

# **SOEN 6841 - Software Project Management**

## **Project Plan**

### **Project 20 - Intelligent Tutoring System**

#### **Team Members:**

- 1. Anuja Ajay Somthankar - 40265587**
- 2. Nimisha Mavjibhai Jadav - 40267767**
- 3. Nisarg Tejaskumar Shah - 40264902**
- 4. Yashkumar Riteshkumar Mehta - 40279526**

**Submitted to: Joumana Dargham**

# 1 Project Milestones

## 1.1 Charter

IntelliTutor is an Intelligent Tutoring System designed to address the personalized learning needs of students across various age groups, spanning from early childhood to adolescence. It aims to revolutionize the traditional education system by providing adaptive learning experiences, real-time feedback, and multidisciplinary learning support.

### 1.1.1 Scope

The initial scope of the IntelliTutor project includes the following key components:

1. User Interface/User Experience (UI/UX):
  - a. Design a user-friendly interface optimized for laptops, mobiles, and tablets.
  - b. Ensure responsiveness and accessibility across different screen sizes and devices.
2. Content Management System (CMS):
  - a. Develop a robust CMS to manage exercises, quizzes, projects, and learning materials across multiple subjects and age groups.
  - b. Ensure scalability and flexibility to accommodate evolving curriculum requirements.
3. Adaptive Learning Algorithms:
  - a. Implement algorithms to personalize learning experiences based on individual student profiles.
  - b. Dynamically adjust the difficulty of lessons to optimize learning outcomes.
4. Gamification and Motivational Features:
  - a. Integrate gamification elements such as rewards, badges, and achievements to enhance student motivation.
  - b. Create a positive learning environment by celebrating student accomplishments.
5. Study-Buddy Integration:
  - a. Develop algorithms to group students with similar learning curves for collaborative learning experiences.
  - b. Facilitate peer-to-peer interaction through discussion forums and virtual group projects.
6. Multi-Language Support:
  - a. Provide support for multiple languages to accommodate a diverse user base.
  - b. Ensure accurate translations of content through collaboration with language experts and native speakers.
7. Analytics and Reporting:
  - a. Develop analytical tools to track student progress, engagement, and performance.
  - b. Generate monthly progress reports for parents, guardians, and teachers.
  - c. Enable real-time analytics for continuous monitoring of student learning activities.

### 1.1.2 Objectives

Develop IntelliTutor to improve student engagement, comprehension, and academic performance by up to 98%, catering to students aged 3 to 18. By integrating adaptive learning algorithms, multi-language support, and study-buddy functionalities, grow market share by 30%, increase revenue streams by 50%, and establish our company as a leader in educational technology.

## 1.2 Milestones

Milestone	Description	Delivery Date
UI/UX Design Completion	Finalization of user interface and user experience design for the IntelliTutor platform, ensuring seamless navigation and intuitive interaction.	06/06/2024
Content Management System (CMS) Development	Development and implementation of the CMS to organize learning materials, including exercises, quizzes, and projects, across various subjects and age groups.	20/06/2024
Adaptive Learning Algorithm Integration	Integration of adaptive learning algorithms into the IntelliTutor platform to personalize learning experiences based on student strengths and weaknesses.	06/06/2024
Multi-Language Support Implementation	Implementation of multi-language support functionality, enabling users to access IntelliTutor in their preferred language for global accessibility.	24/06/2024
Gamification and Motivational Features Integration	Integration of gamification elements and motivational features to increase student engagement and motivation within the IntelliTutor platform.	19/06/2024
Analytics Tools Development	Development of analytics tools to track student progress and performance, with reports sent to parents/guardians and educators, for informed decision-making.	27/06/2024
Final Testing and Quality Assurance	Comprehensive testing and quality assurance processes to ensure the reliability, functionality, and performance of the IntelliTutor platform.	09/08/2024
Launch of IntelliTutor Platform	Official launch of the IntelliTutor platform, marking its availability to users for enhanced learning experiences and academic support.	20/08/2024

## 1.3 Phases

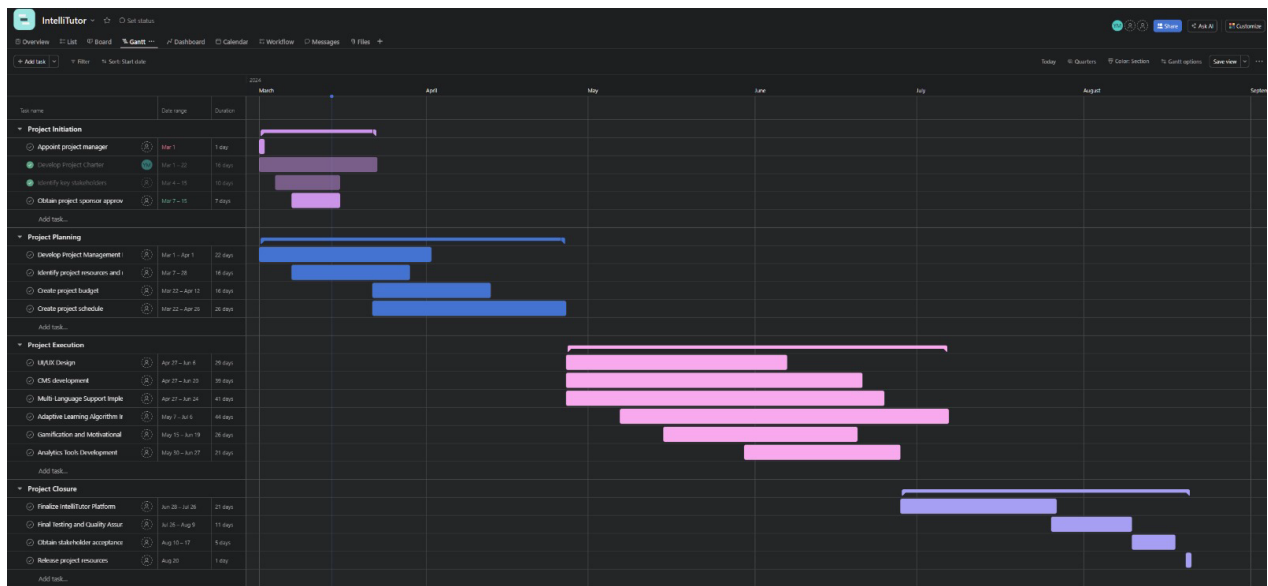
Phase	Description
Project Initiation	In this phase, the project is formally initiated, and the project charter is developed. Key stakeholders are identified, and the project manager is assigned. The primary objective of this phase is to define the scope, objectives, and constraints of the project.
Project Planning	The project planning phase involves detailed planning of activities, resources, schedules, and budgets required for the successful completion of the project. Project plans, including the scope management plan, schedule management plan, and risk management plan, are developed during this phase.
Project Execution	The project execution phase is where the actual work of the project is performed. Activities outlined in the project plan are executed, resources are allocated, and tasks are completed according to the project schedule. Regular communication, monitoring, and control are essential during this phase to ensure project objectives are met.
Project Closure	The project closure phase marks the formal completion of the project. All project deliverables are finalized, and acceptance is obtained from stakeholders. Project resources are released, and a post-project review is conducted to assess project performance, identify lessons learned, and document any remaining tasks or issues.

## 1.4 Tasks

Phase	Activity	Task
Project Initiation	Develop Project Charter	Define project objectives and scope Identify key stakeholders Appoint project manager Obtain project sponsor approval
Project Planning	Develop Project Management Plan	Define project scope and deliverables Identify project resources and roles Create project schedule Estimate project budget
Project Execution	Develop IntelliTutor Software	UI/UX Design CMS Development Adaptive Learning Algorithm Integration Multi-Language Support Implementation Gamification and Motivational Features Integration Analytics Tools Development
Project Closure	Finalize IntelliTutor Platform	Final Testing and Quality Assurance Obtain stakeholder acceptance Release project resources Conduct post-project review

## 2 Project Timeline

### 2.1 Schedule



#### Project Initiation (March 1 - March 22):

- Define project objectives and scope (March 1 - March 22)
- Identify key stakeholders (March 4 - March 15)
- Appoint project manager (March 1)
- Obtain project sponsor approval (March 7 - March 15)
- Project Planning (March 1 - March 22):

#### Develop Project Management Plan:

- Define project scope and deliverables (March 1 – April 1)
- Identify project resources and roles (March 7 - March 28)
- Create project schedule (March 22 - April 26)

- Estimate project budget (March 22 - April 12)
- Project Execution (Starts April 27):

#### **Develop IntelliTutor Software:**

- UI/UX Design (April 27 - June 6)
- CMS Development (April 27 - June 20)
- Adaptive Learning Algorithm Integration (April 27 - July 6)
- Multi-Language Support Implementation (May 7 - June 24)
- Gamification and Motivational Features Integration (May 15 - June 19)
- Analytics Tools Development (May 30 – June 27)

#### **Project Closure (April 21 - April 27):**

- Finalize IntelliTutor Platform (June 28 - July 26)
- Final Testing and Quality Assurance (July 26 - August 9)
- Obtain stakeholder acceptance (August 10 - August 17)
- Release project resources (August 20)

## **2.2 Effort**

For each task listed above, quantify the likely ‘effort’ required to complete the task.

<b>Task</b>	<b>Effort</b>
Define project objectives and scope	3 weeks
Identify key stakeholders	2 weeks
Appoint project manager	1 weeks
Obtain project sponsor approval	2 weeks
Define project scope and deliverables	4 weeks
Identify project resources and roles	3 weeks
Create project schedule	5 weeks
Estimate project budget	3 weeks
UI/UX Design	6 weeks
CMS Development	8 weeks
Adaptive Learning Algorithm Integration	10 weeks
Multi-Language Support Implementation	7 weeks
Gamification and Motivational Features Integration	5 weeks
Analytics Tools Development	6 weeks
Final Testing and Quality Assurance	4 weeks
Obtain stakeholder acceptance	2 weeks
Release project resources	1 weeks
Conduct post-project review	3 weeks

## **2.3 Assumptions**

Planning assumptions made for the IntelliTutor project:

- **Stakeholder Availability:** It is assumed that key stakeholders, including project sponsors, subject matter experts, and end-users, will be available for consultation and decision-making throughout the project duration.
- **Resource Availability:** It is assumed that the necessary resources, including human resources, technology infrastructure, and software tools, will be accessible and allocated as needed to support project activities.
- **Timely Decision-Making:** It is assumed that project decisions, such as scope changes, resource allocations, and budget approvals, will be made in a timely manner to prevent delays in project execution.

- **Technical Feasibility:** It is assumed that the technologies and platforms selected for the development of IntelliTutor are technically feasible and capable of meeting project requirements within the specified timeline.
- **Regulatory Compliance:** It is assumed that IntelliTutor will comply with relevant laws, regulations, and industry standards related to data privacy, accessibility, and educational content.
- **Vendor Performance:** If third-party vendors are involved in supplying components or services for IntelliTutor, it is assumed that they will meet their contractual obligations and deliverables on schedule.
- **Risk Management:** It is assumed that identified risks will be managed effectively through proactive risk mitigation strategies and contingency planning to minimize their impact on project outcomes.

These planning assumptions provide a basis for project planning and decision-making, guiding the project team in addressing potential challenges and uncertainties throughout the IntelliTutor project lifecycle.

## 2.4 Constraints

Planning constraints identified for the IntelliTutor project:

- **Budget Constraints:** The project must operate within the funding allocated and approved by stakeholders. There is limited flexibility to exceed the approved budget without further approvals.
- **Resource Limitations:** The project team must work within the allocated resources, including human resources, technology infrastructure, and software tools. Additional resources may not be readily available and would require approval and allocation.
- **Time Constraints:** The project must adhere to the agreed-upon timeline and deadlines. There is limited flexibility to extend project timelines without impacting other business activities or commitments.
- **Scope Constraints:** The project scope is defined and agreed upon at the outset. Any changes to the scope must be carefully evaluated and approved by stakeholders, as they may impact project timelines, resources, and budget.
- **Quality Standards:** The IntelliTutor software must meet specified quality standards and requirements. There is limited tolerance for compromising on quality to meet project constraints.
- **Legal and Regulatory Requirements:** The project must comply with relevant laws, regulations, and industry standards related to data privacy, accessibility, and educational content. Any deviations may pose legal and reputational risks to the project and the organization.
- **Staffing Constraints:** The project team must complete the project within normal working hours and adhere to organizational policies and procedures related to employee working hours, breaks, and overtime.

### 3 Resource Allocation

#### 3.1 Resources Allocation

For each task identified, list the resources allocated to complete the task.

Task	Resource
Define project objectives and scope	<i>Project Manager, Subject Matter Experts</i>
Identify key stakeholders	<i>Project Manager, Stakeholder Analysts</i>
Appoint project manager	<i>Human Resources Department, Management</i>
Obtain project sponsor approval	<i>Project Manager, Project Sponsor</i>
Define project scope and deliverables	<i>Project Manager, Project Team</i>
Identify project resources and roles	<i>Project Manager, HR Department</i>
Create project schedule	<i>Project Manager, Project Scheduler</i>
Estimate project budget	<i>Project Manager, Finance Department</i>
UI/UX Design	<i>UX/UI Designers, Graphic Designers</i>
CMS Development	<i>Software Developers, Database Administrators</i>
Adaptive Learning Algorithm Integration	<i>Data Scientists, Software Developers</i>
Multi-Language Support Implementation	<i>Linguists, Software Developers</i>
Gamification and Motivational Features Integration	<i>Gamification Experts, Software Developers</i>
Analytics Tools Development	<i>Data Analysts, Software Developers</i>
Final Testing and Quality Assurance	<i>Quality Assurance Team, Software Testers</i>
Obtain stakeholder acceptance	<i>Project Manager, Stakeholders</i>
Release project resources	<i>Project Manager, Resource Manager</i>
Conduct post-project review	<i>Project Manager, Project Team</i>

#### 3.2 Change Management

When a change request is made, use this log to track its impact, response and whether the change control board has approved it or not.

Date Identified	Request	Impact	Approval	Date Started	Date Completed
2/3/2024	Add new language option	Multi-Language Support	Yes	2/3/2024	8/3/2024

### 3.2 Dependencies

Activity	Depends on	Dependency Type
Develop Project Charter	Approval of project objectives and scope	Finish-to-start
Develop Project Management Plan	Definition of project scope and deliverables	Finish-to-start
UI/UX Design	Completion of project planning phase	Finish-to-start
CMS Development	UI/UX Design	Start-to-start
Adaptive Learning Algorithm Integration	CMS Development	Start-to-start
Multi-Language Support Implementation	Adaptive Learning Algorithm Integration	Start-to-start
Gamification and Motivational Features Integration	Multi-Language Support Implementation	Start-to-start
Analytics Tools Development	Gamification and Motivational Features Integration	Start-to-start
Final Testing and Quality Assurance	Completion of IntelliTutor Software Development	Finish-to-start
Obtain stakeholder acceptance	Final Testing and Quality Assurance	Finish-to-start
Release project resources	Stakeholder acceptance	Finish-to-start
Conduct post-project review	Release of project resources	Finish-to-start

#### **Develop Project Charter (Dependent Activity) - Finish-to-start (Dependency Type) - Approval of project objectives and scope (Dependent On):**

- This dependency indicates that the development of the project charter cannot begin until the project objectives and scope are approved. The approval of project objectives and scope is a prerequisite for initiating the project and defining its overall direction.

#### **Develop Project Management Plan - Finish-to-start - Definition of project scope and deliverables:**

- The development of the project management plan relies on having a clear understanding of the project scope and deliverables. Without a defined scope and deliverables, it is challenging to create an effective project management plan that outlines how the project will be executed, monitored, and controlled.

#### **UI/UX Design - Finish-to-start - Completion of project planning phase:**

- The UI/UX design phase depends on the completion of the project planning phase. This ensures that the project team has a clear understanding of the project requirements, objectives, and constraints before proceeding with the design process.

#### **CMS Development - Start-to-start - UI/UX Design:**

- The development of the Content Management System (CMS) begins concurrently with the UI/UX design phase. This allows the development team to start implementing the CMS functionalities as soon as the design specifications are finalized, ensuring timely progress.



**Adaptive Learning Algorithm Integration - Start-to-start - CMS Development:**

- Integration of the adaptive learning algorithms starts once the CMS development phase begins. This dependency ensures that the necessary infrastructure and functionalities required for algorithm integration are available before the integration process begins.

**Multi-Language Support Implementation - Start-to-start - Adaptive Learning Algorithm Integration:**

- Implementation of multi-language support starts concurrently with the adaptive learning algorithm integration phase. This ensures that language support features are integrated into the system alongside other core functionalities, facilitating a seamless user experience for users in different language settings.

**Gamification and Motivational Features Integration - Start-to-start - Multi-Language Support Implementation:**

- Integration of gamification and motivational features begins once the multi-language support implementation phase starts. This dependency allows for the simultaneous development of these features, enhancing user engagement and motivation across different language settings.

**Analytics Tools Development - Start-to-start - Gamification and Motivational Features Integration:**

- Development of analytics tools starts concurrently with the integration of gamification and motivational features. This ensures that data collection and analysis capabilities are available alongside these features, enabling informed decision-making and performance tracking.

**Final Testing and Quality Assurance - Finish-to-start - Completion of IntelliTutor Software Development:**

- Final testing and quality assurance activities cannot commence until the development of the IntelliTutor software is complete. This dependency ensures that the software is fully developed before undergoing rigorous testing to identify and address any issues or bugs.

**Obtain Stakeholder Acceptance - Finish-to-start - Final Testing and Quality Assurance:**

- Stakeholder acceptance cannot be obtained until the final testing and quality assurance activities are completed. This dependency ensures that stakeholders have confidence in the quality and functionality of the IntelliTutor platform before providing their acceptance.

**Release Project Resources - Finish-to-start - Stakeholder Acceptance:**

- Project resources cannot be released until stakeholder acceptance is obtained. This dependency ensures that resources are retained until the project is formally accepted by stakeholders, minimizing premature resource reallocation.

**Conduct Post-Project Review - Finish-to-start - Release of Project Resources:**

- The post-project review cannot be conducted until project resources are released. This dependency ensures that the project team has access to resources for conducting the review and documenting lessons learned after the project's completion.