

CS2102-2310 – Assessment DB

Introduction

The Assessment DB will be used for both Assignment 1 as well as the midterm test. This means that you will already be very familiar with the database before the test. Also, during the test you will be able to access the database on your laptop to run and test your queries. You can then copy and paste your queries over into the Exemplify exam. While not mandatory, we strongly recommend this approach to ensure that your queries will be syntactically correct for the marking – we reserve ourselves the right to mark only queries that produce a result and throw no error(s).

The Database: "Tour de France 2023"

This semester's Assessment DB is about the Tour de France 2023. If you are not familiar with the most famous cycling race, this section provides you with an overview to better understand the tables and columns in the database. All the data in the database was collected directly from the [official website](#) of the Tour de France. If you have any questions about the database (e.g., the meaning of individual columns), you can post your questions to the Canvas Discussion for Assignment 1. You can find the relational schema in the file `02-tdfdb-schema.sql` we have shared with you, together with the data and additional scripts.

Overview – What is the Tour de France?

The Tour de France is an annual professional road cycling race that takes place primarily in France, although it occasionally passes through neighboring countries. It is one of the most prestigious and challenging events in the cycling world. The race typically spans three weeks in July and covers a distance of over 2,000 miles (3,500 kilometers).

The Tour de France is divided into a series of stages, with each stage being a separate race in itself. These stages can be individual time trials against the clock, or mass-start stages where all the riders begin together. The overall winner of the Tour de France is the rider who completes all the stages in the shortest total time.

There are various classifications within the Tour de France, including the General Classification (GC), which determines the overall winner, and additional categories like the Points Classification (for sprinters), the King of the Mountains Classification (for climbers), and the Young Rider Classification (for riders under a certain age).

Teams & Riders

The Tour de France features a selection of professional cycling teams that participate in the race. These teams are typically composed of a group of riders who work together throughout the race to support each other's efforts. The Tour de France includes a mix of WorldTour teams (the highest level of professional cycling) and wildcard invitations. The teams come from various countries around the world, although a significant number are based in Europe. Some of the most prominent cycling nations, including France, Italy, Belgium, Spain, and the Netherlands, often have multiple teams in the Tour de France.

A Tour de France cycling team typically consists of 8 riders. The riders in a team may come from various countries different from the country of the team. Each team is allowed to field a squad of 8 riders who compete in all the stages of the race. These riders work together throughout the race to support each other, with different members having specialized roles such as sprinters, climbers, and domestiques (supporting riders). It's worth noting that each team may have a designated leader who is the primary contender for the General Classification (GC) and wears the Yellow Jersey if they lead in the GC. The other members of the team will work to support the leader's efforts.

Classifications

General Classification

The General Classification (GC) in the Tour de France is the most prestigious classification and determines the overall winner of the race. It is based on the total accumulated time taken by each rider to complete all the stages of the race. The total time for each rider is calculated by adding together the times it takes them to complete each individual stage. This includes the time bonuses or penalties that may be incurred during the race. Time bonuses are awarded at the end of each stage for the first few riders to cross the finish line. These bonuses can help a rider gain an advantage in the GC. Riders are grouped together based on their teams. The team with the lowest aggregate time (sum of the three best riders' times) is awarded the "Best Team" classification. The rider leading the GC after the final stage is declared the winner of the Tour de France.

Mountain Classification

The Mountain Classification, also known as the King of the Mountains (KOM), is a competition within the Tour de France that rewards the best climber in the race. It is based on points awarded for reaching the summits of designated mountain climbs. Here's how the Mountain Classification works:

- **Categorization of Climbs:** Mountains are categorized based on their difficulty. The categories range from Category 4 (easiest) to Category 1 (more difficult), and finally, the "Hors Catégorie" (Beyond Category) for the most challenging climbs.
 - **Points System:** Points are awarded to the first riders to reach the summit of each categorized climb. The higher the category, the more points are awarded. For example, an Hors Catégorie climb offers more points than a Category 1 climb.
 - **Double Points:** On particularly challenging mountain stages, the final climb may be designated as an "Hors Catégorie" climb, and in such cases, it offers double points.
1. **Designation of the Polka Dot Jersey:** The rider with the highest point total in the Mountain Classification wears the "Polka Dot Jersey" (Maillot à pois rouges in French) during the race. This jersey is easily recognizable due to its white fabric with red polka dots.
 2. **Combativity Award:** In addition to the jersey, there is also an award for the most aggressive and combative rider on mountain stages.

The Mountain Classification often plays a crucial role in the Tour de France, as it can greatly influence the tactics of the race. Climbers, who excel at ascending steep gradients, target these stages to gain an advantage. Riders who specialize in climbing often aim to accumulate points in the Mountain Classification, even if they may not be competing for the General Classification.

Sprint Classification

The Sprint Classification, also known as the Points Classification, is a competition within the Tour de France that rewards consistent performance in sprinting stages and intermediate sprints. It emphasizes speed and tactical acumen over the course of the race. Here's how the Sprint Classification works:

- **Points System:** Points are awarded at the finish line of each stage, as well as at intermediate sprints along the route. The number of points available varies depending on the stage's difficulty. Flat stages offer more points, while mountain stages offer fewer.
- **Intermediate Sprints:** In addition to the stage finish, intermediate sprints occur at specified points along the route. These are opportunities for sprinters to gain extra points.
- **Designation of the Green Jersey:** The rider with the highest point total in the Sprint Classification wears the "Green Jersey" (Maillot Vert in French) during the race. This jersey is distinct for its green color.
- **Double Points:** On the final stage of the Tour de France (traditionally held on the Champs-Élysées in Paris), there is a special emphasis on sprinting. As a result, the points available for this stage are often doubled.
- **Combativity Award:** Like in the Mountain Classification, there is also an award for the most aggressive and combative rider on sprint stages.

The Sprint Classification is particularly important for riders who excel in flat, fast stages and have powerful finishing sprints. Sprinters target these stages and intermediate sprints to accumulate points.