcoming assignments are all necessary features that are needed for students to get organized. Inspiration for this project was taken from the LoudCloud student portal used by Grand Canyon University students. I found this system to be streamlined, and its calendar system allows one to quickly check the dates of upcoming assignments and even see if grades have been posted at a glance. I wanted the functionality of this portal, along with some extra features, without needing to access it through Grand Canyon University’s systems.

**Christian Worldview**

*But all things should be done decently and in order*

- 1 Corinthians 14:40

It is the opinion of the author of this document that a student's decision to remain disorganized comes out of laziness. This stance is formed from the author's personal experience. Organizing the disorganized is a task that can be harder for some, than others. When one falls into the latter camp, laziness can quickly overcome their desire to become organized. This can result in a trickle down effect, causing students to miss assignments, or be forced to turn in quickly completed work to meet deadlines that were not properly planned for. Which can in turn, affect a student's grades, their financial situation, and their mental health. Laziness, or Sloth, is frowned upon in the Christian Worldview.

*Slothfulness casts into a deep sleep, and an idle person will suffer hunger*

- Proverbs 19:15

It is the aim of this project to provide a tool for the disorganized. One that may be useful even for those who seem to go out of their way to provide their own roadblocks. As a student who spends most of their time putting up roadblocks for themselves, I aim to provide a tool that will be useful for myself, and others like me.

**Project Objectives**

Objectives for monitoring project status are outlined below.

* Completion of Project Proposal
* Completion of Project Requirements Document
* Completion of Final Plan Document
* Development of backend systems, such as database tables and classes.
* Development of Frontend systems, such as UI.
* Development of appropriate documentation outlining development progress and features.
* Testing
* Revisions
* Shipping of Final Product with documentation

**Challenges**

Known challenges are outlined below. Items may be added or removed as the project continues development.

* Automatic population of student course schedule and assignments.
  + A desired feature of this application is the ability to automatically populate a students course and assignment information into the application, using their university systems. Currently, the developer of this project has no clear method for accomplishing this goal. More research must be conducted to ensure that this feature is possible for the application.
* Email alert system
  + A tool must be chosen to provide automatic email updates for student assignments.
* Time Frame issues
  + This course is operating at an accelerated schedule. Great care must be taken to ensure the project proposed is reasonable for the provided time frame.

*EDITS*

* Database
  + Due to time constraints, a database was not used for this assignment. Instead, JSON files are generated to store saved course information.
* Security
  + Because of a lack of a database (see *Database* section for more information), security was not implemented in the application. Future iterations will include these features.
* \*\* Added for Milestone 6 \*\* Note Organization Features.
  + For the Current Milestone 6 iteration of this application, the ‘OrganizedNotes’ base directory is created within the special Windows ‘Local’ folder. This works perfectly for machines running Windows, however it is unclear how this will operate when running on other OS.

**Benefits and Opportunities**

Successful completion of this project comes with a few benefits.

* It will provide a useful tool for myself, that will allow me to remain organized with my schoolwork. This can lead to lower stress levels, and higher grades, which come with a litany of benefits themselves.
* It will provide a useful tool for others. Allowing for the same benefits described above.
* It will result in a good grade for myself in this course.
* It will provide a needed entry into my resume for future employment opportunities.

**Project Scope**

The scope of this project is as follows. This project will provide real time information regarding a student's current assignments and courses. This application is screen based, and is intended for use on a desktop or laptop computer. A widget approach will be used, allowing students access to their course information without having to leave their desktop. Assignment due dates will be compared with the current date to provide clear alerts when assignments are close to due. Student assignments will be displayed clearly in either a calendar, list, or notecard format. Past assignments and courses will be automatically archived, to allow students to easily find past work for reference. All of this information will be manually entered by the student when their course has begun, and will be stored in a database for future use. Assignment detail reports can be generated, allowing users to quickly see all of the information pertaining to a specific assignment or course. The application will manage security using a username and password combination for authentication, the credentials for which will be saved in the database. Users will also be able to opt in or out of two factor authentication using email as the second authentication system.

*EDITS*

FIRST EDIT: The scope of this assignment has changed slightly. The assignments will be only displayed in a list form, with the selected assignment having its details shown in a separate page. There will also be no database in use, the application will instead utilize JSON files to store Course and Assignment information. Security will also not be in place, this may be included in future versions.

| Stakeholder Name | Role(s) | Responsibilities |
| --- | --- | --- |
| Patrick Garcia | Project Owner, and Developer | The creation and development of the project being outlined. |
|  |  |  |

1. List the work breakdown required to satisfy the project objectives. Identify teams and other resources that may be required to successfully complete the project.

| Work Breakdown Structure | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Task | Dependencies | Status | Effort Hours | Cost | Start Date | Planned Completion | Actual Completion | Resource |
| 1 | Development of Project Proposal Document | NA | Finished | 6 | NA | 2/28/2022 | 3/06/2022 | 3/12/2022 | NA |
| 2 | Development of Project Requirements Document | NA | Finished | 8 | NA | 3/7/2022 | 3/13/2022 | NA | NA |
| 3 | Development of Final Plan Document | NA | Finished | 3 | NA | 3/14/2022 | 3/20/2022 | NA | NA |
| 4 | Development of Backend systems | NA | Finished | 6 | NA | 3/21/2022 | 3/23/2022 | NA | NA |
| 5 | Development of Frontend systems | NA | Finished | 9 | NA | 3/24/2022 | 3/26/2022 | NA | NA |
| 6 | Development of Documentation | NA | Finished | 5 | NA | 3/24/2022 | 3/26/2022 | NA | NA |
| 7 | Testing | NA | In Progress | NA | NA | 3/26/2022 | 3/26/2022 | NA | NA |
| 8 | Revisions | NA | In progress | NA | NA | 3/26/2022 | 3/27/2022 | NA | NA |
| 9 | Shipping of Final product | NA | In progress | NA | NA | 3/27/2022 | 3/27/2022 | NA | NA |

**Project Success Measures**

1. Describe what measures will be used to calculate project success.
2. Use the template to list the project completion criteria.

| Project Completion Criteria |
| --- |
| 1 - Completion of Project within allotted time frame |
| 2 - Completion of project with all features outlined in this document. |
| 3 - Meets the desired performance/technology level |
| 4 - Utilizes course information effectively. |
| 5 - Provides a clean and streamlined UI |
| 6 - Student approval, and usage |
| 7 - Submission into the windows application store |
| 8 - Robust security using two-factor authentication |
| 9 - Manual entry of course information must be easily accomplished |
| 10 - Provide a tool that even I will find useful. |

1. Use the template to list the project assumptions and constraints, if applicable. An assumption is an educated guess that a likely condition or circumstance is presumed to be true. A constraint is a limiting condition or circumstance that defines the project boundaries. Assumptions allow the project to succeed. Constraints restrict or limit the project execution.

| Assumptions and Constraints | | | | | |
| --- | --- | --- | --- | --- | --- |
| ID | Description | Comments | Type | Status | Date Entered |
| 1 | Not all students organize their schoolwork in this manner. Some may opt for physical organizational tools, other methods, or no organization at all. | A simple and streamlined UI is essential for enticing potential users. Operation of the application must be easy, to ensure repeat use. | Assumption | Not resolved | 3/12/2022 |
| 2 | Timeline for the completion of this project is very short. | An accelerated timeline, coupled with my slow start of the project has resulted in a time crunch that must be properly planned for. | Constraint | In Progress | 3/12/2022 |
| 3 | Developer of this application works a full time job, with full time responsibilities. | Related to the timeline issue. Great care must be taken to ensure timeline goals are being met appropriately. | Constraint | In Progress | 3/12/2022 |

**Project High-Level Solution**

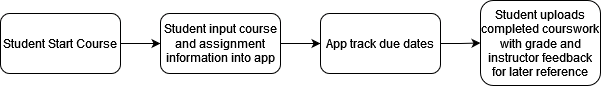
**Introduction**

As someone who lives with ADHD, I know the value of organization. Especially when it involves my schoolwork. I often found myself behind, missing assignments, and not being prepared for exams. I was moving forward with no direction, trying to get things done as they popped into my head. But what can I do when something does not make its way into my mind? For years I have been bombarded with different suggestions on how to get organized. Traditional planners worked for a while, however I often found myself forgetting it at home, and again relying on whatever came to mind for guidance. I tried applications on my phone, many of which come with a range of useful features. However, I found many of them to have too many features, bad UI, data collection methods, or paywalls that quickly overwhelmed me, driving me back to disorganization. I am not alone with this issue. Many of the friends I have made throughout my academic journey face similar issues. I have seen a range of methods that students use to remain organized. Some are more effective than others. I have not encountered one that seemed to work for myself. After many years of hoping a tool will become available that I will find useful, I have decided to simply build my own.

The aim of this project is to create an organization tool for the disorganized. This app is intended for those who have found other organizational methods ineffective, or overwhelming. I aim to create an application that not only helps a student organize their assignments, but one that also helps them organize their completed coursework, class notes, grades and instructor feedback. It will also contain features to help those who have a hard time getting started, study timer features, useful study links, and the ability to share these tools across devices, all with a simple and easy to understand UI to encourage repeat use. I aim to create a sort of *hub* for coursework. A one-stop organizational tool that will be useful, even for those of us who seem to go out of our way to remain disorganized.

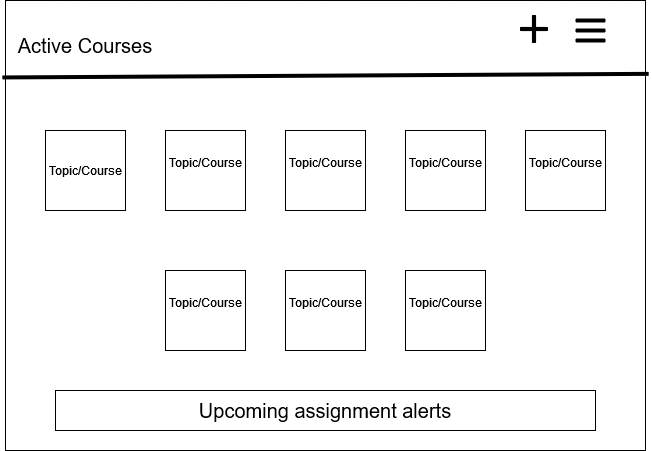
**Solution**

To accomplish my goals, I will be implementing a simple flow for student organization.

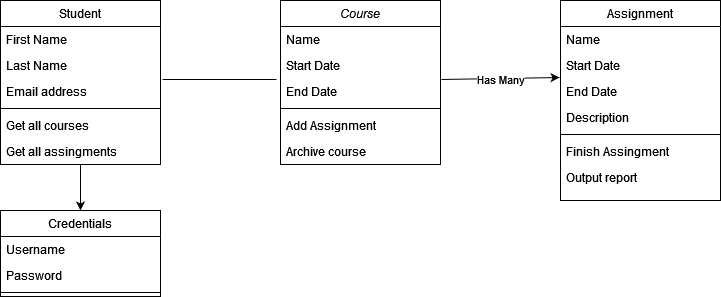


This is a very high level example, as there will be a range of other features included as well. The aim for this application is to provide useful features, without the process being too tedious for repeat use by students. I want students to be able to input their course information once at the start of the class, and not have to worry about inputting new data until the next course starts.

When using this app, students will be presented with a dashboard as shown below. The dashboard will contain ‘notecards’, each representing a class, or topic, that the student needs help organizing. Students will have the ability to create new ‘notecards’ from this page, and can even edit, archive, or delete old ones. The application itself will check that all classes displayed on this page are current, if the course end date has already passed the application will automatically move it into the ‘archived’ folder for future reference.



After creating a course ‘notecard’, students will be able to add assignment details pertaining to each specific course. Students can add due dates, assignment instruction forms, instructor feedback, and other helpful documents. Students can mark assignments as completed, and even upload instructor feedback. The UML class diagrams displayed below will offer more insight.



Data input for this assignment is simple. Students will be presented with easy to use forms, and even a tutorial wizard, showing how to add data into the application. Data will be processed to ensure it meets criteria, and will be cleansed to prevent injection style attacks. The php Laravel framework will be used in this project. It is chosen because of its range of useful features, including its authentication systems. CSS and SASS will also be used in tandem with standard HTML to create the front-end UI. A SQL database will be leveraged for storing student data. This database is useful because it allows students to access their course information across devices by simply signing into their account.

This has been a very high-level description of how my project will accomplish its goals. The PHP Laravel framework will be utilized, in tandem with styling languages, and a SQL database. All working together towards the same end-goal. A clear and simple UI, useful and easy to understand features, real-time assignment tracking, past course archiving, email notifications, and two factor authentication for security will all be provided. This is all done in an effort to make an application that is easy and fun to use, has an attractive design, and will help students become organized. I hope to help those like me, registering my application within the windows application store will help bring this tool to the masses, hopefully helping out students who find themselves sitting with me, in the same boat.

**Project Controls**

1. Use the template to define the risk and list the steps to prevent the risk from occurring or the steps to minimize the chances of it happening. The contingency plan describes alternative solutions to reduce the impact of the risk. An example of a contingency plan is to provide the customer a temporary web server if there are delays in delivery/completion. If the risk has already happened then provide an entry in the issue log.

| Risk Management | | | | |
| --- | --- | --- | --- | --- |
|  | **Risk Probability** | **Risk Impact** |  |  |
| **Event Risk** | **(high, medium, low)** | **Risk Mitigation** | **Contingency Plan** |
| Student may not always have access to an internet connection | medium | Students will not be able to access course information due to it being stored within a SQL database. | Current course information can be stored locally on the computer as well as in the Database. This will allow students to access their information even without an internet connection. | Providing local storage, and other methods of authentication. |
| Timeline issues, causing development to be rushed. | High | The quality of work will suffer, and some features may not be implemented properly, if at all. | A clear and realistic timeline must be set. expectations must be realistic and must fit within the allotted time frame. | Realistic workloads must be determined. It is better to trim off unnecessary features, than to turn in an uncomplete app. |
|  |  |  |  |  |

Issues may be added as the project moves forward.

| Issues Log | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Description** | **Project Impact** | **Action Plan/Resolution** | **Owner** | **Importance** | **Date Entered** | **Date to Review** | **Date Resolved** |
| 1 | What is the issue? | How will this impact scope, schedule & cost? | How do you intend to deal with this issue? | Who manages this issue? |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |

1. All projects have either anticipated and planned or unexpected changes. Describe any issues in management or change management due to the anticipated and planned or unexpected changes. Use the template to list anticipated and planned or unexpected changes.

Items may be added as the project moves forward.

| Change Control Log | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Change Description** | **Priority** | **Originator** | **Date Entered** | **Date Assigned** | **Evaluator** | **Status** | **Date of Decision** | **Included in Rev. #** |
| 1 |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |

1. Use the template to describe how the end user is involved in the software development, if applicable. Include relevant information about meetings, reviews, presentations, etc.

| Roles and Responsibilities | | | |
| --- | --- | --- | --- |
| Name | Team | Project Role | Responsibility |
| Patrick Garcia | Development | Developer | The design and creation of the application. |
| Patrick Garcia | Testing | Tester. | User experience testing must be useful for the tester to determine if it may be useful for others. |
| End User | Testing | Tester | New features may be added or removed based on end user feedback. Continuous improvement is desired. |

**Project Cost and Schedule**

**Costs**

This project will utilize the free to use Laravel framework, as well as the free to use SQL database. There are no costs currently expected by the development team. Changes will be added below if new costs are discovered during development.

**Schedule**

* Development of Project Proposal Document | 5 days | 2/28/2022 - 3/06/2022
* Development of Project Requirements Document | 5 days | 3/7/2022 - 3/13/2022
* Development of Final Plan Document | 3 days | 3/14/2022 - 3/17/2022
* Development of Backend systems | 2 days | 3/18/2022 - 3/20/2022
* Development of Frontend systems | 2 days | 3/21/2022 - 3/23/2022
* Development of Documentation | 1 days | 3/24/2022 -3/25/2022
* Testing and revisions | 2 days | 3/25/2022 - 3/27/2022
* Shipping of Final Product | 1 day | 3/27/2022 - 3/27/2022

**Appendix A – References**

*NA*

*References may be added during the development of the project.*

**Appendix B – Copyright Compliance**

NA

Items may be added during the development of the project.