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Business Problem

The Customer

The customer, Faber College, is a college whose goal is to provide a quality and an affordable education. The tuition for the students is based on the student's ability to pay. This goal must be considered when designing the application to meet the requirements. The application must not add to the financial burden of the student and the college itself. The solution must encompass the already existing technology that is used by the students and by the college.

In essence, the customer for this project is a small college that is looking to provide a simple an effective way for their students to manage their collegiate schedule. The school encompasses approximately 5500 students. This student body is very diverse. The student body is composed of both traditional students as well as older adult learners. Faber College aims to make the functionality of any application easily accessible to all student body. This is an important consideration for any application that is going to be developed. The platform must be easily accessible, and the data contained within must be easy to understand.

The application will need to make use of the current IT infrastructure of the college. The infrastructure can currently support any increase in traffic for functioning of the application. Most data will be stored locally and only updated when there is change initiated by the student.

The school's student body has not grown over the last decade. The application may need to scale up in the future as the need for affordable education is becoming more desirable. The application will need to make use of the latest technology to stay in the current technology lifecycle. The customer's application must realize that a significant portion of the student body does not run the latest version of the Android mobile operating systems. So, the application will need to encompass the latest mobile OS that will provide the most functionality without putting it beyond the use of a large majority of the student body.

Business Case

Faber College is currently using an antiquated system to keep students informed about the status of the class schedule. The college currently does not allow the students to easily check their schedule without logging into a campus computer or the student's own personal computer. This is a practice that has served to make students frustrated with the current mode of doing things.

Students have wished that the current technology would be move to a more user friendly and up to date system. They have expressed an interest in the ability to accomplish this task by using their portable devices most notably their smartphones. They (the students) feel that this

will make them more aware of things like deadlines for assessments as well as the ability to check at a glance other important dates. The students also expressed a way to share items that are important for their classes. One such item is the ability to share notes with other classmates. This, the students say, would foster a greater degree of collaboration among them outside of the classroom.

Fulfillment

What is the current state of the Faber College students access to schedule information?

Faber College's current mode of accessing this information is the use of computer terminals that are available in computer resource buildings and other public computing areas of the campus. The information is also available if the student downloads a specific application to their personal computer.

This application provides the same information as the proposed replacement application but is not current and is very resource intensive and has not been updated to make best use of new technology and improvements in user interface design methodologies. The new application will make accessing this information easier and the resources will be less of a burden on both school resources as well as the student's resources when it comes to computer requirements.

How will the new app help Faber College and its students?

The application should provide an easy way to access all information that will be useful to the student. This information should include, but not limited to, the following:

- Term information
- Course information
- Assessment information
- Course Notes

Term information - should include the dates for the beginning and the end of the term. This information will help the student understand when the term begins as well as when the term will end. With this information the student will be able to better make use of their time to accomplish the tasks for the courses that are in each term.

Course information – the dates for the beginning and the end of the course, the assessments that may be included with the course, a way to display the assessments and the notes that are in one coherent place that is easy for the student understand.

Assessment information – information that should be available to the student would be the date or date range for the assessment as well a way to set a notification for the beginning and the end of assessment – if applicable.

Course note information – the course notes option will give the student the ability to see the notes for the course, and the student will have the ability to share these notes with classmates. A useful feature when it comes to collaboration on tasks that will be presented during some courses.

Existing Gaps

As stated previously, the school's current system does not make use of the advancements in software design principles or the use of less resource intensive software. The current application will only run-on personal computers and is not available on certain older operating systems or Apple's OS. The latter OS will not be a major issue at the beginning. The number of Apple devices currently used by the student body is currently very low. With the introduction of this application these shortcomings of the current system will hope to be addressed in a cost effective and intuitive manner.

SDLC Methodology

The methodology that will be used for the project will be Agile. While the project and its initial requirements are relatively easy to understand. The development of the application may be helped by continuous input from the customers and the constant testing by a select group of student users. The student users will add valuable input into the design of the interfaces and the information that is displayed within them.

The student user will have the final say on whether the application will be successful or a failure. So, input by these users is of utmost importance to the success of the application. The Agile methodology will allow for subtle and incremental revisions to the layout and overall look and feel of the application. With the small incremental changes being made we can attain a high level of satisfaction with the application.

This is not possible with other methods of software development. The main goal of this application is to produce something that is a breeze to use and look upon fondly by the student user. To accomplish this, we need to gather feedback from the desired user group and in this case the student user.

Phases that this methodology would require would be the following along with a description of what each of these phases would mean to the project:

Requirements Phase

During this phase, our team will meet with the administration, members of the registration department as well as the student representatives. These meetings will help us develop what we need to accomplish with the application as well gather what is truly wanted by the customer and the users of the application.

Design Phase

During this phase we will begin to look at the overall look and feel of the application. The designers will consider what the customer wants and what the end user (the student) will need. Keeping in mind that this application must be functional and stay within the budget and time restriction that is afforded to the development team. Also, we will investigate getting initial feedback from the users on the design of the user interfaces. We want to know what design is easiest for them to understand and which design feels the most comfortable to them.

This phase will look at the design from an architectural standpoint. What will be needed to fully implement the possible solution to the application problem. For example, will there need to be upgrades to any of the IT hardware? Will there need to be accommodations for how the current IT structure handles information? Does the current IT structure currently support the proposed solution adequately? Answers to these questions must be answered and may entail further inspection by the development team by asking follow-up questions of the customers and the sample user group.

Development and Coding Phase

During this phase, the developers will look at the design documents that were created during the previous phase. Finalizing the actual functionality will begin here. The desired functionality as well as the aesthetic look of the app will begin to take shape. Most of the backbone coding will be done during this phase. Small parts of the project will be made available to the customer to view. The customer and a sample group of student users will be able to give input into the design and the ease-of-use for the features of the application.

Integration and Testing Phase

This phase of the project the development team will investigate testing the application for any problems with the application. These problems could be runtime errors or just the look and feel does not feel right to the customer or the users. This phase will also make sure that the original requirements of the customer are met as well as the desires of the student users are met.

Integration with any existing IT hardware that is currently employed will be tested and any modifications will be made either to the existing IT infrastructure or to the application. The latter is most likely to be modified as the application will be the easiest to modify and made to coexist with Faber College's current IT systems.

The paramount concern in this phase the overall acceptance of the user group. The development of the application must be one that users accept and one that is useful to user group. If testing yields a negative result from the users. This negative result could be disastrous to the application. The application will be successful if the development team considered all useful suggestions from the sample student user group while remaining in the confines of the main customer's (Faber College) requirements.

Implementation and Deployment

This phase will be the culmination of all the previous phases. The application will be deployed to the Android App store. This will make the application freely available to all students at the college as well as other interested parties. In the days leading up to the deployment the administration of the college will send out email correspondence declaring that the new application is now available for student use.

While this may seem like the final step this phase, we will need to make sure that there is adequate resources available to handle any questions from perspective users of the application. This deployment of the application may mean training any of the college's help desk staff on how to use the application, so they can aid students in the use of the application. While great care was taken during the design process to make this application as easily to use as possible this eventually is very probable and should be accounted for.

Review

This is the last phase that this project will undergo. In this phase the developers will look at all events that took place during the development of the application. The team and customer will gather and discuss both good and bad events that may have occurred during application production. They will discuss what could have been done better in each event and how does this knowledge apply to further projects with the customer and within the developer team. This meeting will also discuss any future features that may be implemented in future revisions of the application. Basically, what features that would be beneficial to the application, but where not included because of time or money constraints.

Deliverables

This project will include some that were discussed and are a product of the Agile SDLC methodology. While Agile is a very fluid and dynamic process there will be a few deliverables that will be produced over the course of the lifecycle of the project.

Project Deliverables

There will a few deliverables that will be produced and they are the following:

- The first deliverable for the project will be the vision statement. This vision statement will be the guiding principle of the project. In the case of this project, it will be focused on providing a useful and easy to use application that the student will enjoy using.
- The next deliverable will be the project roadmap. The roadmap will direct the how and when the requirements of the application will be created and when they will be delivered. This will give all parties involved a look at the overall picture of what the application be and what each requirement will act like and accomplish. The goal of this deliverable is to provide an abstraction of the events that will lead to creation of the application as well provide a way to see when each of the functional requirements will be implemented or met during the production of the application.
- The next project deliverable will be the product backlog. This deliverable will provide the overall scope of the "current" project. This log will show all the requirements of the application as well as the order that these requirements will need to be completed to facilitate the completion of the application.
- The last deliverable will be the various sprints and the completed product that is end product of the last sprint. This deliverable will be presented to the customer to gain approval of the work that has been done thus far. It be a way to show the progress on completing the requirements that were laid out in the log. It will also be used to gauge the acceptance of the work product. It will answer the customer's questions as to the status of the project, but most importantly it will allow feedback. This feedback will go a long way in making sure the product application is to the customer's liking and expectations.

Product Deliverables

While the product deliverables will mostly come in the form of completed sprint products. There will be a few deliverables that will be considered product deliverables. The following will be a short list of the product deliverables.

- Design Documents
    - Design documents will also be produced during the initial sprints of the project. These will be used to determine what will need to be done and how it will be accomplished. It will dictate how the application will function and what it entails to make that functionality happen.
- Mockups/Layout
    - This product deliverable will be the product of the sprint that is concerned with producing the look-and-feel of the application. As a byproduct it will be presented to the customer and the users to garner a reaction to the layout. It will be used to see if the layout meets with the approval of the interested parties.
- Prototype

- The deliverable will be produced during the final sprints of the project and will have varying degrees of functionality. This is mainly due to the fact that each of these prototypes will have only the functionality that was created during that sprint and other previous sprints. These prototypes will be incremental in nature as each of the requirements and functionality is produced. This will be presented to the customer as way to show how the progress is advancing and serve as milestone to mark what has been accomplished.

Implementation

This application will be implemented in the following manner. The first step will be to work with all parties. The parties will include the interested staff at Faber College as well meeting with the select group of student users. During the meeting, the development team will gather what is wanted by the application as well as what is needed. The needs of the application will further be discussed by all parties.

The timeframe needed for this meeting may take several hours as the needs for the application may be many. Also, this stage of the implementation may require several meetings to nail down all the needs that are beneficial to the end user and which needs are nice to have but will not immediately aid the student.

After the completion of the gathering of the requirements, the design of the application can commence. This part of the implementation will be when the developers will investigate how to best implement the requirements of the project. How will this be accomplished? The developers will draw upon previous experience with similar projects on how to best display information to the user. The developers will look to produce a fluid flow from one screen to another to make the application easy to use as well as understand.

The products produced during this part of the implementation will be presented to the customer to gather support and feedback for the upcoming parts of the implementation. The sprints during this stage will produce prototypes of varying degrees of functionality. With the final production sprint, being the finished and fully functional application that will be presented to the users as well as the customer.

During implementation there will be varying degrees of testing. This is to make sure that all current production products meet with the customer's approval, but to make sure all the requirements are met. The testing is to verify that the requirements are exactly what the customer wants and had in mind. The application and its developers cannot assume that requirements are always crystal clear. As one party may interpret the requirements totally different from the other. This constant check will make sure that all parties are on the same page.

Once a final application has been approved by the customer and the users the college can deploy the product. This will involve getting the appropriate approval for uploading it to the Android store. Once this occurs the application will be available to the student users of Faber College.

Validation and Verification

The application will undergo extensive testing to make sure that all aspects of the application are correct and in good working order. These tasks will be undertaken by the Quality Assurance Team that works with the development team. The Quality Assurance Team will develop tests that will be based on the requirements that were laid down during the requirements phase.

The Quality Assurance Team will also devise usability tests to make sure the application is able to be used by all students at the college. The Team will make sure that the application is accessible for those who may have varying degrees of disabilities. The goal of the application is to be accessible to as many members of the student body as possible.

After the above testing and validation is completed, the project will enter the phase which will make or break the project. Testing among student users will commence. A select group of student users will selected to test the application and this will be used to gauge the acceptance of the application.

Any negative remarks will be noted and then ordered as to their severity. Any severe remarks that will appear often will need to be addressed before the application is released. This may force any of the previous steps to be redone to bring the application into alignment with user and customer expectations.

If all verification and validation tasks are completed successfully the application can be recommended for general release to the student body pending ultimate approval by Faber College administration itself.

Environments and Costs

Programming Environment

To produce the project an appropriate development environment must be in place. The application will initially be designed using Android Studio Version 4.2. The application will make use of the Android version 8.0 Oreo. This will allow the application to run with the latest mobile updates but still run on a large majority of mobile phones with an Android OS.

The application will use an SQLite database that will allow data to be stored in a persistent way on the user's device. This will limit the number of calls to the Faber College's own database system. It will facilitate a seamless integration since it will limit the impact on the college's own IT infrastructure.

Environment Costs

The environment costs in production and maintenance of the application will be minimal. There may be a reduction in costs to the university since the application will no longer require the use of the college's IT database infrastructure. There will be less of a need to use the college's own computer resources. Thereby reducing the load on these systems.

Human Resource Requirements

The human resources requirements will be light. The project will require the following people to complete the project: 1) Project manager, 2) Developer/Designer 3) Quality Assurance Team. Note the quality assurance team is composed of many people who will be working only when there is product to evaluate.

The time involved in the production of the project will be around 90 hours. This time includes the gathering of requirements during the initial phases of the project and includes the testing with a batch of student users. The total monetary cost of the project will be detailed in the table below.

Project Role	Rate	Hours Worked	Total Pay
Project Manager	$75	90	$6750
Developer /Designer	$50	45	$2250
Quality Assurance Team	$35	20	$700
Grand Total			$9700

Please note that some of the hours overlap. For example, the project manager is billed for all hours of the project as they are available to all during the project. The developer/designer is only billing for hours that are worked and will not bill for hours that they are not available on the project. The Quality Assurance Team will only bill for hours while checking the work product for errors.

Project Timeline

The project's timeline is based on the various phases of the project, and it is dictated by the methodology that is used by the project. In the case of this project the Agile methodology

will be used as the means for guiding the project to completion. The table below shows the general timeline of the project.

Phase	Milestone/Task	Deliverable	Description	Dates
Pre-development	Task 1	Requirements	Meeting with customer and procedure review	6/1/2021 – 6/2/2021
Design	Task 2 / Design files	High fidelity mockup	Create the UI that relates the look and feel of the project	6/3/2021 – 6/5/2021
Development	Functionality is determined	First set or sprint output is generated	Simple usable prototype with the beginning functionality is produced	6/6/2021 – 6/10/2021
Coding	Application's functionality is coded	A useable prototype is created	The prototype produced will have the major requirements fully implemented.	6/11/2021 – 6/15/2021
Integration and Testing Phase	The testing will be completed	Testing of the application will be initiated	Testing will begin with the users and notes will be made about any negative or positive remarks	6/16/2021 – 6/18/2021
Implementation and Deployment	Application will be deployed to the App store	A fully functional application	The fully functional and tested application will be uploaded to the App Store	6/19/2021
Review	Completion of the project	None	Meeting with customer and discuss any events that may have occurred during production	6/20/2021