Pseudo randomly Generated - Semester 2 - 2021

Team Membership & Skills

Our team name is '**Pseudo randomly Generated**'. We attempted to 'pseudo randomly' generate a team name, all of those generated names were unsatisfactory, so we decided on this name.
Our team is diverse in experience and includes the following members with the following skills:

Team Member	Skills
Isaiah Simeone	Team leader, C, Java, JavaScript, PHP, Python, CSS, HTML experience, Cloud deployment, Report writing, version control (git & svn)
Mohammad Faiz Ather	Python, Java, C, Haskell, backend architecture, version control (git), database integration, Flask, Django, Cloud deployment
Runxing Li	Java, Python, HTML, CSS, PHP, JS, Database integration (SQL), Codeigniter
Jiasheng Li	UX/UI experience, Javascript, Python, Java, HTML, CSS, Report writing
Chuan Chai	Python, Java, HTML, CSS, building website experience
Pritesh Padmanabhan	UX/UI Experience, HTML, CSS, Version Control (Git), Python, Documentation

Overview

SmartEd is an online system that is to be integrated with existing tertiary educational systems. It uses metrics gathered from various sources such as class attendance, etc, to identify deficiencies in the learning process to identify students at risk of difficulty or disengagement to reduce attrition rates and personalise the learning experience.

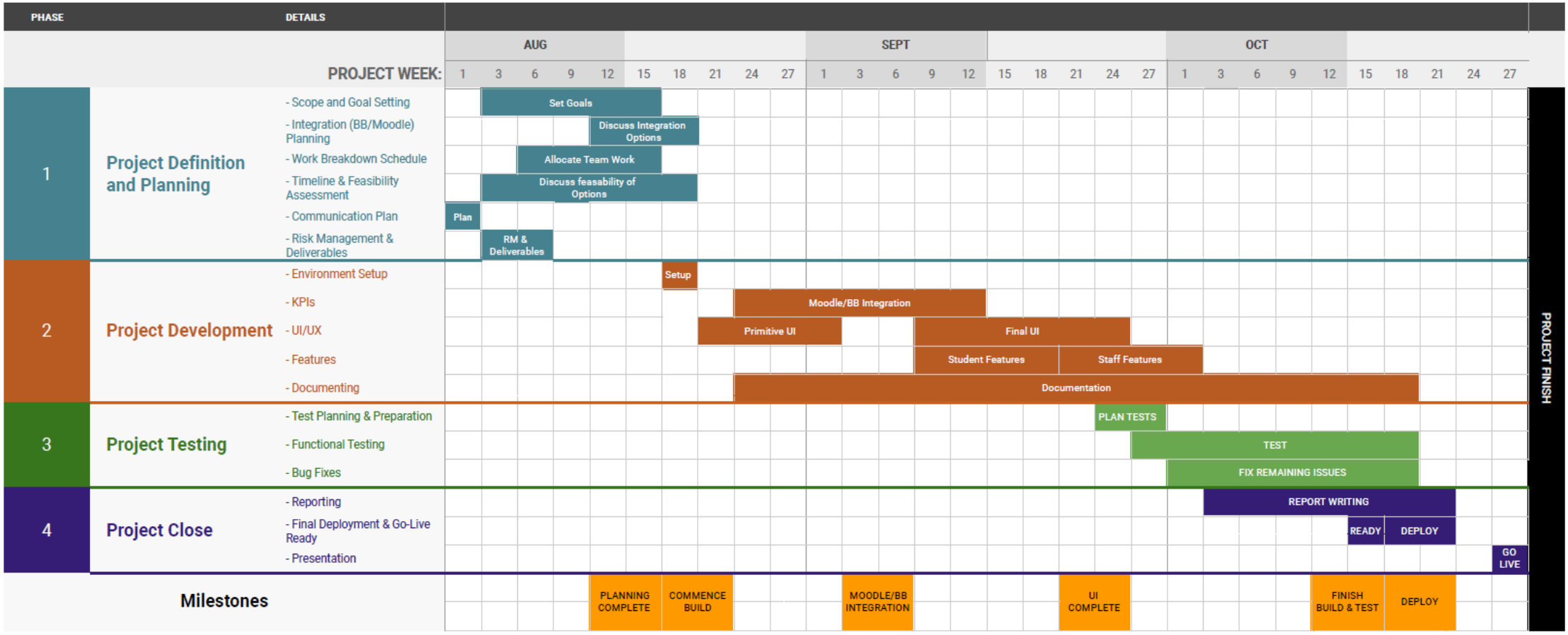
The function requirements of SmartEd are divided into 3 parts: Function requirements, Data requirements and Social and Emotion requirements. For every part, there are specific abilities to perfect the SmartEd system. Function part gives the system the ability to store the teaching resources and gives the users functional guides for their works. Secondly, Data provides users with data collection during the entire teaching phase (divided into the beginning of the course, the course in progress and the final grade feedback), and generates the performance indicators needed by the school to grade the students. The social and emotional requirements throughout the entire teaching period allow users to clarify their functionality and participation in the education process, and at the same time realize the function of privacy protection.

Outline of Features

Our team plans to build as much of the content included in the proposal as possible. The main features that we wish to develop focus on student tools such as student metrics, notices and other features that improve student QoL. We also would like to develop features associated with Blackboard LMS and Moodle integration (or data importation, more generally.) We expect that we will make use of web frameworks such as Flask for Python. Given we expect to implement a video chat system, we are also likely to use JavaScript frameworks such as WebRTC. Since we expect to host a webserver, we are certain that we will make use of Microsoft Azure for cloud deployment

SmartEd Timeline & Milestones

PROJECT TITLE	SmartEd	**TEAM NAME**	Generated Pseudorandomly
TEAM MEMBERS	Isaiah Simeone, Mohammad Faiz Ather, Runxing Li, Jiasheng Li, Chaun Chai, Pritesh Padmanabahn	**DATE**	8/9/21



c. Project Deliverables

The final product to be delivered will be a full fledged website implementation of the SmartEd proposal to achieve the target of personalized learning through data analytics and AI.
A breakdown of the deliverables are:

- An interface dashboard which displays the necessary statistics such as class attendance, GPA target, course progress and such.
- By using data analytics and AI, to construct a predictive model of a student's grades for a specific course and offer actionable insights for improving their grades if the student is at risk of failing the course.
- Calculating course satisfaction and effectiveness based on Machine Learning techniques and displaying the results on the dashboard.
- A display of a suggestions page which includes the lecturer and tutor satisfaction associated with a particular course where students can offer personal advice as to how to make the overall learning experience better.
- To display a metric of high and low performing students to identify learning style disabilities in lower performing students to focus on their development more.

d. assumptions

- Access to the data needed for our analysis.
- Storage disk has enough capacity to manage data.
- The system has enough resources (cpu, ram) to handle the users requesting the service.
- The data that we pull is in a sane format.
- The data does not have any inconsistencies.
- The learning system does not throw weird errors/exceptions.
- Permissions are set up correctly to prevent sabotage of the analysis.
- Dynamically loaded js files (bootstrap, webrtc) are not blocked in the locale of use.

e. how you plan to allocate team personnel resources (who is responsible for each task)

We plan to allocate work to the team based on a few factors. One of which being their area of interest (e.g. UI, Backend development, Frontend development, etc.) Upon group members registering their interest in a specific area, we will allocate work to them based upon that. For example, Team members who are interested in front end development will be allocated tasks associated with frontend development. It is possible that work may not be available for a specific area (e.g. front end). In this situation, we have agreed that work will be allocated where the largest backlog of work exists.

Risk Assessment and Mitigation

For any development projects, there will be potential problems that a team will encounter. It is important to perform risk assessments to identify the potential risks that can occur in a development project. For this risk assessment, we will identify the potential problem, the level of risk from low, medium, high, and provide a proposed solution to the problem.

When applying a level of risk to the problem, the following criteria will be applied.

- **Low** – It is very unlikely this risk will occur during the project development.
- **Medium** - There is a chance this risk will occur during the project development.
- **High** – It is very likely this risk will occur during the project development.

The following are a list of problems that could occur during the project development.

1. A hindrance to the project development process due to lack of hardware/software resources. **Risk – Low**.

2. Project schedule to be delayed for longer than the due date. **Risk – Low**.
3. All team members are unable to develop the project due to lack of knowledge in the required programming language/software. **Risk – Low**.
4. Lack of communication due to language barrier, difference in values or objectives. **Risk – Low**.
5. Team member(s) being in different time-zone(s) which impact scheduled group meetings. **Risk – Low.**
6. Team member(s) having lack of team spirit/motivation, impacting project development. **Risk – Low**.
7. A team member withdrawing from the team, and from the course. **Risk – Medium**.
8. Team member(s) not familiar with the programming software/language chosen to develop the project. **Risk – Medium**.
9. Team members unable to complete task(s) on time based on a team-allocated schedule due to personal commitments. **Risk – Medium**.
10. Disagreement between team members in particular tasks, methodology, schedules etc during project development. **Risk – Medium**.

The following are a list of proposed solutions to the listed problems above:

1. If the problem is lack of hardware, there are university computers which can be used. If the problem is lack of software, they can be easily downloaded.
2. If the project development falls behind schedule, it must be submitted on the due date whether it is complete or not.
3. If all of the team members do not have the required knowledge to develop the project, they should allocate some time to learn the required knowledge so they can start the development. Alternatively, the team should choose a different project which is more favourable.
4. If it is a language barrier, then google translate might be an option. If there is a difference in values or objectives, then the team should come to a consensus and work based on that.
5. If team member(s) is in a different time-zone, then messaging would be a viable option instead of zoom meetings.
6. If a team member is having a lack of team spirit and/or motivation, then the team leader or the group should communicate with the member to alleviate the issue. If the problem persists, the team should contact the tutors for advice.
7. If a team member withdraws, seek advice from the tutor.
8. If a team member is not familiar with the programming software/language, then reallocate the task to another member who is familiar with it and replace the task that the member is familiar with. If no team member can reallocate the task, then the member should allocate some time to learn the required knowledge to complete the task.
9. If a team member is unable to complete a task on time, then communicate with the member to explore alternatives such as reallocating the workload. If the problem persists, seek advice from a tutor.
10. If there is a disagreement between team members, the team should come to a consensus. If no consensus can be achieved, the team leader should provide a resolution.

Collaboration Plan/Collaboration Tools

Our team plans to meet at least weekly, as well as utilise ‘spot’ meetings where we deem them necessary. The collaboration tools that our team will use include: Google Docs, Microsoft Teams, Zoom, Github and Discord.