Otakus COS 221 Practical 5

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Contributions

THABO LETSOALO

As a member of the team and as the group leader it was my responsibility to manage the whole project and my team. I took a major role in developing the user management system for our web and the player management system, both backend and frontend. I intergraded most of my team's workings into one, I wrote some documentations and took a role in creating the conceptual models for our project.

KGAHLISO TSHEHLA

As a member of Otakus my contributions to this assignment were creating and plotting the e(e)r diagram and mapping it for the most part. I also took participation in creating the web(mostly the front-end part).

SHUAIB NURUDDIN

My contributions on the assignment were creating an upload media for our website and generating statistics(sample data along with its documentation) for various teams(mostly worked on the backend). I took a role in creating conceptual models for our project and created a database for storing various media uploads.

LUQMAAN ABRAM

The role I took in the assignment was creating and developing management systems for storing vital data and scores between teams. I took a role in the development of our conceptual models and in the research made about our sport of choice. I worked mostly on the frontend of our web.

TASK 1 - RESEARCH

Sport of choice: Cricket

Cricket is one of the most interesting and popular sport around the world. Cricket is a team sport played on a pitch by two teams of 11 players each, with one reserve player for each team in case of an injury. The reserve player is called the twelfth man and if it happens that an injury occurs, the twelfth man is not allowed to bowl but take the fielder position only. The aim of the sport is for the team batting to score runs and the team bowling to take out or dismiss the batsmen of the opposing team. There are 10 possible batsmen not 11 since batsmen work in pairs. The gaming is officiated by tree umpires, with two on the ground and one off the ground responsible for videos decisions.

Various actions take place during the game of cricket, and each action is crucial as is any action in sport. These actions at the end of the match are what determines the outcome of the match between two teams. Winners are determined because of these actions. These various actions are listed below.

Actions that can occur in cricket:

- When the ball is bowled, several events can take place:
- If the ball hits the wickets when the ball is bowled the batsman is out.
- If the fielders catch the ball after the batsman hits the ball before it bounces the batsman is out.
- If the ball hits the batman's leg, while his/her leg is in front of the wicket, the batsman is out (LBW).
- If the fielders hit the wicket with the ball before the batsman reaches the end of the pitch, the batsman is out.

- If the batsman steps out of the crease and the wicket keeper hits the wickets with the ball, he is out stumped.
- If the batsman touches or hits the wicket with his bat, he is out.
- If the bowler bowls wide, the batting team gets 1 run.
- The batsmen get 4 runs if he/she hits the ball to the boundary and the ball bounces before it reaches the boundary.
- The batsman gets 6 runs if he/she hits the ball, and the ball goes over the boundary before it bounces.
- Otherwise, if the batsman hits the ball and runs across the pitch and does not get out, he gets 1 run for each time he runs across the pitch.
- **Winning:** This happens at the end of the game. The side with more runs wins.
- **Alternating roles between batting and fielding/batting:** This happens when 10 batsmen from the batting team get out.

"There are three formats of cricket played at the international level – Test matches, One-Day Internationals and Twenty20 Internationals. These matches are played under the rules and regulations approved by the International Cricket Council, which also provides match officials for them" (Cricket, n.d). Test cricket is the longest of the three formats as it can last up to a maximum of five days. It has a span of two innings and can only end if both innings are complete and one team has higher points than the other or one team forfeits the match. The second format is the twenty20, which is the shortest form of the three formats and usually can last up to 3 hour and has 20 overs for each team. One day international(ODI) tournament is a one-inning match of 50 overs per side(mostly one day match) and therefore between the two other formats in duration. Most popular tournament such as the ICC's pinnacle event and ICC world cup are contested every four years in this format.

Cricket has a lot of tournaments(regional, international, and lower-level tournaments), and they are held in different formats, but the most popular ones are the ICC Trophy and cricket world cup. These two tournaments are attended by major cricketing nations across the world. They are played every four years. ICC Trophy is held for around two and a half weeks with each match taking the format of a one-day international(ODI) tournament played by various teams(13 teams varies) that joined the tournament in separate groups. The winning teams qualify for the semi-finals, the last stage before the finals. Cricket World cup is a major tournament in the cricketing world the most entertaining one.

Teams must go through a qualification phase which takes place over the preceding three years before the tournament to qualify. Teams are divided into two groups up until the final stages of the tournament. The number of teams taking place in the sport varies depending on which structure was chosen for that specific year. The last remaining two teams take their last stand in the finals and the victor wins the tournament. Regional and low-level tournaments have their own structures and stages depending on the tournament type. Most structures resemble the structure of the world cup, but the qualification phase doesn't take three years rather less and take a short period of time.

References:

Cricket, T. T. (n.d, n.d n.d). *the-three-formats*. Retrieved from https://www.icc-cricket.com:
https://www.icc-cricket.com/about/cricket/game-formats/the-three-formats

TASK 6

For task 6 we used a sample PHP script to generate artificial data. There was a total of 6 tournaments with 6 teams each. Our data was stored in a nested array. We used PHP's shuffle function when generating the data for task 6. We decided to use a sample PHP script to generate artificial data because it gives us more flexibility. With a sample PHP script we could choose which statistics to generate, however, if we used an API we might not have gotten all the statistics that we wanted.

TASK 7

Queries execute at a quick rate if they are not nested, and they are applied to atomic attributes. Complex attributes result in slow execution as they are not plain and might have other attribute in them or might be with other attributes.

To optimise our query execution, atomic attributes were used. Complex attributes must be broken down into atomic ones were ever possible. There are different ways of querying for the same results and the structure or implementation of your query will determine how fast the query will be.