SMART INDIA HACKATHON 2025

TITLE PAGE

- **Problem Statement ID –24048**

- **Problem Statement Title-** Gamified Learning Platform for Rural Education

- **Theme-** Smart Education

- **PS Category-** Software

- **Team ID-**

- **Team Name :** Team Udaan
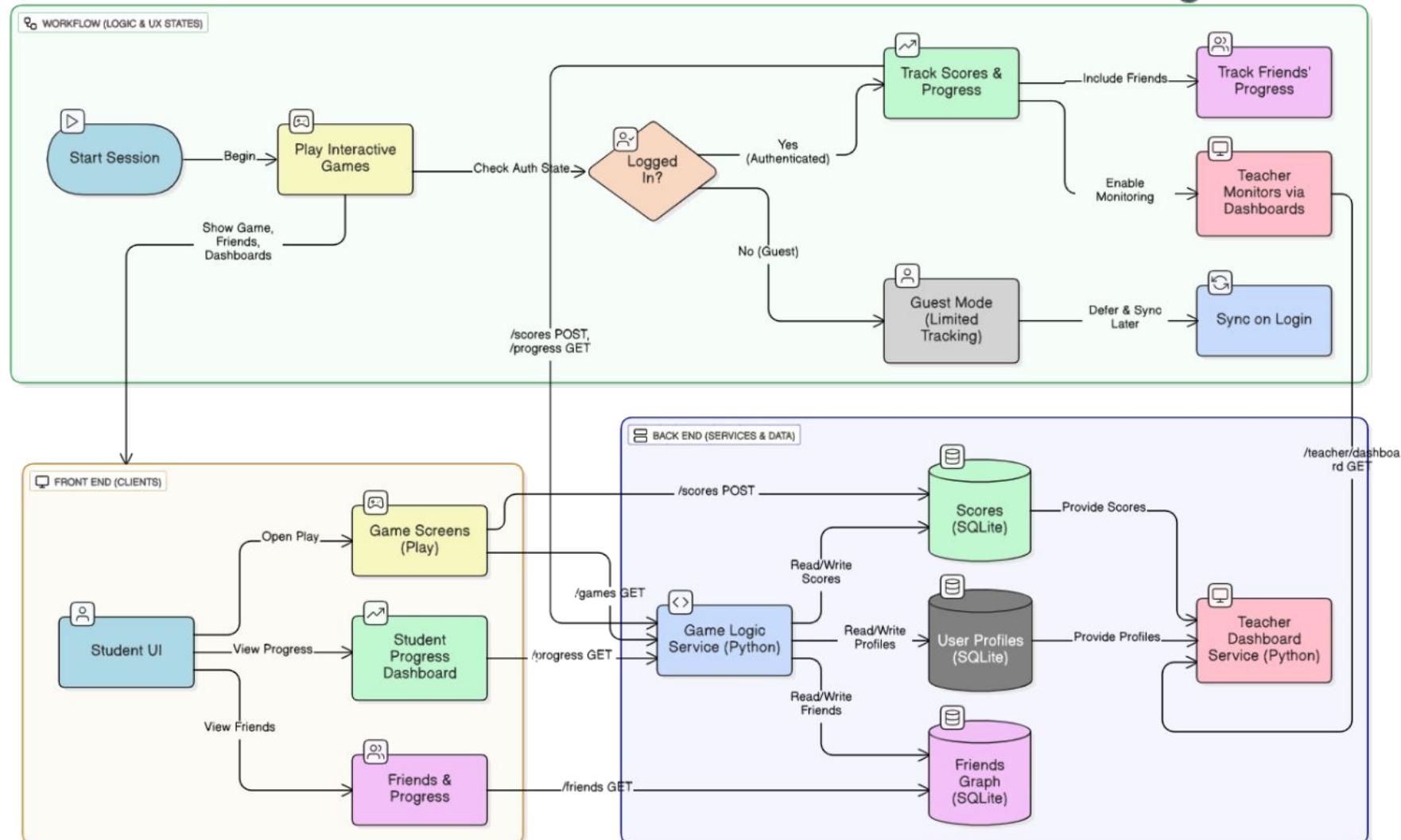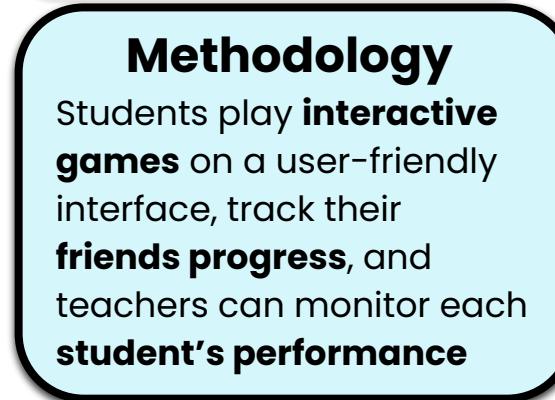
IDEA/SOLUTION:

- To develop a gamified learning platform that makes education accessible, engaging, and effective for students in rural areas.
- This platform will include game mechanics like points, badges, and leaderboards, but will focus on a mission-based learning path.
- Students will progress through different levels, each with a unique narrative or challenge to complete. Unlocking new levels and earning in-game rewards will drive motivation and provide a sense of accomplishment.
- The platform will also incorporate offline access to course materials and a simple, user-friendly interface that is optimized for low-bandwidth environments.

Unique Value Propositions(UVP) :

- **Learning Without Pressure** – Kids progress through levels as if they are playing, removing fear and hesitation around traditional study.
- **Curriculum-Aligned Gamification** – Each level maps directly to chapters and subjects, ensuring fun learning stays aligned with academic goals.
- **Engagement Through Play** – Children stay motivated with rewards, challenges, and progress tracking—making them want to "learn more" instead of being forced.
- **Personalized Pace** – Adaptive levels allow students to move at their own speed, ensuring no child is left behind or held back.
- **Seamless Integration for Teachers** – Teachers can monitor progress and performance while kids experience it as a game, blending fun with measurable outcomes.

TECHNICAL APPROACH

Udaan

## Front End

React · HTML5 · CSS3 · JS

Back End

Python · SQLite

Methodology

Students play **interactive games** on a user-friendly interface, track their **friends progress**, and teachers can monitor each **student's performance**

WORKFLOW (LOGIC & UX STATES)

Start Session — Begin → Play Interactive Games — Check Auth State → Logged In?

Play Interactive Games — Show Game, Friends, Dashboards

Logged In? — Yes (Authenticated) → Track Scores & Progress — Include Friends → Track Friends' Progress

Track Scores & Progress — Enable Monitoring → Teacher Monitors via Dashboards

Logged In? — No (Guest) → Guest Mode (Limited Tracking) — Defer & Sync Later → Sync on Login

/scores POST, /progress GET

FRONT END (CLIENTS)

Student UI — Open Play → Game Screens (Play)

Student UI — View Progress → Student Progress Dashboard

Student UI — View Friends → Friends & Progress

Game Screens (Play) — /games GET
Student Progress Dashboard — /progress GET
Friends & Progress — /friends GET

BACK END (SERVICES & DATA)

/scores POST → Scores (SQLite)

Game Logic Service (Python) — Read/Write Scores → Scores (SQLite) — Provide Scores → Teacher Dashboard Service (Python)

Game Logic Service (Python) — Read/Write Profiles → User Profiles (SQLite) — Provide Profiles → Teacher Dashboard Service (Python)

Game Logic Service (Python) — Read/Write Friends → Friends Graph (SQLite)

/teacher/dashboard GET

FEASIBILITY AND VIABILITY

Existing Systems:

Kahoot!

Prodigy

Classcraft

Advantages

- Makes learning fun and engaging, so students practice more and remember better.
- Works online and offline with multilingual support, helping rural learners study anytime.
- Tracks progress with dashboards and leaderboards to motivate students and guide teachers.

Disadvantages

- Content takes time and money to build well, especially for multiple languages and grades.
- Games can distract from learning goals if rewards aren't balanced with understanding.
- Very low-end devices or limited storage/connectivity can still limit access even with offline features.

Challenges
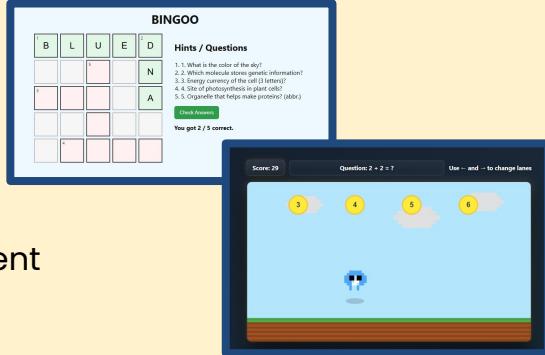
- Content creation is costly and slow, especially for multi-language, curriculum-aligned mini-games.
- Balancing fun with learning is hard; rewards can distract from concepts if not tuned well.
- Extreme device and connectivity limits persist; very low-end phones and scarce school devices reduce reach.

IMPACT AND BENEFITS
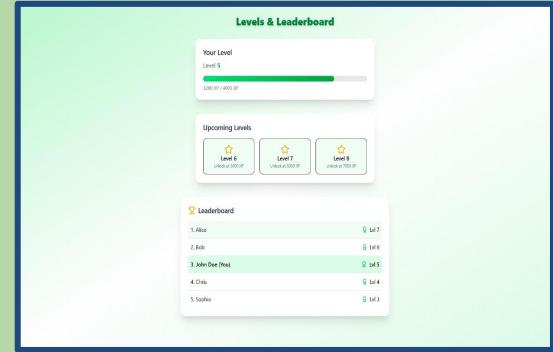
Engagement

- Game mechanics and instant feedback keep learners active longer and make practice feel rewarding, which improves time-on-task.
- This sustained attention helps concepts stick and builds consistent study habits.

Motivation

- Points, badges, levels, and leaderboards provide clear goals and visible progress.
- Small wins and streaks nudge learners to return daily and push to the next level.
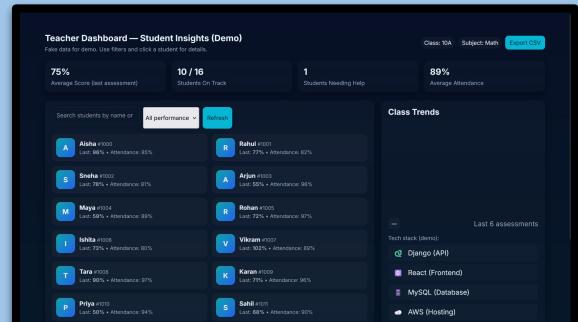

Accessibility

- Multilingual content and offline-first delivery ensure lessons work on low bandwidth and basic devices.
- This reduces barriers in rural areas and keeps learning available anytime.

Insights

- Dashboards show mastery, gaps, and streaks for each student.
- Teachers and admins can target support, assign remediation, and measure impact quickly.

RESEARCH AND REFERENCES

- **NCERT Textbooks & Resources (ncertpdf.com)** – Used as the primary source for curriculum-aligned content and Questions in used in the games.

- **BBC Report on Game-Based Learning :**
  https://www.bbc.co.uk/teach/teacher-support/articles/z2rfqyc?0,0,0,0#zkf69ty

- **What Is Game-Based Learning? :**https://edtechrce.org/what-is-game-based-learning/

- **Why to encourage the Game-Based learning:**
  https://www.timeshighereducation.com/campus/go-beyond-play-and-engage-students-gamebased-learning

- **We relied on AI to create the games.** Mostly used https://chatgpt.com/,https://www.perplexity.ai/

- The Games we designed are commonly played every kid in his childhood.