



Softvengers

Team Software Chasers



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Intro: Identifying the problem

- Difficult to stimulate and invoke interests in students using traditional learning methods
- Difficult to provide interactive learning even after the class
- Difficult for teachers to continuously assess student's performance statistically



Intro: Mission Statement

“Gamify learning to
make it fun.”



Intro: Softvengers System

Softvengers Game

The game helps in augmenting the classroom knowledge of the SDLC. Students can test themselves on the various phases by rescuing planets from asteroid attack, challenging their peers and attempting assignments.

Teacher's Website

The Website helps the teachers in adding questions, sending assignments and keeping a track of the performance of their students.

Project Requirements:

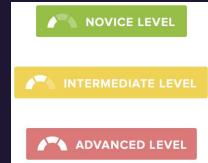
Softvengers Game



Theme
Space theme



Levels
Planets



Adaptive questioning
Difficulty changes based on real time results



Worlds
Universe



Leaderboard
Ranking among all players



Challenges
Challenge other players to beat score



Sections
Solar Systems



Characters
Marvel avatars



Badges
Based on the performance of a planet

Project Requirements:

Teachers website



Statistics

Displaying performance of students in a tutorial group, and of individual students



Assignments

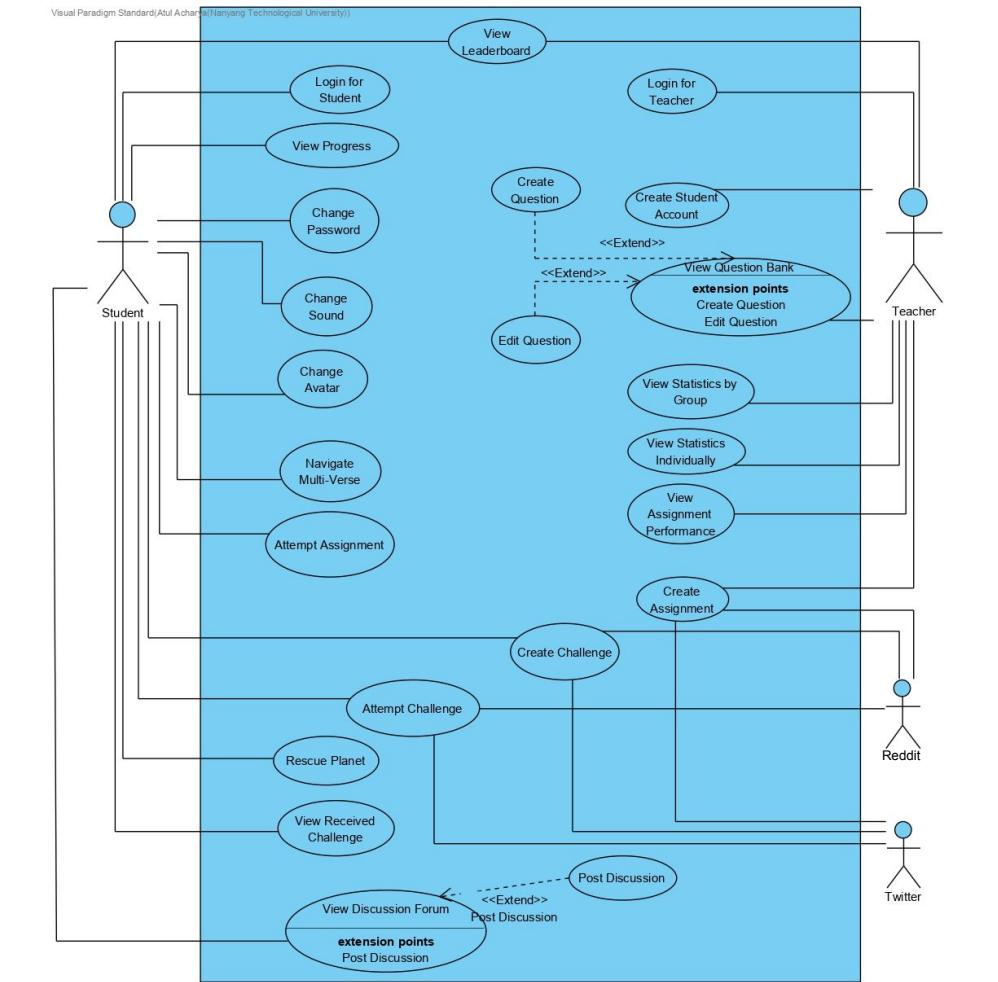
Send assignments to all students of a tutorial group



Question bank

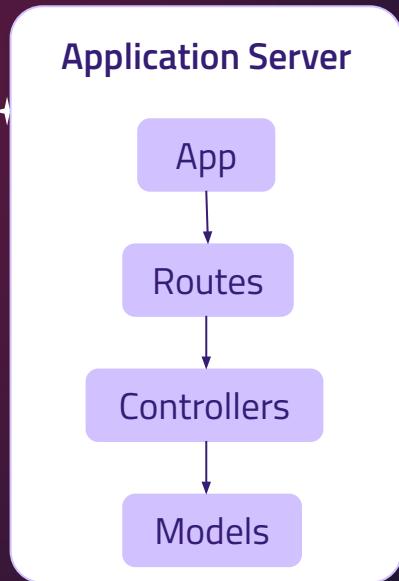
Add, modify and delete questions

Functional Requirements



Non - Functional Requirements

FLEXIBILITY



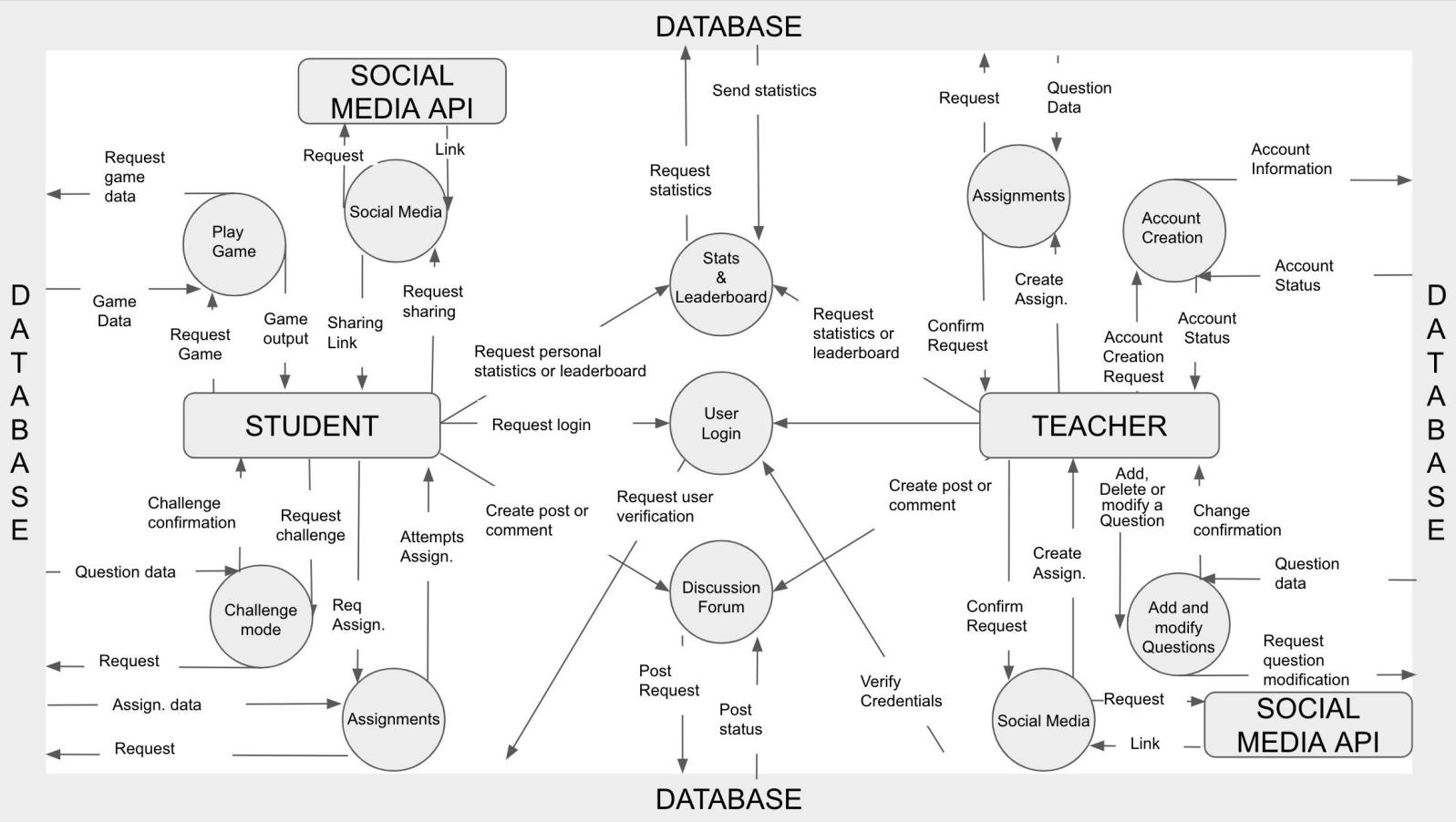
Independent Modules

- The backend for our game and website is a standalone application which does not require the frontend to work.
- Adding new controllers and routes is extremely easy as the code is very modular.

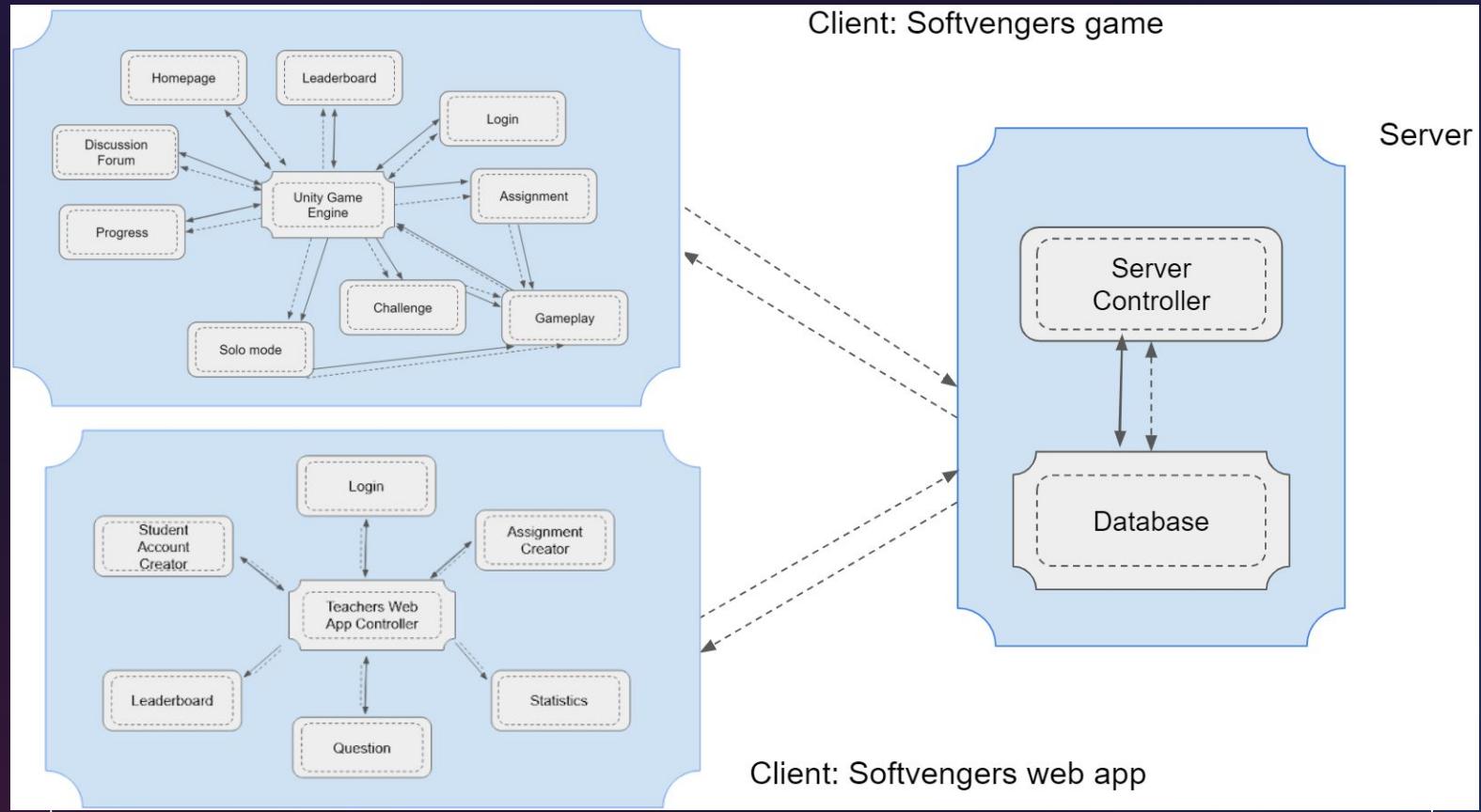
Loosely Coupled Modules

- The server itself follows layered architecture, and each controller is coupled with few entities.
- Thus adding new capabilities is easy making our software flexible.

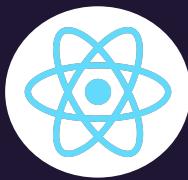
Data Flow Diagram



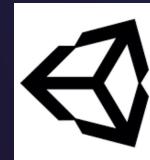
Architectural Diagram



TECH STACK



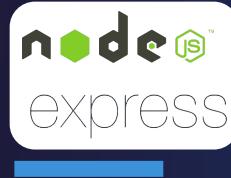
REACT
Web frontend code



UNITY
Game development



MONGODB
Database used



EXPRESS AND NODE
Server-side code

DEMONSTRATION !



TEST CASES

Adding Assignment

TestID	Scenario	Expected Result	Actual Result	P/F
1	All fields for adding Assignment have been added in correctly - such as time limit, deadline, points, assignment questions, assignment name and assignment ID	The System saves the assignment to the database and displays a success message	The System saves the assignment to the database and displays a success message	P
2	Teacher tries to create assignment with incomplete fields	The system prompts the user to enter all the fields	The System prompts the user to enter all the fields	P
3	The assignmentID provided already exist in the database	The system does not save it again and notifies the user that the added assignment already exists	The system does not save it again and notifies the user that the added assignment already exists	P

TEST CASES

Leaderboard on Teachers Website

TestID	Scenario	Expected Result	Actual Result	P/F
1	The Teacher sends a request for the leaderboard of all students	The System displays the leaderboard of ALL students with their total Scores in the game	The System displays the leaderboard of ALL students with their total Scores in the game	P
2	The Teacher sends a request for the leaderboard of students in his/her tutorial group	The System displays the leaderboard of total scores of students in the Teacher's tutorial group	The System displays the leaderboard of total scores of students in the Teacher's tutorial group	P

TEST CASES

Navigating the Multiverse

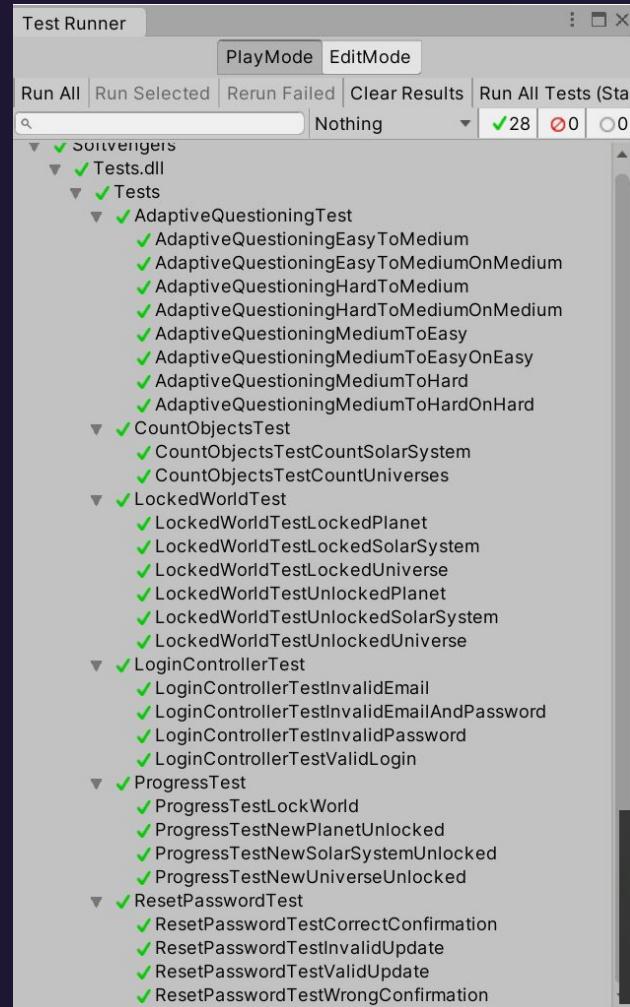
TestID	Scenario	Expected Result	Actual Result	P/F
1	The Student navigates to a Universe, Solar System, Planet that is unlocked for him/her.	The System allows the user to start the Rescue Planet gameplay where the student needs to answer questions to play the game and save the planet	The System allows the user to start the Rescue Planet gameplay where the student needs to answer questions to play the game and save the planet	P
2	The Student navigates to a Universe or a Solar System or a Planet that is still locked for him/her.	The System does not allow the student to start the Rescue Planet gameplay, and informs the Student that he has not yet unlocked that level	The System does not allow the student to start the Rescue Planet gameplay, and informs the Student that he has not yet unlocked that level	P

TEST CASES

Challenging other players

TestID	Scenario	Expected Result	Actual Result	P/F
1	At least one question selected for each section, difficulty level is selected and at Least one friend is selected to be challenged	Challenge is successfully created and sent	Challenge is successfully created	P
2	No question selected for each section or difficulty level is not selected or no one friend is selected to be challenged	The system does not send the challenge and prompts the user to select the required fields	The system does not send the challenge and prompts the user to select the required fields	P

Testing using Unity Test Runner





Backend Testing using Mocha and Chai

```
listening at port5000
```

Student API

- POST /student/login
 - ✓ Successful Login
 - ✓ Unsuccessful Login - Password Incorrect
 - ✓ Unsuccessful Login - Username Incorrect
- GET /student/details/getLeaderboard
 - ✓ Sorted Leaderboard
 - ✓ Bad request
- GET /student/details//getAllStudents/:tut_grp
 - ✓ Tutorial Group exists
 - ✓ Tutorial Group does not exist
- GET /student/details/getAllStudents
 - ✓ Get all students
 - ✓ Bad request

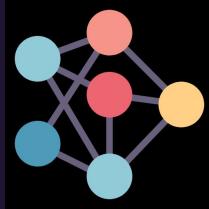
```
9 passing (98ms)
```



FUTURE DEVELOPMENTS



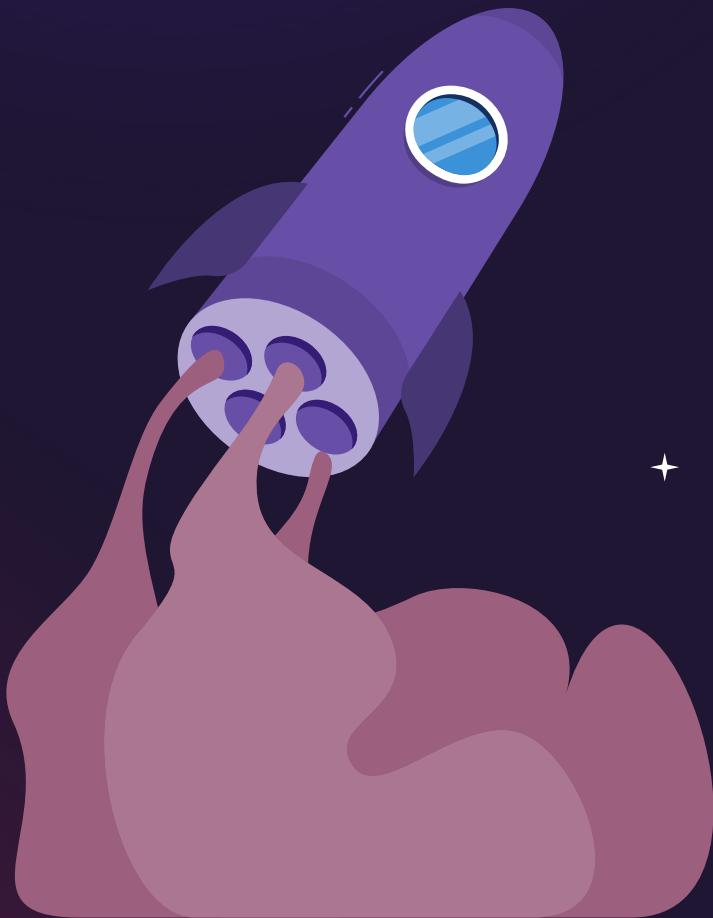
Multiplayer mode where several players can play at the same time, to promote real-time collaboration



Usage of machine learning to generate actionable insights that aid teacher's to understand student performance



Introducing new types of question such as True/False, Match the following and so on.



THANKS!

CREDITS: This presentation template was created by Slidesgo, including icons by Flaticon, infographics & images by Freepik and illustrations by Stories