

CSE 414 Section 2 : Problems

1: SQL Practice

Schema

```
CREATE TABLE Population (  
  rank INTEGER,  
  country VARCHAR(30) PRIMARY KEY,  
  population INTEGER,  
  percentage FLOAT  
);
```

```
CREATE TABLE GDP (  
  rank INTEGER,  
  country VARCHAR(30) PRIMARY KEY,  
  gdp INTEGER  
);
```

```
CREATE TABLE Airport (  
  code VARCHAR(30) PRIMARY KEY,  
  name VARCHAR(30),  
  country VARCHAR(30)  
);
```

Problems

What is the total population of earth?

What is the percentage of the population from the top 10 populated countries?

How many countries have less than 1,000,000 population?

How many countries have airports?

Top 10 countries with most airports, in descending order

Top 10 countries by total GDP per capita (gdp / population), in descending order

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2: Join & Aggregation

Schema

```
CREATE TABLE Class (  
    dept VARCHAR(6),  
    number INTEGER,  
    title VARCHAR(75),  
    PRIMARY KEY (dept, number)  
);  
  
CREATE TABLE Instructor (  
    username VARCHAR(8),  
    fname VARCHAR(50),  
    lname VARCHAR(50),  
    started_on CHAR(10),  
    PRIMARY KEY (username)  
);  
  
CREATE TABLE Teaches (  
    username VARCHAR(8),  
    dept VARCHAR(6),  
    number INTEGER,  
    PRIMARY KEY (username, dept, number),  
    FOREIGN KEY (username) REFERENCES Instructor(username),  
    FOREIGN KEY (dept, number) REFERENCES Class(dept, number)  
);
```

Problems

Review of joins

Who teaches CSE 451? (fname and lname)

What courses does zahorjan teach? (dept and number)

Which courses do both levy and zahorjan teach? (dept, number, and title)

Queries using aggregation functions

How many classes are there in the course catalog?

What are the highest and lowest class numbers?

Queries with both grouping and aggregation

How many instructors teach each class?

Order the instructors by who teaches in the most departments