華僑中學

Hwa Chong Institution
Secondary 4 Examination 2025

CANDIDATE NAME					
CLASS				REGISTER NUMBER	

Computing

50 Mins

Candidates to answer in the template files provided in the thumb drive.

READ THESE INSTRUCTIONS FIRST

Answer **all** questions and **save** your work constantly.

All tasks must be done in the computer laboratory. You are not allowed to bring in or bring out any piece of work, materials, paper, or electronic media or in any other form.

The number of marks is given in brackets [ ] at the end of each question or part question.

You are reminded of the need for clear presentation in your answers. Please provide comments where appropriate and ensure the use of descriptive variable and function names.

You are allowed to add new cells to the notebook, but please make sure to write meaningful comments to explain the purpose.

At the end of the examination, **SAVE** all the changes in the notebook, and save all your source files in the thumb drive and do **NOT** delete your source files.

You are strongly encouraged to manage your time well.

Total Marks: [20]

This document consists of **4** printed pages.

Task 1.1

You are tasked with creating a program to import survey data collected from multiple CSV files into an SQLite database. The survey collects information from students, including their name, class, favourite subject, and favourite store.

Implement a function `load_data()` that performs the following steps:

1. Read all files from the `data_files` folder. The file paths are provided for you in the `list` named `data_files`.
2. Read and process the data in each file, insert the records into the database named `survey.db`.
3. Hints are provided inside the template file `task_1_1.py`.

Save the python file inside the folder named `Task_1`.

[4]

Task 2.1

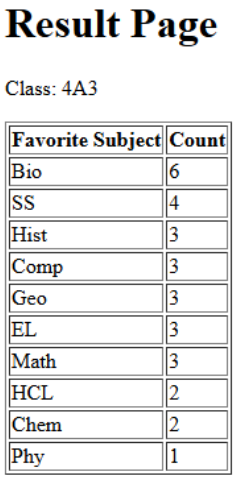
The school needs your help to implement a system that can tally, and count students' favourite subjects based on the class name.

Create a Flask web application that:

- Accepts a form submission with the class name.
- Queries on the database.
- Tallies and sorts the number of students who have the same favourite subject, in descending order.

Refer to the following sample output segment. On the results page, display the following information:

- Class name
- A table showing the consolidated count of favourite subjects



Result Page

Class: 4A3

Favorite Subject	Count
Bio	6
SS	4
Hist	3
Comp	3
Geo	3
EL	3
Math	3
HCL	2
Chem	2
Phy	1

Hint: The `survey.db` and `survey_backup.db` files are provided.
If your `survey.db` becomes corrupted or locked, you may delete it and restore it from `survey_backup.db`.

Save all files and folders related to this task inside the folder named `Task_2`.

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Task 2.2 *

The school would like you to implement a function to randomly select two student representatives, one from Sec 3 and one from Sec 4, to show appreciation to the uncles and aunties of their favourite canteen store.

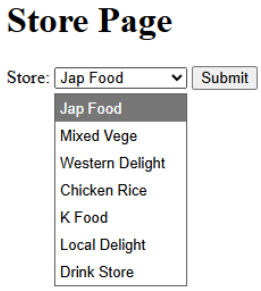
Create a Flask web application that:

- Accepts a form submission with the selected store name
- Queries the database to retrieve a list of students whose favourite store matches the selected option
- **Randomly** selects one student from Sec 3 and one student from Sec 4
- Displays the store name, along with the name and class of the selected student representatives

Refer to the sample outputs below for guidance.

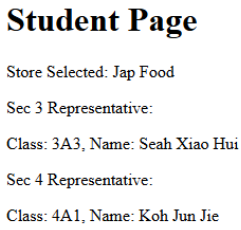
On the store page, display the following:

- A **dropdown** list of all available store names
- A submit button



On the student page, display the following:

- The name of the selected store
- The name and class of the student representative from Sec 3 and Sec 4



Save all your files and folders needed for this task inside the folder named `Task_2`.

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- End of Paper -