CIS3750 Assignment #1

Group Members: Ethan Stiles, Ashkon Irani, Justin Kim, Nicolas Mayorga, Joell Kebret, Sameer Mahmood, Robert Caluian

The goal of our project is to design and implement an Intelligent Tutoring System (ITS) that personalizes learning for students by adapting questions, providing instant feedback, and tracking progress. The system will support instructors in creating and analyzing learning materials, while providing admins with tools to manage accounts and ensure system security. Ultimately, the product aims to improve student learning outcomes by combining adaptive learning, data driven insights, and usability in one platform.

Team Details

Company/Group Name: Se7enAcademy (derived from chosen app development approach and group number given in lab)

Logo:

Figure 1: Proposed Logo of Artificial App Company

Members, Roles & Expectations

- **Joell Kebret** — *Presenter · UX Designer · Tester*
  Leads live demos, refines UI flows and accessibility, executes exploratory & regression test passes before submission.
- **Nicolas Mayorga** — *Presenter · Database Designer*
  Co-presents technical sections; owns schema design, ERDs, and data integrity rules; prepares seed data for prototypes.
- **Ethan Stiles** — *Database Designer · Documentation Specialist*
  Builds/updates schema migrations; maintains technical docs (README, API notes); ensures traceability from goals → requirements → use cases.
- **Justin Kim** — *Team Leader · Researcher · Tester*
  Facilitates meetings, resolves blockers, aligns scope with rubric; benchmarks comparable systems and cites sources; coordinates test plans.
- **Ashkon Irani** — *Coder · Documentation Specialist*
  Implements core features to spec; keeps change logs and developer notes concise and current; drafts how-to sections for the report.
- **Robert Caluian** — *Coder · UX Designer*
  Codes front-end views/components; converts paper prototypes to clickable flows; enforces consistency (layout, typography, states).
- **Sameer Mahmood** — *Primary Designer · Researcher*
  Owns design system and interaction patterns; validates designs with requirements; contributes landscape research and competitive insights.

Team Contract

1. Team Logistics

Communication will primarily occur through a dedicated Discord group chat. The team will meet once per week via Discord call. Meeting notes will be taken and shared with all members through Discord to ensure transparency and accountability.

2. Team Attendance

Attendance is mandatory for all scheduled team meetings online. Weekly Discord calls will serve as the primary team meeting. Team members are expected to attend and participate actively. This requirement applies to all class related activities, labs, and online meetings.

3. Team Professionalism

Team members are expected to arrive on time and prepared. If a member is late or unprepared, the first instance will be noted as a warning, if this keeps reoccurring the group will be subject to agree upon penalties accordingly. Members unable to attend or expecting to be late must notify the team in advance via Discord.

4. Work Assignments

Tasks will be assigned based on each member's skills to ensure efficiency and fairness. Assignments will be discussed collectively, with all members agreeing on a fair distribution of work. If a member is absent during a task assignment, they will be responsible for completing any remaining tasks.

5. Conflict Resolution

Conflicts will be resolved through open discussion and group voting. Decisions will be made based on majority rule, ensuring all members have an equal voice.

6. Team Cohesion

The team recognizes that members have different personalities and may shift along the spectrum between introvert and extrovert depending on circumstances. To maintain cohesion, the team will be flexible, respectful of individual needs, and supportive of varying levels of engagement. Members will communicate openly about their capacity to contribute, and the team will adapt accordingly to maintain balance.

Signed: Ethan Stiles, Ashkon Irani, Justin Kim, Nicolas Mayorga, Joell Kebret, Sameer Mahmood, Robert Caluian

Team Evaluation Rubric

This rubric will be used to evaluate each team member's to the Team Contract. Scores will be tallied across the five categories for a total out of 100 points.

1. Team Logistics & Communication (20 points)

Metrics: Responsiveness on Discord, quality of contributions to discussions, participation in notetaking and task tracking.
Measures:
• 18–20: Always responds within 24 hours, actively engages in discussions, consistently contributes to shared notes and task tracking.
• 15–17: Usually responds within 24–48 hours, engages in discussions most of the time, occasionally contributes to shared notes/task tracking.
• 12–14: Frequently slow to respond (>48 hours), minimal engagement in discussions, rare contributions to notes/task tracking.
• 0–11: Does not respond or participate.

2. Team Attendance (20 points)

Metrics: Percentage of scheduled meetings (labs, Discord calls) attended.
Measures:
• 18–20: Attends ≥ 95% of meetings. Rarely late.
• 15–17: Attends 80–94% of meetings. Occasionally late.
• 12–14: Attends 60–79% of meetings. Frequently late.
• 0–11: Attends < 60% of meetings.

3. Professionalism (20 points)

Metrics: Prepared, punctuality, advance notice of absences/lateness.
Measures:
• 18–20: Always prepared, punctual, and proactive about scheduling conflicts. Set a positive example.
• 15–17: Usually prepared and punctual. Gives notice most of the time.
• 12–14: Often unprepared or late. Rarely provides advance notice.
• 0–11: Consistently unprepared, late, or absent without notice.

4. Work Assignments (20 points)

Metrics: Task completion, quality of work, fairness in workload distribution.
Measures:
• 18–20: Completes all tasks on time with high quality. Willingly takes on extra work when needed.
• 15–17: Completes most tasks on time and meets expectations.
• 12–14: Frequently late or incomplete work. Requires reminders to meet commitments.
• 0–11: Rarely contributes or produces substandard work.

5. Conflict Resolution & Team Cohesion (20 points)

Metrics: Respectful communication, openness to feedback, flexibility with team dynamics.
Measures:
• 18–20: Actively mediates and resolves conflicts constructively. Supports teammates across the

introvert/extrovert spectrum.

- **15–17: Participates respectfully in conflict resolution and adapts to others most of the time.**
- **12–14: Sometimes argumentative or resistant to team consensus.**
- **0–11: Frequently disruptive, unwilling to compromise, or dismissive of teammates.**

Reward System

Above & Beyond Recognition:

- **Team members scoring 95–100 will be recognized for exceptional contributions (e.g. leadership opportunities, or reduced workload in later phases as a reward).**

Satisfactory Performance:

- **Scores 81–94 reflect meeting expectations.**

Needs Improvement:

- **Scores < 80 indicate areas requiring attention.**

Project Goals & Users

Team: Se7enAcademy
Project Title: Se7enAcademy ITS — Adaptive Science Learning for High School

Goal (clear & concise)

Build an intelligent tutoring system (ITS) that helps high-school students master science subjects through adaptive practice, rapid feedback, and targeted revision. The system identifies weak concepts and automatically schedules focused review so students progress efficiently toward mastery, as well as daily reminders and progress tracking.

Domain & Focus

- **Domain:** Grade 8-12 Educational Technology (Intelligent Tutoring Systems).
- **Focus:** High-school **Science** (e.g., Biology, Chemistry, Physics) with short concept lessons, scaffolded problems, and mastery checks in a **Khan Academy / Duolingo–style** flow (bite-sized tasks, streaks, immediate feedback, progress paths).

Machine Learning Component

1. **Personalized Mastery & Spaced Retrieval:**
    - Detects error patterns and knowledge gaps per learner.
    - Pushes targeted **recover → revise → repractice** cycles for items frequently missed.
    - Dynamically schedules spaced retrieval to reduce forgetting and reinforce long-term retention.
2. **Population-Informed Attention Split:**
    - Adjusts suggested study time across topics using aggregated difficulty signals (what the broader cohort struggles with), balancing individual needs with community insights.
    - Outcome: smarter recommendations for where each student should focus next.

Users (specific)

- **Primary:**
    - **High-school Students (Grades 9–12):** diverse proficiency levels; need clear paths to mastery and immediate, formative feedback.
- **Secondary:**
    - **Teachers/Instructors:** assign topic sets, view class/individual mastery dashboards, identify at-risk students, export progress.
    - **School Administrators/Dept Heads:** monitor course-level outcomes and curriculum coverage (aggregated, privacy-safe).
    - **Parents/Guardians (optional view):** high-level progress summaries and goal tracking.

How We Will Organize & Build

- **Version Control & Workflow: GitHub only** (monorepo).
    - Branching: main (release), dev (integration), feature/* (task-scoped).
    - Issues: user-story tickets mapped to requirements/use cases; labels for feature, bug, docs, priority.
    - Project Board: GitHub Projects (Backlog → In-Progress → Review → Done).
    - PR Policy: 1 reviewer minimum; CI checks (lint/tests) required before merge.
    - Documentation: /docs folder for specs, decisions, and meeting notes; README with setup + contribution guide.