Milestone 1 Progress Evaluation

Project Title: TutorFIT: a mobile application connecting students and tutors at the Florida Institute of Technology

Team Members:
- Eleanor Barry – ebarry2022@my.fit.edu
- Sidney Nedd – snedd2020@my.fit.edu
- Samaher Damanhori – sdamanhori2020@my.fit.edu

Faculty Advisor:
- Khaled Salhoub - kslhoub@fit.edu

Client:
The clients of our app include Dr. Khaled Slhoub, a distinguished professor in the Department of Computer Engineering and Sciences, as well as students attending the Florida Institute of Technology.

Milestone 1 Progress Matrix

Task	**Completion %**	**Sidney**	**Samaher**	**Eleanor**	**To do**
1. Investigate technical tools	100%	70%	30%	0%	none
2. Hello World demos	0%	0%	0%	0%	All tools
3. Investigate collaboration tools	100%	70%	30%	0%	None
4. Requirement Document	100%	90%	10%	0%	None
5. Design Document	100%	30%	70%	0%	None
6. Test Plan	100%	70%	30%	0%	None

7. Resolve Technical Challenges	50%	25%	25%	0%	Using JavaScript for Server-Side Automations

Discussion of each accomplished task (and obstacles) for the current Milestone:

1. **Investigate Technical Tools:**

   For each feature of the mobile application (User Registration, Scheduling, Communication, Push Notifications/Alerts, Student Ratings and Reviews, Event Tracking, User Engagement and Retention) technical tools were researched and compared to determine which of these would best help us achieve the goals of our project. We have decided that we will use native form creation for the development of user registration, Calendly for scheduling, SignalR for Communication, OneSignal for Push Notifications and Alerts, a Native Review System for Student Rating and Reviews and Bloomreach for both Event Tracking and User Engagement and Retention.

2. **Hello World demos:**

   In this particular milestone, we will not present 'hello world demos' as part of our project's progress since we have not yet commenced the actual development phase of the project. At this stage, our efforts were predominantly focused on preliminary requirements, design, test plans and resolving some of our technical challenges. The 'hello world demos' typically serve as a fundamental validation step, ensuring that the basic components of our project are in place and functioning as expected. However, since we were still in the preparatory phase during this milestone, we did not have the opportunity to create and showcase these basic demonstrations. We will incorporate these 'hello world demos' in the next milestone of our project.

3. **Investigate Collaboration Tools:**

   We have chosen a set of tools and technologies to streamline our software development process and collaboration efforts. For software development, we've opted for Xamarin due to its cross-platform capabilities and compatibility with C#. GitLab serves as our source code control platform, offering comprehensive version control and continuous integration features. SourceTree simplifies Git operations as our chosen source code access tool. Google Suite provides the foundation for document creation and collaboration. We'll be using instant messaging and Gmail for communications, and Google Calendar for task management. These selections align with our team's skills and project needs, ensuring efficient development and collaboration throughout the project.

4. **Requirement Document:**

   We have successfully completed the "Software Requirements Specification" document for the "TutorFIT" mobile application, which connects students and tutors at the Florida Institute of Technology. This comprehensive document outlines the project's purpose, scope, and definitions. It provides an overview of the product's perspective, features, user classes, and operating environment. Additionally, the document details system features, external interface requirements, and software attributes, including performance, security, reliability, usability, maintainability, scalability, and privacy considerations. This achievement marks a significant milestone in defining the project's requirements and sets the stage for the development of the TutorFIT application**.**

5. **Design Document:**

   We presented a UML diagram that details the system components under the section "System Architecture". In "Module Descriptions", we identified seven key modules, each with their specific functions. The "GUI Design" section provided a basic layout and description of various essential interfaces, including the Login Screen, Student Dashboard, Tutor Dashboard, Messaging Interface, and more. We also provided pseudocode for the main functionalities in the "Algorithms" section. In "Database Design", a structured design was offered, showcasing detailed tables like Student, Tutor, Tutoring Session, Course, Push Notification, Message, and Review. However, some obstacles were identified during this process. Firstly, although the modules are well-defined, the complexity of their interrelations and integration could pose a challenge. Secondly, ensuring seamless and efficient interactions between the various database tables might necessitate meticulous optimization. Lastly, ensuring real-time messaging and notifications without any delays or glitches could be technically demanding.

6. **Test Plan:**

   The main tasks accomplished include defining the purpose and scope of testing, objectives, and test environment, listing the features to be tested in detail, specifying the testing approach, types of testing to be conducted, and the associated test deliverables. It also provides a testing schedule with milestones, outlines numerous test cases for various application functionalities, highlights potential testing risks, lists testing resources, and describes the test execution and reporting processes. The overarching goal is to ensure the functionality, usability, reliability, and security of the TutorFIT app, enhancing the user experience for students and tutors at the Florida Institute of Technology. Continuous communication and collaboration with stakeholders are emphasized throughout the testing phase, and lessons learned will be used for process improvement in future testing cycles.

7. **Resolve Technical Challenges:**
    a. **Cross-Platform Application Development**

    Through our investigation of technical tools, we were able to decide on Xamarin as our cross platform development framework. One of our group members also has some experience with this framework and C# so it will be easy for the other members to be trained and mentored on this during the development process.

    b. **Limited Availability of API and Web Hooks for Information Pulling:**

    Web scraping can address the issue of limited API and web hook availability for real-time data retrieval from the Florida Tech dynamic classes schedule. By automating data extraction from the web pages, web scraping will ensure up-to-date information is accessible. It will provide a consistent method to retrieve data even if the website's structure changes, reducing the need for constant monitoring and manual adjustments.

    c. **Using JavaScript for Server-Side Automations:**

    The challenge of using JavaScript for server-side automations while lacking experience in server-side development remains a concern for the team. To mitigate this issue, we are aware of several strategies can be employed:

    1. Training and Skill Development: The team can invest in training and skill development programs to build expertise in server-side JavaScript development, particularly with frameworks like Node.js.
    2. Collaboration with Backend Experts: By partnering with experts, the team can benefit from their knowledge, receive code reviews, and learn through mentorship.
    3. External Services: We will consider utilizing external services or APIs for tasks like sending push notifications and managing email delivery. These services often provide well-documented and reliable solutions, reducing the complexity of server-side development.

Discussion of contribution of each team member to the current Milestone:

1. **Sidney Nedd:**
    a. **Investigate technical tools**

    The initial research to determine the options of tools available for each feature was done. After other team members provided a list of pros and cons for each, the best tool that best suited the goals of the project was selected.

    b. **Hello World demos**

    Initial research has been conducted but demos were not completed in this milestone and therefore will not be presented on.

    c. **Investigate collaboration tools**

    Completed the initial research to determine the options of tools available. After other team members provided a list of pros and cons for each, the best tool that best suited the goals of the project was selected.

    d. **Requirement Document**

    As the team lead who has experience with mobile application development as well as full knowledge of the project specifications, the requirements document was completed in full.

    e. **Design Document**

    Completed the overview and scope of the design document, the system architecture (UML Diagram) and descriptions of the modules.

    f. **Test Plan**

    Completed the scope and objectives of the test document, the testing approaches to be used and their use cases as well as the features to be tested and the test cases for each of those.

    g. **Resolve Technical Challenges**

    Chosen Xamarin as a solution to the cross-platform problem because of prior experience with the framework. It also allows for code reusability, provides native performance, offers access to native APIs, and simplifies training and collaboration among team members.

2. **Samaher Damanhori:**
    a. **Investigate technical tools**

        Provided an assessment of each tool's strengths and weaknesses, and subsequently selected the one most aligned with the project's objectives.

    b. **Hello World demos**

        Initial research has been conducted but demos were not completed in this milestone and therefore will not be presented on.

    c. **Investigate collaboration tools**

        Provided a detailed evaluation of each tool, highlighting its strengths and weaknesses, and ultimately chose the one that best matched the project's vision.

    d. **Design Document**

        Provided a use case diagram that illustrates the functionality of the mobile application. Alongside the diagram, I included detailed annotations for each potential use case. After a group discussion on the project's framework and specifics, another team member provided the written content outlining the project's requirements.

    e. **Test Plan**

        Provided insights for each testing approach and use cases, assessed testing risks, and set a schedule to test software features.

    f. **Resolve Technical Challenges**

        Illustrated potential technical challenges and furnished different resolution for each, aiming to streamline the workflow and minimize associated risks or error

3. **Eleanor Barry:**

    Due to health issues, Eleanor was not able to contribute to this Milestone.

Plan for the next Milestone (Task Matrix for Milestone 2)

Task	**Sidney**	**Samaher**	**Eleanor**
1. Resolve Technical Challenges	Repository	Display	Project Website and App
2. Implement, test & demo *user registration*	implement	test	demo
3. Implement, test & demo *scheduling*	implement	test	demo
4. Implement, test & demo *Student Ratings and Reviews*	implement	test	demo
5. Implement, test & demo *event tracking*	implement	test	demo

Date(s) of meeting(s) with Client during the current milestone: 10/01/2023

Client feedback on the current milestone: See Faculty Advisor Feedback below

Date(s) of meeting(s) with Faculty Advisor during the current milestone: 10/01/2023

Faculty Advisor feedback on each task for the current Milestone:

1. **Investigate Technical Tools (Satisfied)**
2. **Hello World demos (Satisfied)**
3. **Investigate Collaboration Tools (Satisfied)**
4. **Requirement Document (Satisfied)**
5. **Design Document (Satisfied)**
6. **Test Plan (Satisfied)**

Faculty Advisor Signature: _____Dr Khaled Slhoub_____ Date: ___10/2/2023_____

Evaluation by Faculty Advisor:

Faculty Advisor: detach and return this page to Dr. Chan (HC 214) or email the scores to pkc@cs.fit.edu

Score (0-10) for each member: circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10)

Sidney Nedd	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Samaher Damanhori	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Eleanor Barry	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10

Faculty Advisor Signature: _____ Date: _____