**Leaderboard Web Application Overall Model**

The overall model has been developed to reflect the following requirements gathered from our client and through our assessment.

**The leaderboard domain is expected to fulfill the following requirements:**

* The system must have default view only privileges for audience members.
* The system must run in real-time.
* The system must organize teams alphabetically by name.
* The system must be able to search for a specified team and display the correct scores for that team.
* The system must be able to access all teams and their scores simultaneously.
* The system must display all team scores on a leaderboard.
* The system must show the scores in a graphical format (bars).
* The system must display the following upon returning a team:
  + The team names.
  + The team’s numerical position on the leaderboard (i.e. 1st, 2nd etc.).
  + The team’s scores.

**Who**:

A spectator is any person viewing the MATHEX event at the venue. They are the key users of this web application. Most of these spectators are participants that are waiting for their event, teachers from the participating schools, and family members of the participants.

**What:**

Spectators simply view the MATHEX event. They have no direct impact on the competition itself.

**How:**

Spectators are seated in the viewing stands surrounding the main gym area of the ASB stadium. Many of these spectators are unable to see the scores for each team depending on where they are seated. Therefore, a web application would be particularly useful and beneficial for them.

**Diagrams:**

**Activity diagram** – shows all possible actions for Spectators.

**State diagram** – shows all states the web application will hold because of each action performed by the spectator.

**Class diagram** – shows a structure for the JavaScript files in the database. Acts as a rough guideline to follow in development.

**Initial prototype design** – retrieved from the initial paper prototype example to illustrate the suggested design for the marker’s interface. This diagram is for support only.

**Spectator’s interaction with the web application:**

Upon reaching the landing page of the system, spectators will proceed to access the web application as “spectators”. This is because spectators do not need special privileges in this system as they only view data. Note that this part of the interaction is part of the Login domain.

After accessing as a spectator, the leaderboard page will open. This page contains the information of the competition that is happening. It will have a table or a graph showing the top few teams and their scores, special information on the top team, and special information on a team of the spectators selection.

Special information would include their score, their position in the competition, the amount of questions answered correctly, and the amount of questions passed. To select a team, the spectator must navigate to the search team page. On this page, they may search for a team using the search bar, or select the team from a drop-down list.

The leaderboard page will update the data regularly by itself, so the spectator doesn’t have to manually refresh the page themselves.

The search and leaderboard pages will have a navbar at the top, providing options to navigate to the search page, leaderboard page, and to log in.

**Chart.js**

Chart.js is a free open source JavaScript tool used to visualize data in charts and graphs. We are thinking of using this in the leaderboard to show team scores and data.