**Title**

Personalized Performance Dashboard

**Purpose**

The Personalized Performance Dashboard is a web application that registers and analyzes course exam grades. This application displays the exam results of registered students in a visual way to help students evaluate their performance in the classroom. This application groups students by grades to help them communicate learning methods and course content to achieve academic success. This application also aims to help professors adjust the pace and difficulty of the course by analyzing exam data.

**Benefits**

1. **Self-evaluation for adjustment**: This app helps students understand their position in the course and their knowledge level. It enables students to make more rapid adjustments to face subsequent academic challenges..
2. **Summarize Experience**: This app helps students evaluate their performance fluctuations over time. This helps them better summarize their past behavior over time and better summarize their learning experiences to achieve academic success.
3. **Sharing Academic Success**: This application helps students get to know their classmates. By grouping students together, different students can share their learning experiences and knowledge of the course content with each other. This helps them achieve mutual success and strengthens their teamwork and communication skills.

**Features and Functionality**

The main purpose of this app is to analyze and visualize test scores and encourage student collaboration. This enables a variety of features available to the users that serve this purpose:

1. **Personalized Performance Dashboard**
   1. Users can input a unique identifier (e.g., student number) to locate their performance data on a scatter plot or bar chart.
      1. Scatter plot showing student's performance.
      2. Color-code groups based on performance strata (e.g., low, medium, high scorers).
      3. Highlight the individual student's dot upon input of their ID or personal key.
      4. Provide class average, median, and top/bottom performance indicators.
2. **Dynamic Group Stratification**
   1. After locating their performance on the graph, students are automatically stratified into performance groups for discussion. Each group can discuss their strategies, time management, and study methods.
      1. Automatically assign students into performance groups (e.g., by quartiles, deciles).
      2. Create group-based scatter plots where students can only see the performance of others in their group.
      3. Offer discussion prompts or guided questions for each group.
3. **Interactive Histogram of Scores**
   1. Visualize the distribution of scores for the entire class using a histogram. Students can hover over different bins to see how many students fell into each score range.
      1. Histogram of scores, with color-coded bins indicating different performance levels.
      2. Allow students to find their own score on the histogram (highlight their bar).
      3. Optional tooltips showing the exact number of students in each score range.
      4. Filter options for students to view only their performance group (e.g., top 25%, bottom 25%).
4. **Student Self-Comparison**
   1. After students find their dot on the common chart, the app can allow them to input their own goals or expected performance. It will compare their actual performance against these expectations.
      1. Comparison chart showing the student's actual performance vs. their expected/targeted performance.
      2. Allow students to reflect on gaps and provide feedback or tips for future exams.
      3. A personalized report generated based on how they performed compared to the class and their own goals.

**Target Users**

This application targets a wide range of individuals who participate in the education, including students and teachers.

1. Our primary users are students who have a need for self-assessment and want to improve their grades or achieve academic success.
2. Our potential users are educators. They provide data entry for this app and use it to improve student performance. Although this app does not directly affect educators.

**Technologies**

We are planning to use web development technologies which include but are not limited to the following:

* **Backend** - Java, Python
* **Frontend** - React Framework, HTML, CSS, JavaScript
* **Frontend Design** - Figma
* **Quality Assurance and Testing** - JUnit

**Team Members, Roles, and Responsibilities:**

The project’s tasks will be equally divided between all the team members to ensure quality and on-time completion of the app. The following table describes the roles assigned to the team members:

| **Members** | **Roles** |
| --- | --- |
| Faith Hickey | Project Leader, Business Analyst |
| Zhiyong Lu (Percy) | Project Manager, Full-Stack Developer |
| Xiaoyue Zhang (John) | Full-Stack Developer, QA |
| Varrsha Ramanna Kumar | Developer, UI/UX |
| Nikita Sawant |  |
| Zarina Sharip |  |

### Tools Overview

* **Microsoft Meeting:** This will be our primary communication platform to arrange meetings.
* **Pivotal Tracker:** For task tracking and assignment and managing weekly sprint objectives.
* **Google Docs:** It will be used for collaborative note-taking and drafts related to project development meetings and documentation.
* **GitHub:** This will be our primary tool for code version control, to track issues and manage code reviews.

### Version Control Strategy

* **Branching Strategy:** There would be production-ready code in the main branch and all the individual contributors would be required to use development branches for working on various aspects of the project.
* **Code review:** All the development branches and feature additions would go through pull requests and code reviews before being pushed to the main branch.
* **Update Log:** There would be a changelog file documenting all the minor and major changes between versions to notify the contributors.