

The University of Texas Permian Basin.
COSC-6315.701 , Distributed Database Systems.

INTRODUCTION:

The Java program connects to a MongoDB database to perform various queries on World Cup 2014 data. It retrieves information such as countries that have won World Cups, details about stadiums, players, matches, and more. Leveraging the MongoDB Java driver, the program showcases the integration of Java applications with MongoDB. The documentation provides a detailed overview of the program's design, implementation, and functionality.

PROGRAM OVERVIEW:

MongoDB Connection:

- The program establishes a connection to the MongoDB server running on "localhost" and port "27017".
- It connects to the specific database named "WorldCup2014" and initializes collections for various entities like countries, match results, players, etc.

Queries and Output

- The program executes a series of MongoDB queries to retrieve specific information from the database.
- Each query is designed to answer a particular question related to World Cup data, such as winning countries, stadiums with specific criteria, player information, etc.

Query Methods:

- The program defines several private methods, each corresponding to a specific type of query.
- Query methods use MongoDB's Java driver to interact with the database, retrieve documents, and process the results.

Data Processing:

- The program processes the retrieved data to format it in a readable manner.
- For example, the program formats and prints lists of countries, trophies, cities, stadiums, players, and match details.

File Output:

- The program saves the output of each query to a text file named "output.txt."
- A file-writing method is implemented to append results to the file with appropriate statements.

OUTPUT :

1. The list of country names that have won a World Cup:

'Argentina'

'Brazil'

'England'

'France'

'Germany'

'Italy'

'Spain'

'Uruguay'

2. The list of country names and the number of World Cups won (descending order):

'Brazil' - Trophies: 5

'Germany' - Trophies: 4

'Italy' - Trophies: 4

'Argentina' - Trophies: 2

'Uruguay' - Trophies: 2

'England' - Trophies: 1

'France' - Trophies: 1

'Spain' - Trophies: 1

3. Capitals of countries with a population greater than 100 million (in increasing order):

'Mexico' - Capital: 'Mexico City'

'Japan' - Capital: 'Tokyo'

'Russia' - Capital: 'Moscow'

'Nigeria' - Capital: 'Abuja'

'Brazil' - Capital: 'Brasilia'

'USA' - Capital: 'Washington D.C.'

4. Stadiums that hosted matches with more than 4 goals by a single team:

'Arena Fonte Nova'

'Arena Fonte Nova'

'Estadio Mineirao'

5. Cities with stadiums starting with 'Estadio':

'Natal'

'Belo Horizonte'

'Fortaleza'

'Brasilia'

'Porto Alegre'

'Rio De Janerio'

6. Stadiums and the number of matches hosted by each stadium:

'Arena Amazonia' - Matches Hosted: 4

'Arena Da Baixada' - Matches Hosted: 4

'Estadio Mineirao' - Matches Hosted: 6

'Estadio das Dunas' - Matches Hosted: 4

'Estadio do Maracana' - Matches Hosted: 7

'Arena Pernambuco' - Matches Hosted: 5

'Arena Pantanal' - Matches Hosted: 4

'Estadio Castela' - Matches Hosted: 6

'Arena Fonte Nova' - Matches Hosted: 6

'Estadio Beira-Rio' - Matches Hosted: 5

'Arena de Sao Paulo' - Matches Hosted: 6

'Estadio Nacional' - Matches Hosted: 7

7. Players with heights greater than 198 cms:

'FRASER' 'FORSTER' - Date of Birth: '1988-03-17'

'LEE' 'BUMYOUNG' - Date of Birth: '1989-04-02'

8. Matches played between 20-Jun-2014 and 24-Jun-2014:

Stadium: 'Arena Pernambuco', Team1: 'Italy', Team2: 'Costa Rica', Date: '2014-06-20'

Stadium: 'Arena Fonte Nova', Team1: 'Switzerland', Team2: 'France', Date: '2014-06-20'

Stadium: 'Arena Da Baixada', Team1: 'Honduras', Team2: 'Ecuador', Date: '2014-06-20'

Stadium: 'Estadio Mineirao', Team1: 'Argentina', Team2: 'Iran', Date: '2014-06-21'

Stadium: 'Arena Pantanal', Team1: 'Nigeria', Team2: 'Bosnia & Herzegovina', Date: '2014-06-21'

Stadium: 'Estadio Castelao', Team1: 'Germany', Team2: 'Ghana', Date: '2014-06-21'

Stadium: 'Arena Amazonia', Team1: 'USA', Team2: 'Portugal', Date: '2014-06-22'

Stadium: 'Estadio do Maracana', Team1: 'Belgium', Team2: 'Russia', Date: '2014-06-22'

Stadium: 'Estadio Beira-Rio', Team1: 'South Korea', Team2: 'Algeria', Date: '2014-06-22'

Stadium: 'Estadio Nacional', Team1: 'Cameroon', Team2: 'Brazil', Date: '2014-06-23'

Stadium: 'Arena Pernambuco', Team1: 'Croatia', Team2: 'Mexico', Date: '2014-06-23'

Stadium: 'Arena Da Baixada', Team1: 'Australia', Team2: 'Spain', Date: '2014-06-23'

Stadium: 'Arena de Sao Paulo', Team1: 'Netherlands', Team2: 'Chile', Date: '2014-06-23'

Stadium: 'Arena Pantanal', Team1: 'Japan', Team2: 'Columbia', Date: '2014-06-24'

Stadium: 'Estadio Castelao', Team1: 'Greece', Team2: 'Ivory Coast', Date: '2014-06-24'

Stadium: 'Estadio das Dunas', Team1: 'Italy', Team2: 'Uruguay', Date: '2014-06-24'

Stadium: 'Estadio Mineirao', Team1: 'Costa Rica', Team2: 'England', Date: '2014-06-24'

9. Captain Info with more than 2 Yellow cards or 1 Red card and their goals:

Fname: 'THIAGO', Lname: 'SILVA', Position: 'Defender', Goals: 1

