**Section 2**

## 1: SQL Practice

**Schema**

# CREATE TABLE Population ( rank INTEGER,

country VARCHAR(30) PRIMARY KEY, population DOUBLE, percentage FLOAT

);

CREATE TABLE GDP (

rank INTEGER,

country VARCHAR(30) PRIMARY KEY, gdp DOUBLE

);

## CREATE TABLE Airport (

code VARCHAR(30) PRIMARY KEY, name VARCHAR(30),

country VARCHAR(30)

);

### Problems

-- What is the total population of earth? Total\_Population

6778067375

-- What is the percentage of the population from the top 10 populated countries? Top\_Sum

58.9241749607129

-- How many countries do have less than 1,000,000 population? Small\_Countries

68

-- How many countries have airports? Airport\_Count

247

-- Top 10 countries with most airports, in descending order country Count

------------- ----------

United States 2238

Australia 617

Canada 533

Papua New Gui 380 Brazil 288

Indonesia 205

China 187

Colombia 167

United Kingdo 151

France 144

-- Order the top 10 countries by total GDP per capita (gdp / population) country GDP\_per\_capita

---------- -----------------

Seychelles 0.282666666666667

Saint Kitt 0.256076923076923

Antigua an 0.196681818181818

Luxembourg 0.158883485309017

|  |  |
| --- | --- |
| Dominica | 0.152507462686567 |
| Brunei | 0.119825 |
| Iceland | 0.118570005575638 |
| Grenada | 0.102855769230769 |
| Saint Vinc | 0.092908256880733 |
| Barbados | 0.087 |

## 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 lname

---------- ----------

Tom Anderson

John Zahorjan

Hank Levy

-- What courses does zahorjan teach? dept number

---------- ---------- CSE 378

CSE 451

CSE 461

-- Which courses do both levy and zahorjan teach? dept number title

---------- ---------- ---------------------------------

CSE 451 Introduction to Operating Systems

/\* Queries using aggregation functions \*/

-- How many classes are there in the course catalog? COUNT(\*)

---------- 3

-- What are the highest and lowest class numbers? MIN(number) MAX(number)

----------- ----------- 378 461

/\* Queries with both grouping and aggregation \*/

-- How many instructors teach each class? dept number teacher\_count

---------- ---------- ------------- CSE 378 1

CSE 451 3

CSE 461 3

-- Order the instructors by who teaches in the most departments username Department\_Count

---------- ----------------

djw 1

levy 1

tom 1

zahorjan 1