**Problem Statement**

**Introduction**

Mercer University's Computer Science Department (CS Dept) hosts a semi-annual programming competition (Alice Programming Competition - APC) targeted towards high school and middle school students. The Alice Programming Competition is designed to introduce students to programming using a syntax-light, educational programming language, Alice. The CS Dept currently has participants primarily from the Bibb County area. The CS Dept has plans to expand the Alice Programming Competition by gaining more participation from different parts of the Nation, and allowing Sponsors to create and host their own contests.

**Problem**

The CS Dept wants to replace their current web application that they are using to host the competition. The current database is bulky and not scalable. The tables are set up in a way that is difficult to alter as the Alice Programming Competition expands and gains more participants. Examples of more specific problems are as follows:

* Returning Sponsor, whose students participate in the competition, must be re-approved each year.
* Grading problem submissions is inefficient due to the layout of the grading rubric.
* Teachers are assigning only one student per team login.

**Objectives**

The objective is to create a web application that will be solve the problems voiced by Mercer's CS Dept and is versatile enough to support hosted contests as the Alice Programming Competition grows. The web application should allow for Sponsors (ex. approved teachers) to host their own programming competition. The web application should be able to increase consistency and efficiency in grading submissions.

**Target Environment**

The expected users are teacher, students and judges. The expected age range of users is 10 - 70 years old. The expected computer literacy of users to range from basic knowledge and use to being able to program problems. It is expected that users have internet access.

**Features**

The web application should feature the following:

* An archive of past and current contests, including the problems and scoreboard. This should be open to the public.
* Ability to create individual accounts for each user.
* Ability to assign different users different permission sets.
* A portal for logging in

**Terminology**

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| Term | Definitions |
| Alice Programming Competition (APC) | The semi-annual programming event that Mercer hosts. |
| Alice480 | The Alice480 Web Application for Mercer University's Alice Programming Competition. |
| Alice (programming language) | Alice is a object-oriented programming language and programming environment. Alice was created as an educational tool to introduce young students to programming. Alice features drag-and-drop tiles that students use to manipulate a 3D world. |
| User | A generic user, everyone. A basic user has the lowest set of permissions, they are only allowed to enter and compete in a contest. |
| Sponsor | A person who heads a team of users. They can be a teacher, dean, parent of a homeschooled student, etc. They are a pre-approved person that is affiliated with an institution or organization. |
| Contest Organizer | Someone who has the permission to create a contest. They have the ability to set the number of members per team. They also have control over who is able to join the contest, which is enforced by limiting who will receive sponsor codes.  For example, a contest open to the public might post the sponsor code in the contest description. If a teacher chooses to organize a contest that is open only for their school. They might choose to parcel out the sponsor code in a different and more restrictive manner. |
| Sponsor Code | A number that is associated with a particular contest. The code is used to sign up for a contest. A member will enter the code when creating an account, |
| Active Contest | All contest currently open and in progress. |
| Entered Contest | A contest that a user has signed up for. |
| Created Contest | A contest created by a user. The user is a Contest Organizer. |
| Completed Contest | A contest that has ended. |