

# Graded Exercise 0

CSC230 Database Technologies for Analytics

22 October 2021

Please be sure to put your name at the top of your responses to these questions.

When you are done with this exercise, please print what you have written. Please give me the paper copy before you leave.

There are four pages here. Please see all four pages.

1. [Look here](#) to learn some of the history of the technology that we are studying. Also, follow the link on the page to the Short Annotated Bibliography.

Drawing from what you learn by this reading, write two sentences that will give us an historical perspective on the development of database technology.

2. [Look here](#) to find arguments for choosing to use a database management system.

You will likely find much more than you can read or understand in the time available to you. Read selectively!

Write two sentences that tell us something about advantages of using this a database management system.

3. Let  $\mathbf{A}$  be the set of all people in the present and past who have been citizens of the United States.

Let  $\mathbf{P}$  be the set of all political parties in the United States.

Then  $\mathbf{S} = \mathbf{A} \times \mathbf{P}$  is the set of all possible pairings of citizens and parties.

$\mathbf{S}$  includes...

*(Franklin Roosevelt, Democrat)*

but it also includes...

*(Franklin Roosevelt, Republican)*

It includes all of these...

(Ronald Reagan, Democrat)  
 (Ronald Reagan, Republican)  
 (Ronald Reagan, Green)  
 (Ronald Reagan, Libertarian)

... and many more...

Now let us define a subset **R** of the set **S**.

Here is a complete listing of the elements of **R**.

president	party
Harry Truman	Democrat
Dwight Eisenhower	Republican
John Kennedy	Democrat
Lyndon Johnson	Democrat
Richard Nixon	Republican
Gerald Ford	Republican
Jimmy Carter	Democrat
Ronald Reagan	Republican
George Bush	Republican
Bill Clinton	Democrat
George Bush	Republican
Barack Obama	Democrat
Donald Trump	Republican
Joe Biden	Democrat

- (a) What word might a mathematician use to name the kind of thing that **R** is?
  - (b) What word might a computer scientist use to name the kind of thing that **R** is?
  - (c) Give an example of a *record* in **R**.
  - (d) Give an example of an *attribute* in **R**.
4. Let us suppose that we have a relational database that contains just one table. The name of the table is postwar\_presidents. Here is the table.

president	party	start	end
Truman	Democrat	1945	1953
Eisenhower	Republican	1953	1961
Kennedy	Democrat	1961	1963
Johnson	Democrat	1963	1969
Nixon	Republican	1969	1974
Ford	Republican	1974	1977
Carter	Democrat	1977	1981
Reagan	Republican	1981	1989
Bush	Republican	1989	1993
Clinton	Democrat	1993	2001
Bush	Republican	2001	2009
Obama	Democrat	2009	2017
Trump	Republican	2017	2021
Biden	Democrat	2021	NULL

Here are several queries on this database.

```
# Query a
SELECT president FROM postwar_presidents;
```

```
# Query b
SELECT president FROM postwar_presidents
WHERE party = 'Republican';
```

```
# Query c
SELECT president, party FROM postwar_presidents
WHERE start BETWEEN 1940 and 1980;
```

```
# Query d
SELECT president FROM postwar_presidents
WHERE end IS NULL;
```

- (a) Describe what Query a will produce?
  - (b) Describe what Query b will produce?
  - (c) Describe what Query c will produce?
  - (d) How would you interpret the result of Query d?
5. Write a SQL statement that will give us the names of all postwar presidents whose names begin with 'C' or 'T.'
  6. What is the difference between these two SQL statements?

```
DESC postwar_presidents;
```

```
SELECT * FROM postwar_presidents;
```

7. (a) Is SQL's **INSERT** statement a part of a DDL or a DML?  
(b) Is SQL's **CREATE TABLE** statement a part of a DDL or a DML?
  8. Label each of these items with the word 'convention' or 'rule.'
    - (a) use upper case letters to write the reserved words of the SQL language
    - (b) terminate SQL statements with semicolons
    - (c) separate the names of columns that appear between **SELECT** and **FROM** in a **SELECT** statement with commas
    - (d) use single quotation marks to enclose strings in the **VALUES** part of **INSERT** statements
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9. Please tell me how I can find the SQL script that you wrote on our server.
  - What is the name of the file?
  - Is it in a folder other than your home folder?