**CPSC 2221**

**Due Date: 19 Nov 2022, 11.59 PM**

**Marks – 50**

**Note for submission: Please submit a pdf containing the solution. No other type of submission is allowed. Paste your queries in text format with solution in legible screenshot must be pasted. Only one submission per student is allowed.**

1. Answer the questions with respect to the table below.

**users**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **id** | **name** | **age** | **gender** | **occ\_id** | **city\_id** |
| 1 | John | 25 | M | 1 | 3 |
| 2 | Sara | 20 | F | 3 | 4 |
| 3 | Victor | 31 | M | 2 | 5 |
| 4 | Jane | 27 | F | 1 | 3 |

**occupation**

|  |  |
| --- | --- |
| **id** | **name** |
| 1 | Software Engineer |
| 2 | Accountant |
| 3 | Pharmacist |
| 4 | Library Assistant |

**City**

|  |  |
| --- | --- |
| **id** | **name** |
| 1 | Halifax |
| 2 | Calgary |
| 3 | Boston |
| 4 | New York |
| 5 | Toronto |

1. Create the three tables with their SQL queries and paste the code in text format below. Make sure while creating the tables: [5+2.5+2.5]
   * Must have primary keys in all the tables.
   * The attributes which can potentially be foreign keys must have NOT NULL Constraint.
   * Gender attribute in users table should CHECK for ‘M’ or ‘F’.

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| Users Table Query :  CREATE TABLE Users (  ID INT NOT NULL,  Name Varchar(25),  Age INT,  Gender CHAR(1),  Occ\_ID INT NOT NULL,  City\_ID INT NOT NULL,  CHECK (Gender = 'M' OR Gender = 'F'),  PRIMARY KEY(ID),  FOREIGN KEY(Occ\_Id) REFERENCES Occupation(ID),  FOREIGN KEY(City\_ID) REFERENCES City(ID)  ); |
| Occupation Table Query :  CREATE TABLE City (  ID INT NOT NULL,  Name VARCHAR(255),  PRIMARY KEY(ID)  ); |
| City Table Query :  CREATE TABLE Occupation (  ID INT NOT NULL,  Name VARCHAR(255),  PRIMARY KEY(ID)  ); |

1. [10+5+5]

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| Write 2 different types of sql queries to find the users in city ‘Boston’. Write 2 types of queries, one using joins to find the answer and another using subqueries to find the same answer.   1. Join query   SELECT u.name, u.city\_id  FROM Users u INNER JOIN City c  ON c.id = u.city\_id  WHERE c.name = 'Boston'     1. Subqueries   SELECT Name, City\_ID  FROM Users  WHERE City\_ID = (SELECT Id FROM City WHERE Name = 'Boston') |
| Write sql query to find how many users are there per occupation.  SELECT o.Name, COUNT(u.occ\_id)  FROM occupation o LEFT JOIN Users u  ON o.id = u.occ\_id  GROUP BY o.Name; |
| Perform full outer join between users and city.  SELECT \*  FROM Users FULL OUTER JOIN City  ON Users.city\_id = City.Id; |

1. [2.5+2.5+5]

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| Write query to make a copy of ‘users’ table known as ‘users\_new’ without Data.  CREATE TABLE users\_new (LIKE users) |
| Write query to insert all columns of ‘users’ to the ‘users\_new’.  INSERT INTO users\_new SELECT \* FROM users; |
| Write CASE query to add one more column with salary values to the ‘users’ table. Salary for Software engineer is 80,000, Accountant is 70,000 and Pharmacist is 90,000.  SELECT \*,  CASE  WHEN occ\_id = 1 THEN 80000  WHEN occ\_id = 2 THEN 70000  WHEN occ\_id = 3 THEN 90000  ELSE 0  END  FROM users |

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|  |

1. [5+5]

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| Write query to add foreign keys constraints to ‘users’ table. Assuming you forgot to add it earlier  ALTER TABLE Users  ADD FOREIGN KEY (Occ\_Id)  REFERENCES Occupation(id),  ADD FOREIGN KEY (City\_Id)  REFERENCES City(id); |
| Add country column to ‘city’ table. DEFAULT constraint must be used to add Canada as a default country for cities. [Use DEFAULT Constraint to default your country to Canada, that way you only have to write the countries for cities not in Canada, **Hint : remember ‘boston’ and ‘new York’ are cities in US, rest all are in Canada**, Use ALTER TABLE to add column and default constraint].  ALTER TABLE  City ADD Country VARCHAR(255)  DEFAULT 'Canada';  UPDATE City SET Country =  CASE WHEN Name = 'New York' THEN 'US'  WHEN Name = 'Boston' THEN 'US'  ELSE 'Canada' END; |