

## Question 1

Not yet answered

Marked out of 25.00

v3 (latest)

### Part 1: Python

#### Problem:

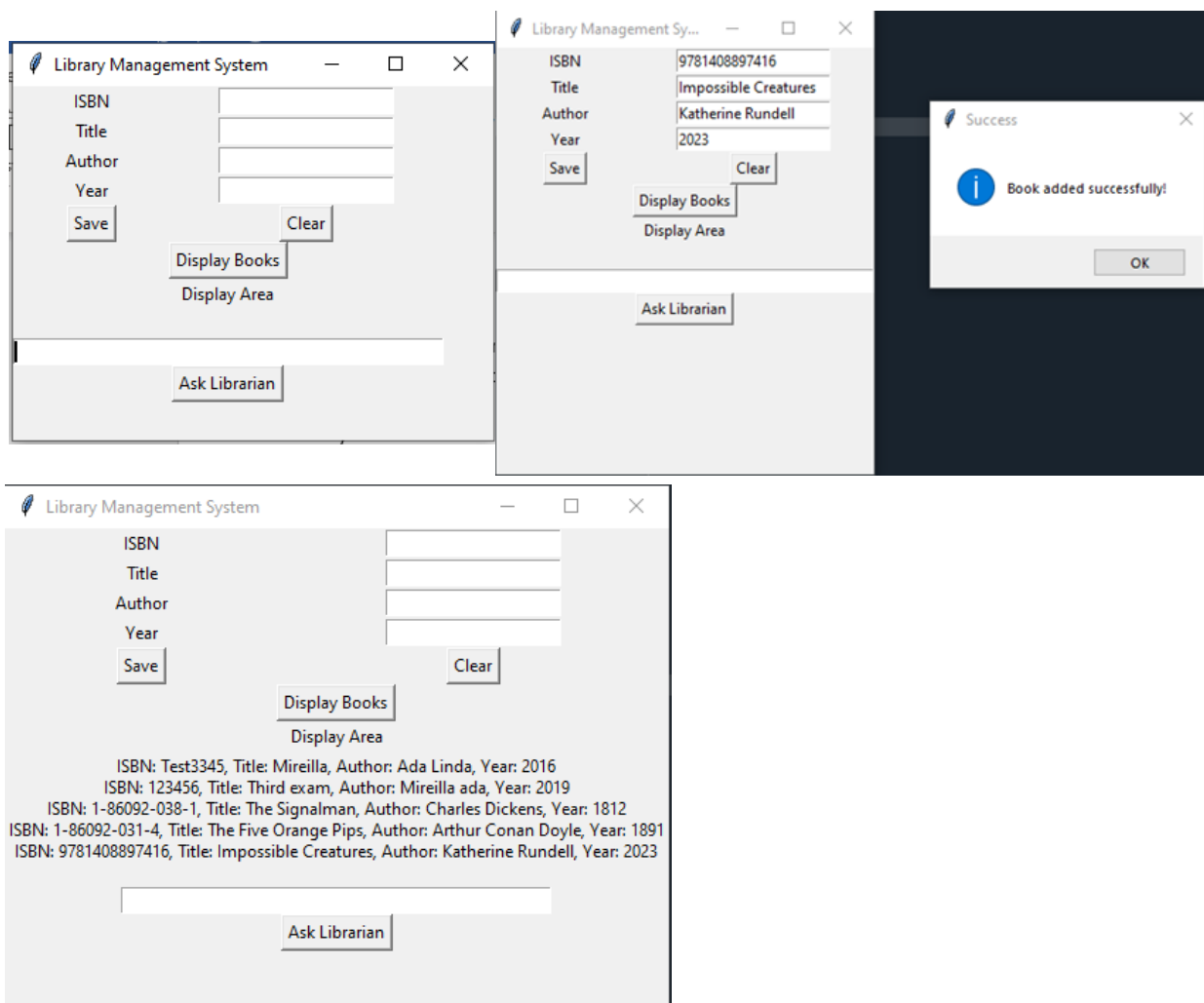
You are required to create a library management system that incorporates a virtual librarian. The user should be able to enter the book details, save, display them, and clear the form. The user should be able to ask the virtual librarian (simulated ChatGPT – do not use API) for a book recommendation and a book publication date. etc).

You should write the code for each task below in the same Python source file, as indicated below. Your file should be called **your\_name\_python\_task.py** (replace **your\_name** with your own name, like **mireilla\_bikanga\_ada\_python\_task.py**). You should then submit your source file through Moodle as described at the end.

#### Python Task 1a: tkinter GUI and database for Library System (14 Marks)

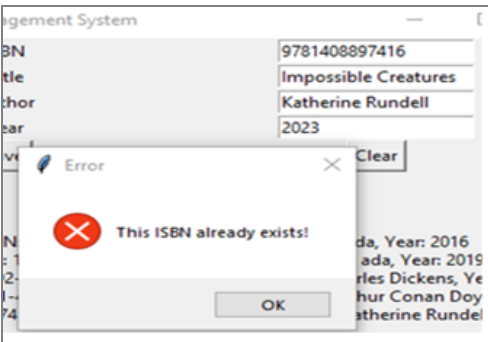
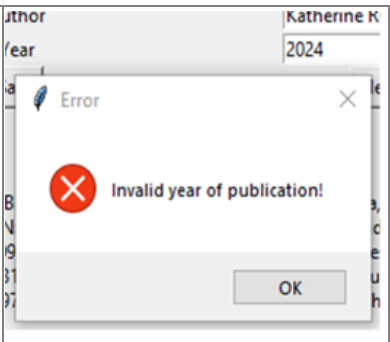
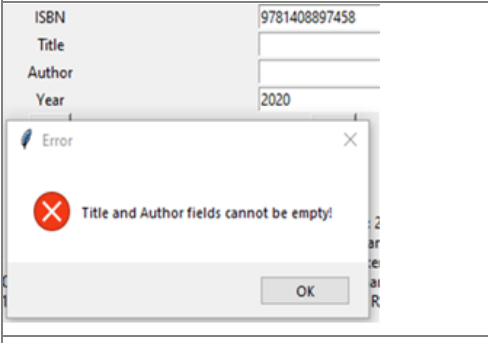
You are required to create a program for a library management system. You are required to enhance the library management system by integrating a virtual librarian using a simulated ChatGPT.

1. Create a program that should display the following screen. **[5 marks]**
2. The user should be able to enter the book's ISBN, title, author, and year of publication and save the valid book details into a database named **LibraryDB** when the **"Save"** button is clicked. A suitable message should appear when book details are saved. **[4 marks]**.
3. The system should clear ALL the windows when the **"Clear"** button is clicked. **[2 mark]**
4. If a user clicks the **"Display Books"** button, the system should display all book details saved in the database. **[3 marks]**



#### Python Task 1b: Book Data Validation [3 marks]

1. The system should ensure that no duplicate **ISBNs** are stored. The system should display a suitable message if a book with the entered ISBN already exists. **[1 mark]**
2. Ensure that the entered **year** is **not in the future** AND **not earlier than 1450** (the approximate year of the first printed book). **[1 mark]**
3. The system should ensure that neither the **title** nor the **author** fields are empty. If any of the fields are empty, the system should display a suitable message. **[1 mark]**

 <p>The screenshot shows a form with fields for ISBN, Title, Author, and Year. The ISBN field contains '9781408897416'. An error dialog box is displayed with the message 'This ISBN already exists!' and an 'OK' button.</p>	 <p>The screenshot shows the same form, but the Year field contains '2024'. An error dialog box is displayed with the message 'Invalid year of publication!' and an 'OK' button.</p>
ISBN validation message	Invalid year validation message
 <p>The screenshot shows the form with the Title and Author fields empty. An error dialog box is displayed with the message 'Title and Author fields cannot be empty!' and an 'OK' button.</p>	
Empty author and title message	

### Python Task 1c: Integrate simulated ChatGPT as a Virtual Librarian [7 marks]

#### Chat Window:

For this task, you must simulate the interaction with ChatGPT using a local function. The system should connect to the **‘LibraryDB’** to retrieve real-time data to answer the user’s queries. (You type in the two questions below, and the system extracts the answers from the database. Example in the screenshots below).

The virtual librarian should be able to respond to queries such as:

“Recommend me a book by [author name].” **[3.5 marks]**

“When was [ book title] published.” **[3.5 marks]**

**You only need to deal with sentences with those two structures -- no other sentences need to be supported.**

The image displays two states of a Java Swing application window titled "Library Management System".

**Left Screenshot (Initial State):**

- Input Fields:** Four text input fields for ISBN, Title, Author, and Year, followed by "Save" and "Clear" buttons.
- Display Area:** A text area containing a list of books:
  - ISBN: Test3345, Title: Mireilla, Author: Ada Linda, Year: 2016
  - ISBN: 123456, Title: Third exam, Author: Mireilla ada, Year: 2019
  - ISBN: 1-86092-038-1, Title: The Signalman, Author: Charles Dickens, Year: 1812
  - ISBN: 1-86092-031-4, Title: The Five Orange Pips, Author: Arthur Conan Doyle, Year: 1891
  - ISBN: 9781408897416, Title: Impossible Creatures, Author: Katherine Rundell, Year: 2023
  - ISBN: 234512, Title: ProgSD, Author: Mireilla Bikanga Ada, Year: 2021
- Search Section:** A text input field containing "recommend me a book by Arthur Conan Doyle", followed by an "Ask Librarian" button.
- Output:** The text "How about 'The Five Orange Pips' by arthur conan doyle?" is displayed below the search section.


**Right Screenshot (After Search):**


- Input Fields:** The same input fields as the left screenshot, but the "Year" field now contains "1812".
- Display Area:** The same list of books as the left screenshot.
- Search Section:** The text input field now contains "when was published The Signalman?", and the "Ask Librarian" button is visible.
- Output:** The text "The signalman was published in 1812." is displayed below the search section.


## Python submission


Ensure your submission file is named exactly as it is supposed to (i.e. `your_name_python_task.py`)

Maximum file size: 100 MB, maximum number of files: 1










[Files](#)



You can drag and drop files here to add them.