[*Adapted from DHS Prelim P2 2021*]

In 2021, Singapore's Health Science Authority (HSA) recalled 18 brands of hand sanitisers due to high levels of acetaldehyde and/or methanol. The HSA keeps information on current hand sanitisers and uses it to monitor the types of chemical ingredients used to make the sanitisers.

### Task 1

Create an SQL file to show the SQL code to create database sanitisers.db with the single table, Sanitisers.

The table will have the following fields:

* product\_name which is the primary key
* active\_ingredient
* alcohol\_based

Save your SQL code as **TASK1\_<index\_number>\_<name>.sql**  [3]

### Task 2

The text file, sanitisers.txt, contains data items for a number of sanitisers. It contains a header line. Each data item is separated by a comma, with each item data on a new line, as follows:

* product name
* active ingredient used to make the sanitiser product
* "Yes" or "No" to indicate if the product is alcohol-based

Write program code to read in the information from the text file, sanitisers.txt, and insert all the information into the sanitisers.db database.

Run the program.

Save your program as **TASK2\_<index\_number>\_<name>.py** [3]

### Task 3

The information is to be displayed in a web browser. Write a Python program and the necessary files to create a web application that enables the list of sanitisers to be displayed.

For each record the web page should include the:

* product name
* ingredients used to make the sanitiser product
* "Yes" or "No" to indicate if the product is alcohol-based

Save your program as **TASK3\_<index\_number>\_<name>.py**

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

**TASK3\_<index\_number>\_<name>**

Run the web application and save the output of the program as

**TASK3\_OUTPUT\_<index\_number>\_<name>.html** [6]

### Task 4

HSA wants a form on the web page that allows users to enter the name of an active ingredient and, upon submission, will display all the information of the products with the matching active ingredient.

Update your application in Task 3 to include this form feature so that users will be able to use the form after seeing the list of sanitisers displayed.

Run the web application.

Test your program with the ingredient "Triclosan" and save the output as

**TASK4\_OUTPUT\_<index\_number>\_<name>.html** [4]

| Refer to the following links for the different HTML input types:   * HTML Input Types: <https://www.w3schools.com/html/html_form_input_types.asp> * Drop-down List: <https://www.w3schools.com/tags/tag_select.asp> |
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