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| Project: | | Student Information Exchange (SIE)  CSE 5325 – Fall 2022  Project Management | | | |
| Module: | | Project Scope & Feasibility | | | |
| Deliverable: | | Scope & Feasibility Document | | | |
| Version: | | | [1.0] | Date: | [10/22/2022] |

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# 1. Introduction and Executive Summary

UTAorgs is an app that is being developed to assist students in exchanging information, forming organizations/clubs, buying/selling/trading goods, and profiting from this product, which will be available on both web and android devices.

It will include features that allow students to exchange information, form organizations/clubs, buy/sell/trade goods, and profit from this product.

The app will help students to communicate and interact easily with the help of creating various orgs and becoming members of those orgs. It will help students join groups of their interest, trade educational related stuff, merchandise of different orgs. Moreover, students can search for tutors for their studies. The app will also provide a space for advertisement from which a good amount of revenue can be generated.

# 2. Objectives

## 2.1 BUSINESS Objectives

The following is the list of business objectives:

**Objective 1**: Login & Registration: UTA students must sign up for the web app or the Android app using their University MavId, email, and password. The secure registration will prompt the student for user authentication by sending a confirmation email.

**Objective 2**: User Login: The user must log in to the app using the MavId as the username and the password they created during registration. If the user forgets their login credentials, there will be a 'Forgot password?' option. By clicking this, the user will be sent a temporary password to the registered email address, allowing him or her to login and set a new password, ensuring a safe and secure login.

**Objective 3:** User Profile & Payment Setup: After checking in, the user will be taken to a user profile page where they may fill up their profile by adding details like their name, address, birthdate, and organizations or clubs they are interested in, among other things. The user will also be asked to set up a payment option in this step by inputting credit card information.

**Objective 4**: Organization Registration: Members should be able to create clubs or student organizations using the system. The organizations/clubs must supply a preferred username, an email address, and a password, just like in the User Registration step. The organization/club email address will be verified by an authentication email, and the login will then be available. No rule of the university may be broken. For any political or religious clubs, prior permission is required.

**Objective 5:** Organization login & Profile creation: Using the login information, the organization's administrator can log in. This area will reuse the "Forgot password?" functionality. The administrator is responsible for setting the organization's general information, including a list of products and business hours, etc.

**Objective 6:** Organizations List Page: The user after creating a profile will be directed to this page. This page will display all the organizations with the count of their members

**Objective 7:** Trade Goods: User can buy/sell/exchange merchandise, books, and other Household items.

**Objective 8:** Tutoring: Using this system, members should be able to offer their tutoring services or find a tutor. Appropriate details, such as tutoring areas, price, schedule, and tutor reviews, must be included.

**Objective 9:** Communication: system should enable sending emails or messages to an individual, a subgroup, or all members.

**Objective 10:** Search: You should be able to look for specific events or items.

**Objective 11:** Advertising: The system should include advertising space. This could be a revenue stream for the app.

*“List all Business Objectives similar to the above samples listed based on the project description (Business Objectives are objectives written in* ***non-computer*** *terms understood by your client”*

## 2.2 SYSTEM Objectives

The following is the list of system objectives:

**Objective** 1: A web-based and an Android application will be provided.

**Objective** 2: User data, such as general information and payment information, will be securely stored on a MySQL database server.

**Objective** 3: To facilitate transaction processing, the system will incorporate a third-party payment gateway.

**Objective** 4: The system will include chatbot plugins for quick and automatic responses to user queries.

**Objective 5**: APIs will be developed in the backend of the system using Java and Springboot Microservices architecture. These APIs will be used by the frontend to manipulate data.

**Objective 6**: For the Android app, the system will create the frontend with Android Studio.

**Objective 7**: For the web app, the system will create the frontend using Angular 9.0.

**Objective 8**: The system will store the images in Amazon Web Services (AWS) storage 'S3'.

**Objective 9**: The system will use Amazon Web Services (AWS) cloud infrastructure to handle multiple requests using load balancing.

*“List all System Objectives similar to the above samples based on the project description (System Objectives are objectives written in* ***computer*** *terms understood by the development team).”*

# 3 Project Feasibility, Risks and Metrics

Project feasibility and metrics are summarized below:

## 3.1 Project Feasibility Concerns

## Market Readiness:

There are a few apps like Facebook and Instagram that the "UTAorgs" app might face competition from. However, the industry wants an original app created especially for UTA students. This distinct selling proposition will increase the number of users who download the "UTAorgs" app. With more students enrolling in UTA each year, this app will quickly become popular.

## Technical Issues:

Web applications can run into problems with "Browser compatibility" and "Load Balancing." Due to the third-party payment gateway's older technology compared to the web and Android app, integration is challenging.

## Cost:

Depending on the Cloud infrastructure from Amazon Web Services that we use, the price for the web and Android app will change.

## Time to market:

The development of the web app will be completed more quickly than the Android app with the help of a team of developers with experience in this area.

## Project Risks

* Risks:

1. Team resources - The team of five developers specializes in web app development but has no experience with Android.
2. Time to market - For an Android app, the time to market is an issue because the design and development may take more than 3 months.
3. Cost - The cost will increase as more resources are added to the team.
4. The development team's incorrect time estimations may cause delays in the test and delivery timetable.

* MITIGATION:

1. We can increase the team's resources with experience in Android app development to address risk 1.
2. For risk 2, To speed up the development process and shorten the time to market, we can reuse several third-party modules for Android app development.
3. To lessen the expense of development, we can use a few interns and contract workers in place of full-time employees.
4. Having a capable technical software architect cross-verify the development team's provided estimates is one way to address it.

## 3.3 Project Metrics

1. Ease of use for both Android and web apps.
2. Web application browser compatibility across multiple browsers such as Safari, Chrome, and Firefox.
3. Accurate data analytics and effective user targeting of advertisements based on past purchases.
4. One of the indicators will be the number of people who utilize the app everyday (also known as the app's footfall).
5. The ability to manage 10,000 simultaneous requests
6. 50,000 user registrations on the web and an Android app.
7. Less than 1% of all payments are unsuccessful.

# 4 Project Scope and Process Model

Project scope includes the following:

1. User Registration and Login
2. Club Registration and Login
3. Club’s Profile
4. Order
5. Payment gateway
6. Tutoring service
7. Communication
8. Information exchange
9. Search
10. Advertisements

The following is a list of items out of scope:

1. Post project maintenance
2. Non-UTA students’ login/registration
3. User registration from social media profile
4. Support for multi-currency payments
5. Tax issues

## 4.1 Project Process Model

Agile methodology will be used as the project process model. Agile is a modern framework that will be extremely useful in developing this product. Agile methodology is ideal for this type of app development because the time to market must be kept to a minimum. Using this methodology, we can try to satisfy any requests from clients.

This project's success depends on close customer collaboration, which the agile methodology enables. Delivering a testable product with every release will enable us to swiftly address consumer input in the following iteration. By doing this, the overall risk of client satisfaction will be decreased. Continuous feedback will boost the improvements that can be put into place to ensure that there is genuine progress and that the process is easily adaptable to new requirements.

Working in 2-week iterations, designers will create and delegate tasks to developers that will be delivered every other Monday. The product will be tested by the QA team, and the project will be finished in small steps.

## 4.2 Project Context

A picture containing graphical user interface

Description automatically generated

# 5. Assumptions and Constraints

## 5.1 ASSUMPTIONS

The following is a list of assumptions:

* All users are over the age of 18 and currently enrolled at UTA.
* Initially free, advertisers pay for add space.
* Ignore any legal or tax implications unless you intend to profit from your project.
* Ignore Post project maintenance issues.
* You must submit competitive bids for any hardware or software that you require.
* All required resources will be available until the project is completed.
* No additional resource training is required to complete projects.

## 5.2 CONSTRAINTS

The following is a list of constraints:

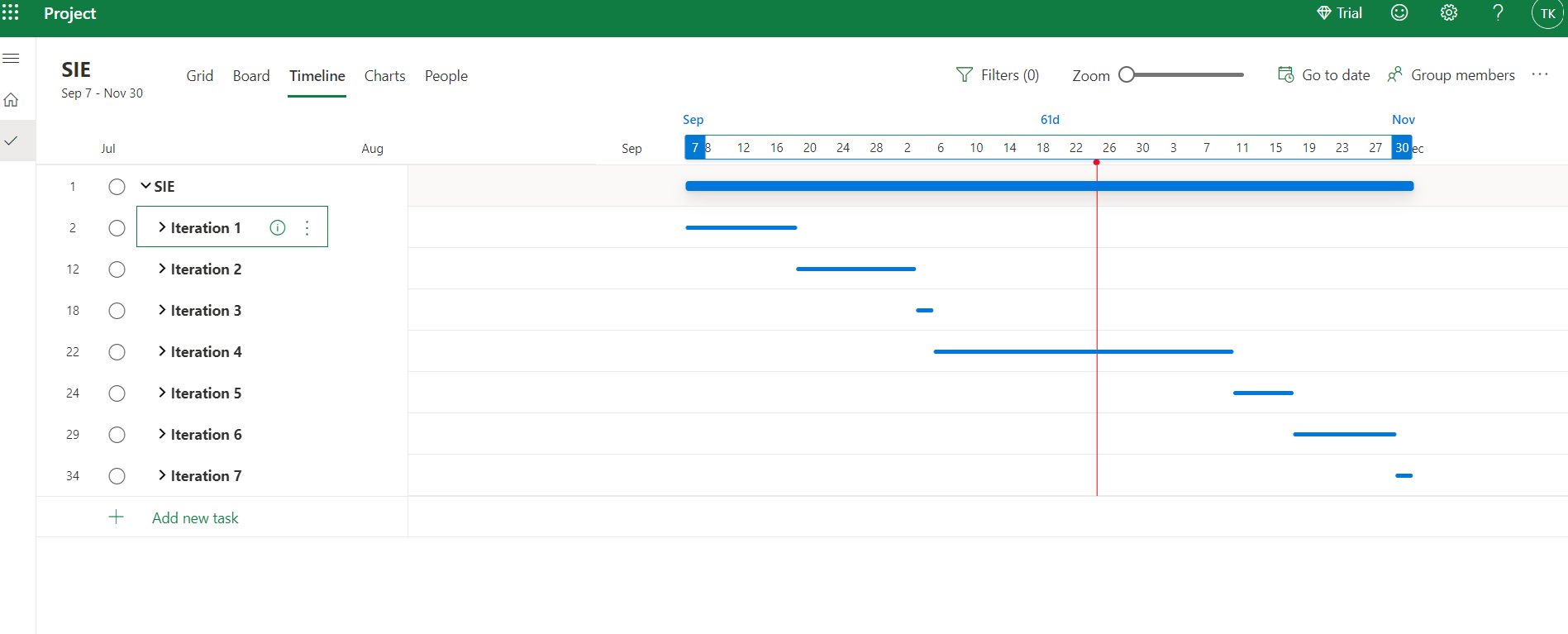
* Time constraints - The project cannot be completed in three months.
* Insufficient app development experience (lack of Android background)
* The third-party payment gateway provider must agree to finish and deliver the module before the delivery date.
* Limited office space - With the addition of new resources, we will face space constraints. Because of the nature of the project, requirements and members of the development team must be co-located.
* Given the constraints of this project's time, scope, and budget, this is an example of the Classic Constraint Triangle. The project will inevitably undergo unnecessary changes if even one of the parameters is changed.

# 6. Project Tasks, Schedule and Cost

{List a breakdown of your tasks, estimated schedule and potential cost and profit on the project you are managing. You can use a table format. Please keep the following points in mind when setting up you Project:

* Assume the project start date is Sept. 7, 2022
* Project must be delivered before Dec. 7, 2022
* You have 5 developers (i.e. resources) in your team that you can use in any capacity, so in total there are 6 members, you the project manager and 5 resources
* Please add appropriate hardware/software cost as you need for your project (e.g. servers, databases, etc.). Search the web to find reasonable prices for your required items. Assume, each resource will receive $5000/month after all taxes; your salary is $10,000/month after all taxes. Please ignore salary taxes that you need to pay. Please add 50% extra surge for health insurance, building and utility cost, Required technology, and other costs. You also need to have at least 100% profit margin in this project (e.g. if it costed you $300K to develop, charge the customer $600k)
* Feel free to make reasonable assumptions when putting this project together, remember you are the manager, ask for what you need.

***In the later deliverables, you will be asked to use “Microsoft Project plan” to come up with a more detailed and accurate planning. For now, this is just a rough estimate using your untrained assumption that will be used later to compare with the “Microsoft Project plan” results***.}



The below table shows the cost of the project:

|  |  |  |
| --- | --- | --- |
| Resource | Quantity | Total cost |
| Development Team | 5 | $75,000 |
| Project Manager | 1 | $30,000 |
| Health Insurance of the Team | 1 | $52,500 |
| Software Licenses | 4 | $5,750 |
| Amazon Web Services S3 storage | 1 | $32,000 |
| Amazon Web Services load balancer | 1 | $47,750 |
| Database Cost | 1 | $22,500 |
| Server Cost | 1 | $27,500 |
| Hardware Cost | 5 | $12,500 |
| Total |  | $305,500 |

The total cost of the project is **$305,500.00** hence the profit margin is **$344,500.** We will quote **$650,000**. This is the profit if we have 5 resources in the team. If we try to add 2 more resources: 1 Android specialist and 1 dedicated QA Tester, then additional budget will be: $45,000/-

After the addition of 2 resources the profit margin will reduce by **$299,500/-**

# 7. Conclusion and Recommendations

UTAorgs will assist students and various UTA organizations in a variety of ways. Students can become members of various organizations or form their own. In addition, organizations and students will be able to buy and sell items such as books, merchandise, household items, and so on. This app's advertisement space can generate a substantial amount of revenue.

This solution will satisfy the needs of all the orgs and the members of those orgs with the ability to scale this app further based on user response and bring the app to iOS systems as well.

# Appendices

Source used for preparing the High-level design diagram: Draw.io <https://app.diagrams.net/>

Agile Methadology: <https://www.managementconcepts.com/Training/Training-Topics/Project-Program-Management/Agile-in-Government?msclkid=2ad6d892413919e9a869bba02461a3da&utm_source=bing&utm_medium=cpc&utm_campaign=Non%20Brand%7CDSA&utm_term=https%3A%2F%2Fwww.managementconcepts.com%2FTraining%2FTraining-Topics%2FProject-Program-Management&utm_content=Non%20Brand%7CDSA%7CProj%20MGMT>