Project: Personal Tutoring Service (PTS)

CSE 5325 – Fall 2023

Project Management

Module: Project Scope & Feasibility

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1. Introduction and Executive Summary

The main objective of this project is to implement a website and develop a corresponding web application for personal tutoring services which can be accessed using PC/Smartphone/Tablet. The main features as expected by the client include user profile creation, login & authentication, flexibility to add new categories in addition to the existing predefined categories, pairing up with the required tutors, search mechanism with filters like category, location, price, ratings, feedback mechanism after tutoring sessions, secure payment processing and app monitoring. The other important features include an eye pleasing design , effective communication channels such as emails/calls/text-messages, data maintenance and robust data security. Additionally, advertising tutors and their services for good engagement and third-party advertisements on the website for extra profits are included.

The user-friendly website can be accessed on android, iOS, etc where as the application can only be used on android devices. The project prioritizes data security and privacy. Data will only be shared with authorized users. The platform will have monitoring tools to ensure ethical use of the system, eliminating any unethical practices and also provides geolocation services for user convenience. Profits will be made by reserving 20% of each transaction.

The development time frame has been set over a three-month timeline, from September 5, 2023, to December 5, 2023. Agile model principles and guidelines will be followed for the project. allowing iterative development, real-time feedback, and seamless integration of new features agile model has been the first choice for the project. A cross-functional team made up of a project manager, tester, system architect, senior developer, and two junior developers will apply the agile development methodology through sprints. To ensure effective progress towards the project's completion, daily goals, consistent communication, and consolidation meetings will be essential.

2. Objectives

2.1 BUSINESS OBJECTIVES

The following is the list of business objectives:

Objective 1: Registration: Setup your information such as name, phone number, e-mail, address, etc.

Objective 2: Login & Authentication: This is mandatory for all tutors and all clients that will be using a tutor. However, a user is not required to log in or have a login ID unless they are ready to hire a tutor, then they must register and log in.

Objective 3: Tutoring categories: The App must include at least the following 5 tutoring categories: Programming languages, Math, French, Piano, and Tennis (additional categories are optional). The system should allow adding new tutoring categories without the need for any programming need.

Objective 4: Being a Tutor: Offer your service as a tutor (i.e. specialty area, price, location, travel within x miles, etc.)

Objective 5: Find a Tutor: The users should be able to search based on their unique criteria, be it price sensitivity, geographical proximity, or tutor ratings. A transparent review system will further enhance the client's ability to make informed decisions.

Objective 6: Agreement: manage tutor and client contracts, schedule sessions and fix the location and pricing per session.

Objective 7: Feedback: users will have the ability to provide reviews and ratings(between 1 to 5 stars) and a brief comment after attending a tutoring session.

Objective 8: Profit management: 20% of each transaction made on the platform is retained for the profits. The amount that is kept is redirected to the owner .

Objective 9: App monitoring : ensuring that the users and tutors comply with the guidelines and monitoring any unethical usage of the platform.

Objective 10: Communication channels: for interactions between users and tutors email, text messages, calls will be offered .

Objective 11: Advertising: promoting tutors with good ratings by increasing visibility within the platform. Additionally allowing third party business advertising on the platform for additional income.

Objective 12: Location services: enabling geolocation features to locate tutors and students so as to simplify finding and scheduling sessions with tutors.

2.2 SYSTEM OBJECTIVES

The following is the list of system objectives:

Objective 1: Both web-based and Mobile (Android) application will be supported

Objective 2: Google Search will be integrated into the system for search

Objective 3: User authentication: to hire a tutor or to become a tutor registration and login is required. A unique user ID and password are used for login which allows access to different features.

Objective 4: User profiles: For profile creation information such as name, phone number, e-mail, address is collected. For specialty area, price, location, travel within x miles, etc is required. Additionally for students preferences can also be collected.

Objective 5: Dynamic features: initially the five mandatory categories have to be created. Flexibility to add new categories without code changes has to be implemented.

Objective 6: Search mechanism: design of a thorough search function which enables users to look for specific tutoring service by price, distance, or tutor's rating.

Objective 7: Payment Processing: creating a secure payment gateway which serves as a intermediary to ensure smooth transactions(on both user and tutor end).

Objective 8: Monitoring: designing monitoring tools to prevent fraudulent payments and other such activities.

Objective 9: Review system: ensuring that only the users who attend a tutoring session can provide ratings and reviews only after the respective session.

Objective 10: location services: google maps will be integrated into the system for geolocation services.

Objective 11: credit card processing: making sure that the credit card number has 16 digits , expiration date is in the form of mmyy and cvv is 3 digits. No additional validation will be considered. Payments will be handled using PayPal.

3 Project Feasibility, Risks and Metrics

Project feasibility and metrics are summarized below:

3.1 Project Feasibility Concerns

Market readiness: It's critical to evaluate the readiness and desire of both tutors and students to embrace such a system in order to guarantee the success of a digital tutoring platform. The demand and tastes of potential consumers may be understood through thorough market research and user surveys. Additionally, the market for online tutoring and education is quite competitive, demanding techniques for differentiating from the competition and drawing in a sizable user base. The COVID-19 pandemic's impact on the dynamic educational scene makes it difficult to keep up with changing trends and ensure the long-term survival of the tutoring system. Addressing these concerns about viability requires carefully identifying and targeting the appropriate target audience, which includes kids, parents, and tutors.

Technical issues: There are many important technical challenges when launching a tutoring platform. When developing for both web and Android there may be complications that need extensive testing and debugging due to compatibility and performance difficulties. The handling of sensitive user data, such as personal and financial information, raises concerns about data security demanding strict protective measures.

Furthermore, platform stability is essential since technical glitches like server downtime, slow performance, or connectivity problems can disrupt user experience. Implementing robust user support channels and feedback mechanisms is vital to address user inquiries, and provide timely assistance. Scalability is equally vital to accommodate a growing user base, requiring considerations for server infrastructure, database capacity, and support for concurrent users.

Resources: Securing resources for a tutoring platform involves addressing several key challenges. Talent availability is a critical concern, as finding a skilled development team proficient in web and mobile application development, cloud services, UX/UI design, and quality assurance can be challenging. due to talent shortages, potentially leading to project delays.

In addition, it is crucial to manage hardware and software resources carefully. This involves staying within a set budget while acquiring servers, cloud services like AWS, development tools, and licences. It can be expensive to acquire and maintain the required technical infrastructure, which includes servers, databases, and software tools. This emphasises the significance of effective resource allocation and cost management.

Additionally, it takes a lot of resources to create high-quality educational materials and information for the tutoring system. To guarantee educational efficacy and engagement, this calls for the creation of courses, tests, and multimedia tools, which may need working with subject matter experts.

Cost: The project's feasibility is critically dependent on effective cost control. It is crucial to make sure the project stays within the specified budget, taking into account

unanticipated costs like infrastructure expansion and additional development time to avoid cost overruns.

Furthermore, evaluating profitability is essential. it's important to assess if the revenue model will be viable and successful over the long run. Additionally, marketing and user acquisition strategies must be carefully planned to attract users effectively. These strategies, including advertising and partnerships, need to maximize the return on investment while staying within budget constraints.

Time to market: Controlling the project's time to market is of utmost importance. Effective project management and resource allocation are required to meet a strict development timeframe that runs from September 5, 2023 to December 5, 2023. Any project phase delays might effect the time-to-market, which could have an impact on user acceptance and competitiveness.

Another crucial factor to take into account is how to balance the necessity of rigorous beta testing and iteration with the urgency of hitting the market. To secure a timely entry into the cutthroat online education industry, it is important to carefully monitor the extension of the time to market through thorough testing and feedback incorporation.

3.2 PROJECT RISKS

Estimation Errors:
Risk: Inaccurate project time and resource estimations.
Mitigation: Implement robust estimation techniques and adjust estimates as needed.

Maintenance and Updates:
Risk: Neglecting maintenance and updates.
Mitigation: Establish a post-launch maintenance plan with regular updates.

Resource Shortages:
Risk: Difficulty in securing a skilled team.
Mitigation: Start recruitment early, consider outsourcing or partnerships.

Data Security and Compliance:
Risk: Mishandling sensitive user data.
Mitigation: Implement encryption, engage legal experts, and conduct security audits.

Cost overruns:
Risk: includes scope modifications and unforeseen costs.
Mitigation: Create a thorough financial plan and keep careful tabs on spending.

Market Adoption:
Risk: Slow user uptake is a risk.
Mitigation: Conduct market research, create a solid marketing plan, and obtain consumer opinions.

Intellectual property and legal disputes:
Risk: Intellectual property-related legal challenges.
Mitigation: Define ownership, safeguard special features, and seek legal advice.

3.3 PROJECT METRICS

User Adoption Rate: Monitor the platform's user adoption rate to determine how well-liked and practical it is with the intended audience. The goal is to increase user numbers significantly and steadily.
(Number of Registered Users / Total Target Audience) x 100

User Engagement: Examine login frequency, interactions with tutors, and time spent on the site to gauge user involvement. High involvement suggests strong bonds between educators and students.
(Total User Interactions / Total Registered Users) x 100

Tutor and student Retention Rate: Track the percentage of tutors and students who continue to use the platform over time by looking at the tutor and client retention rate. High retention rates show how valuable and popular the platform is among users.

Transaction Volume: Track the volume of transactions made on the platform, both in terms of quantity and dollar amount. An increase in transaction volume is a sign of profitable tutoring contracts.

Profitability: Calculate earnings from transaction fees and outside advertising. Profitability and long-term sustainability are the objectives.
(Total Revenue - Total Costs)

Security and compliance: Keep an eye out for security flaws, report them immediately. Building user trust and regulatory compliance requires maintaining a high degree of security and data privacy.

Cost control: Keep track of project costs in relation to the allotted spending. The objective is to properly control project expenditures while staying within the budget.
(Total Project Expenses / Allocated Budget) x 100

4 Project Scope and Process Model

Project scope includes the following:

1. User Registration and Profile Setup
2. User Authentication
3. Tutoring Categories (Programming Languages, Mathematics (Math), French, Piano, Tennis)
4. Search mechanism
5. Tutor-Client Agreements
6. User Reviews and Ratings
7. Payment Processing (credit cards)
8. Profit Management
9. App Monitoring
10. Communication Tools
11. Geolocation Services
12. Internal Advertising and External Advertising

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The following is a list of items out of scope:

1. Post-Project Maintenance
2. Real Bank Account Setup
3. Legal and Tax Reporting Details
4. Real Credit Card Validation
5. Complex Financial Transactions
6. Comprehensive Background Checks
7. Hardware or Software Procurement
8. Source of Income Variability

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4.1 PROJECT PROCESS MODEL

The Personal Tutoring Service (PTS) project will follow the Agile process model. Agile is chosen for its iterative approach, allowing for frequent small releases and rapid feedback. It offers benefits such as enhanced project visibility, clear roles for team members, effective communication, adaptability, transparency, collaboration, and iterative improvement. Agile aligns with the project's dynamic needs and ensures efficient development in the tutoring services market.

Why agile?

Agile allows for rapid development and iteration. It breaks the project into small, sequential releases, garnering valuable feedback after each one. This iterative approach fosters improvements and a clear understanding of necessary changes.

Flexibility and adaptability are core to Agile. It accommodates shifting requirements, user feedback, and emerging challenges, crucial for the dynamic tutoring services market.

Agile prioritizes user-centric design. It encourages continuous customer collaboration and user involvement, aligning with PTS's focus on user satisfaction and feedback.

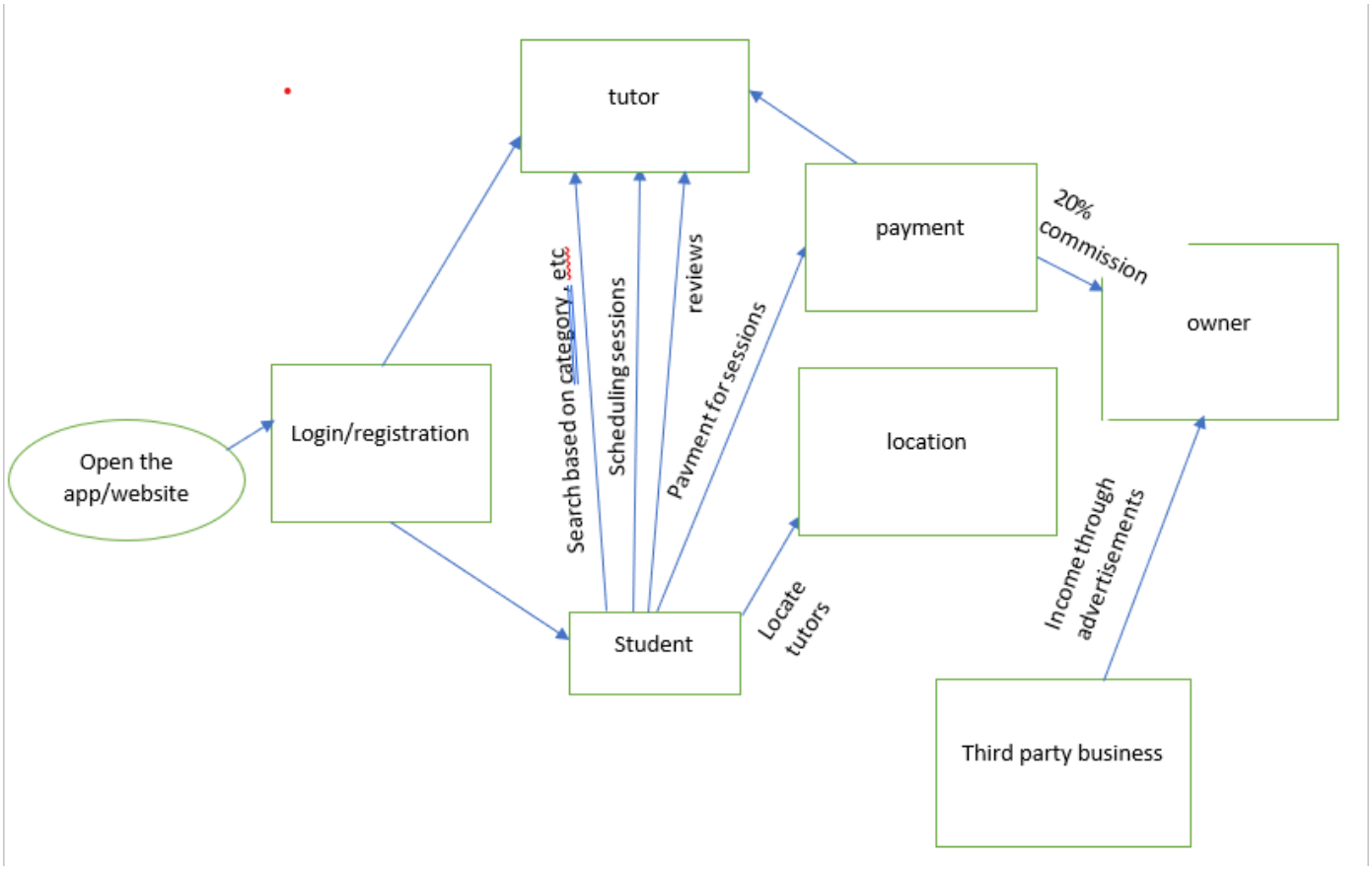
Agile emphasizes early risk identification and mitigation. By delivering working increments regularly, potential issues are identified and addressed promptly.

Cross-functional teams collaborate effectively in Agile. Diverse teams can work on various project aspects simultaneously, promoting efficiency.

Quality assurance is integrated into Agile. Regular testing and integration ensure software reliability, vital for managing user data and transactions.

Agile encourages transparency, adaptability, and improved product quality, making it the ideal choice for the PTS project.

4.2 PROJECT CONTEXT



5. Assumptions and Constraints

5.1 ASSUMPTIONS

The following is a list of assumptions:

- Assume all users are over the age 18
- Ignore any tax issues
- Assume that all tutors undergo basic background checks
- Assume that post-project maintenance and support are not part of the initial scope.
- Assume that users will have valid credit cards for making transactions on the platform.

5.2 CONSTRAINTS

The following is a list of constraints:

- Our developers are not trained in Android programming
- Project schedule too short
- The project is constrained by a budget that must cover development, hardware/software costs, and a 50% profit margin.
- The project team consists of only 5 developers who may have other commitments or constraints.
- The tutoring services market is highly competitive, imposing constraints on the platform's feature set, user experience, and marketing efforts to stand out.

6. Project Tasks, Schedule and Cost

The project is being implemented using the Agile model. Work modules are designed in sprints. The tasks for development, testing and deployment will therefore will also be done in various sprints.

Project Details:

- Project Start Date: Sept. 5, 2023
- Project Delivery Deadline: Dec. 5, 2023
- Team: 1 Project Manager (PM) and 5 Developers (Resources)

Task Breakdown and Estimated Schedule:

Sprint 1 (September 5 - September 19, 2023): Project Initiation and Requirement Gathering

- Project Initiation
- Requirement Gathering

Sprint 2 (September 20 - October 4, 2023): Architecture and Design

- Architecture and Design

Sprint 3 (October 5 - November 5, 2023): Development Phase

- Frontend Development
- Backend Development

Sprint 4 (October 15 - November 15, 2023): Mobile App Development

- Mobile App Development (Android)

Sprint 5 (November 16 - December 5, 2023): Testing, Feedback, and Closing

- Testing and Quality Assurance
- User Feedback and Iterations
- Project Closing and Handover

Resource Allocation (Per Sprint):

- Project Manager (You): Full-time throughout the project.
- 5 Developers (Resources): Full-time throughout the project.

Cost Estimation (Per Sprint):

- Salaries and Benefits (6 team members):
    - Project Manager (You): $10,000/month
    - Developers (5 x $5,000/month): $25,000/month
    - Health Insurance and Additional Costs (50% surge): $22,500/month
    - Total Monthly Cost: $57,500
- Hardware and Software:
    - Cloud Services (e.g., AWS): $10,000 (One-time cost)
    - Development Tools and Licenses: $5,000 (One-time cost)
    - Total Hardware/Software Cost: $15,000
- Other Costs (50% surge):
    - Building and Utility Costs
    - Required Technology and Equipment
    - Total Other Costs (estimated): $7,500 per month

Total Estimated Project Cost (Per Sprint):

- Salaries and Benefits: $57,500 per month
- Hardware/Software Cost: $15,000 (One-time)
- Other Costs: $7,500 per month

Total Project Duration (in sprints):

- 5 sprints

Total Project Cost:

- ($57,500 x 5) + $15,000 (Hardware/Software) + ($7,500 x 5) = $402,500

Profit Margin:

50% Profit Margin: $402,500 (Cost) + ($402,500 x 0.5) = $603,750

100% Profit Margin (Marker): $402,500 (Cost) + ($402,500 x 1) = $805,000

To achieve a minimum 50% profit margin, the customer will be charged $603,750 for the project. However, using a 100% profit margin as a marker, the total project cost can be $805,000. This provides flexibility in pricing while ensuring a minimum profit margin of 50%.

7. Conclusion and Recommendations

The project represents a significant endeavor to provide a tailored educational platform that meets the specific needs of our users. It connects tutors talented in specific categories with students requiring tutoring in those fields. It includes fundamental features like creating user profiles, secure login and scheduling sessions. The main sources of income are 20% revenue from transactions and external advertising.

The project timeline spans from Sept. 5, 2023 to Dec. 5, 2023. To improve quality over several releases, an agile framework has been used. To achieve a minimum 50% profit margin, the customer will be charged $603,750 for the project. However, using a 100% profit margin as a marker, the total project cost can be $805,000. This provides flexibility in pricing while ensuring a minimum profit margin of 50%. The project has been planned to offer the software over multiple platforms and with compatibility over different browsers.

Recommendations:

Giving continual quality improvement priority over introducing new features, concentrating on usability and user pleasure for a remarkable user experience. Maintain emphasis on security and exercise caution when considering third-party partnerships, making sure they adhere to security standards.

Addressing scaling issues arising from changes in user activity, Post-launch maintenance are important.

Automation to simplify security, data processing, and maintenance tasks, ensuring a steady improvement in quality.

Appendices

https://www.atlassian.com/agile

https://asana.com/resources/cost-management-steps

https://www.indeed.com/career-advice/career-development/project-management-metrics

https://www.varsitytutors.com/en/tutoring-national?ad_test=private-tutors-individualized-541&geoid=65216&networkbing=o&matchtype=e&bidmatchtype=be&keyword=tutoring&creative=78546562143024&device=c&capaignid=698000007&adgroupid=1256742423836557&query=tutoring%20services&accountid={152029643}&msclkid=615a3d632e441f5af8845873e3e26c42&utm_source=bing&utm_medium=cpc&utm_campaign=National%20%7C%20No%20Subject%20%7C%20Tutor%20%7C%20D%2FMT%20%7C%200-100%25%20%7C%20All&utm_term=tutoring&utm_content=No%20Subject%20%7C%20Tutor%20%7C%20Root

https://www.projectpractical.com/20-project-risk-examples-and-their-mitigation-strategies/