

## **Web Application Revision Practice 8 [DHS/2023/Prelim/P2/Task 4]**

Name your Jupyter Notebook as:

Task4\_<your name>\_<centre number>\_<index number>.ipynb

Your school recently concluded an election for the new President of the Student Council. You helped the school to keep track of the votes and created a web application to showcase the voting outcome. The database used for the web application has three tables: a table to store the candidates' information, a table to store the voters' information and a table to store which candidate each voter voted for.

```
Candidate(CID, Name, Gender, Class)
Voter(VID, Name, Gender, Class)
Vote(VID, CID)
```

Candidate:

- CID – unique candidate number, for example, 2
- Name – the name of the candidate
- Gender – the gender of the candidate, for example, Male, Female
- Class – the class of the candidate, for example, 6C11

Voter:

- VID – unique voter number, for example, 15
- Name – the name of the voter
- Gender – the gender of the voter, for example, Male, Female
- Class – the class of the voter, for example, 6C11
- 

Vote:

- VID – unique voter number, for example, 15
- CID – unique candidate number, for example, 2

For each of the sub-tasks 4.1 to 4.2, add a comment statement at the beginning of the code using the hash symbol '#', to indicate the sub-task the program code belongs to, for example:

In [1] :

```
#Task 4.1
Program code
```

Output:

### **Task 4.1**

Write a Python program that uses SQL code to create the database `election.db` with the three tables given. Define the primary and foreign keys for each table. [3]

## Task 4.2

The files `CANDIDATES.csv`, `VOTERS.csv`, and `VOTES.csv` store the comma-separated values for Candidate, Voter and Vote tables respectively.

The data in `CANDIDATES.csv` is given in the following order:

`CID, Name, Gender, Class`

The data in `VOTERS.csv` is given in the following order:

`VID, Name, Gender, Class`

The data in `VOTES.csv` is given in the following order:

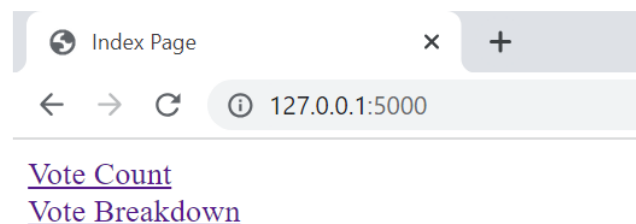
`VID, CID`

Write a Python program to read in the data from each file and store the data in the correct place in the database. [5]

Save your Jupyter Notebook for Task 4.

## Task 4.3

Write a Python program and the necessary files to create a web application. The application offers the following menu options:



Save your Python program as

`Task4_3_<your name>_<centre number>_<index number>.py`

with any additional files/subfolders as needed in a folder name

`Task4_3_<your name>_<centre number>_<index number>`

Run the web application. with the date entered as '20230721'.

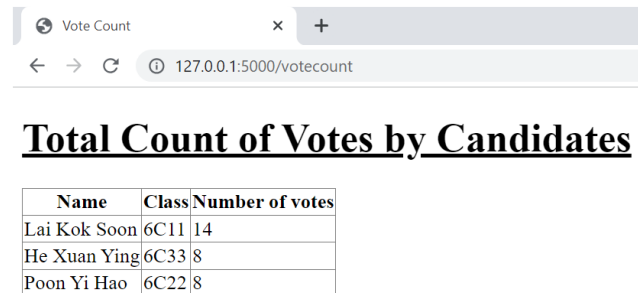
[4]

#### Task 4.4

Write an SQL query that shows:

- the name, class and total number of votes for each candidate
- the total number of votes sorted in descending order

The results of the query should be shown on a web page in a table as shown below:



The screenshot shows a web browser window with the title 'Vote Count'. The address bar displays '127.0.0.1:5000/votecount'. The main content area features a table titled 'Total Count of Votes by Candidates'.

Name	Class	Number of votes
Lai Kok Soon	6C11	14
He Xuan Ying	6C33	8
Poon Yi Hao	6C22	8

The web page should be accessed from the menu option (Vote Count) from Task 4.3.

Save your SQL code as

Task4\_4\_<your name>\_<centre number>\_<index number>.sql

[2]

Modify the code in your Python program for Task 4.3 and save it as

Task4\_4\_<your name>\_<centre number>\_<index number>.py

with any additional files/subfolders as needed in a folder name

Task4\_4\_<your name>\_<centre number>\_<index number>

Run the web application.

[7]

#### Task 4.5

Modify your Python program and create the necessary file(s) to create a web page that shows the details of the voters who voted for a particular candidate. There should be a form with radio buttons for user to select one of the candidates. The radio button All should be selected by default. [Note: to select the All radio button as the default option, add `checked="checked"` as one of the attributes of the input tag for the All radio button]

Vote Breakdown
+
127.0.0.1:5000/votebreakdown

### Breakdown of Votes

Candidate:

☒ All
☐ He Xuan Ying
☐ Lai Kok Soon
☐ Poon Yi Hao

Voter Name	Class	Voted for
Goh Kai De	6C33	Lai Kok Soon
Low Kai Wen	6C44	Lai Kok Soon
Poon Hao Qiang	6C44	Lai Kok Soon
Goh De Ming	6C55	Lai Kok Soon
Lam Xuan Ming	6C33	He Xuan Ying
Shen Xuan Ying	6C55	Poon Yi Hao
Chee Wen Ming	6C55	Lai Kok Soon
Fan Yong Quan	6C11	Lai Kok Soon
Goh Xin Ling	6C33	Poon Yi Hao
Chang Hao Rui	6C55	He Xuan Ying

Vote Breakdown
+
127.0.0.1:5000/votebreakdown

### Breakdown of Votes

Candidate:

☐ All
☐ He Xuan Ying
☐ Lai Kok Soon
☒ Poon Yi Hao

Voter Name	Class	Voted for
Shen Xuan Ying	6C55	Poon Yi Hao
Goh Xin Ling	6C33	Poon Yi Hao
Koh Jia Xin	6C11	Poon Yi Hao
Lim Xuan Ming	6C22	Poon Yi Hao
Chong Hao Ming	6C22	Poon Yi Hao
Cheong Cheng Hao	6C11	Poon Yi Hao
Lye Yi De	6C55	Poon Yi Hao
Fong Yong Rui	6C11	Poon Yi Hao

This web page should be accessed from the menu option (Vote Breakdown) from Task 4.3.

Save your Python program as

Task4\_5\_<your name>\_<centre number>\_<index number>.py

with any additional files/subfolders as needed in a folder name

Task4\_5\_<your name>\_<centre number>\_<index number>

[6]

Run the web application and submit the html form with Lai Kok Soon.

Save the webpage output as

Task4\_5\_<your name>\_<centre number>\_<index number>.html

[1]