

**ICT 239 Web Application Development**

|  |  |
| --- | --- |
| Name |  |
| T-Group |  |
| SUSS PI No |  |
| Date Submitted |  |
| I declare that this submission is my own work. I am aware there are penalties for any form of cheating to pass off work that is not mine. | |

**Instructions:**

1. Use the solution template document provided with the question paper.
2. Show **only** **relevant code segments** related to your explanation. Do not copy large chunks of code as it does not show understanding and will not attract good marks.
3. The marker will use start.sh to run your application on Vocareum. If the marker cannot run your application using start.sh, it is assumed that your implementation does not work. Therefore, if your app is run using a different environment, then in your app folder
   * **update requirements.txt** if you install additional packages, and
   * **provide instructions** in a file named instructions.txt or instructions.md and indicate requirements that are added as well as instructions how to execute your application.
4. Refer to the Student Guide for ICT239, available on the L group under Discussion and topic Support for Virtual Lab Infrastructure (Vocareum Lab). There are instructions on how to:
   1. record, save and upload the recordings.

Record all your runs for ALL question parts that require an implementation. The recording should be carried on Vocareum Lab and the recording must be in MP4 format. Name each recording according to the question part.

* 1. submit source codes, word report (use solution template document) and recording in Vocareum.

It is a requirement to first generate an appendix in your word report to include all your source code before you submit the word report on Canvas. The appendix MUST have the complete content of all your files (py, html, css, js) in your solution folder.

* 1. submit Word Report in Canvas.

1. If you fail to do any of the steps, your tutor will get an incomplete submission, and there are penalties for missing out components that your marker cannot find. **This** **will result in unnecessary mark deductions.**

*Answer all questions. (Total 100 marks)*

# Question 1 (30 marks)

Explain your answer and supplement your explanation by lifting/commenting on the relevant source code in the BMI application.

## (a) 10 marks

### (i)

|  |
| --- |
| HTML files:   * (filename) * (filename) * (Add more if required) |

### (ii)

Html Page: (filename)

First Component: **(name the component)**

Explain/Describe purpose of the component:

|  |
| --- |
|  |

How is it positioned on the page?

|  |
| --- |
| Filename:  Relevant Code:  Explanation |
| Filename:  Relevant Code:  Explanation |
| Add more rows if required |

Second Component: **(name the component)**

Explain/Describe purpose of the component:

|  |
| --- |
|  |

How is it positioned on the page?

|  |
| --- |
| Filename:  Relevant Code:  Explanation |
| Filename:  Relevant Code:  Explanation |
| Add more rows if required |

Third Component: (name the component)

Explain/Describe purpose of the component:

|  |
| --- |
|  |

How is it positioned on the page?

|  |
| --- |
| Filename:  Relevant Code:  Explanation |
| Filename:  Relevant Code:  Explanation |
| Add more rows if required |

### (iii) css: (filename)

First custom styling applied to the home page.

|  |
| --- |
| Filename:  Relevant Code and applied to: (state which component is styled)  Explanation |

Second custom styling applied to the home page.

|  |
| --- |
| Filename:  Relevant Code and applied to: (state which component is styled)  Explanation |

### (iv) Html Page: (filename same as ii)

How Bootstrap and custom css are applied for responsive to different device sizes

First Component: (name the component)

How is it positioned on the page?

|  |
| --- |
| Filename:  Relevant Code:  Explanation |
| Filename:  Relevant Code:  Explanation |
| Add more rows if required |

Second Component: (name the component)

How is it positioned on the page?

|  |
| --- |
| Filename:  Relevant Code:  Explanation |
| Filename:  Relevant Code:  Explanation |
| Add more rows if required |

Third Component: (name the component)

How is it positioned on the page?

|  |
| --- |
| Filename:  Relevant Code:  Explanation |
| Filename:  Relevant Code:  Explanation |
| Add more rows if required |

## (b) 14 marks

### (i)

**Specify action on navigation bar: (State action)**

**Trace code** and explain how a different HTML page get displayed.

Your answer must include explanation on HTTP request and response, URL routing, Jinja, WTForm and Blueprint, where applicable, from the point of user action on the navigation bar of home page to the point when a new HTML page is displayed.

|  |
| --- |
| Filename:  Code snippet:  Explain what code does. |
| Filename:  Code snippet:  Explain what code does. |
| Add more rows if required |

### (ii)

Enter user input on the form you get from the user action in Question 1 (b) (i). Click on the Submit button. Trace from the point of clicking on the Submit button to the point when another HTML page get displayed on the web browser. Include explanations on HTTP request and response, URL routing, Jinja and WTForm and Blueprint where applicable.

|  |
| --- |
| Filename:  Code snippet:  Explain what code does. |
| Filename:  Code snippet:  Explain what code does. |
| Add more rows if required |

## (c) 6 marks

### (i) structure of a Package document.

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |

### (ii)

How the Staycation app adds Package documents to the database. Explain the trigger, the source of the data for the Package document, and the mechanics of using mongoengine to add the document.

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

# Question 2 (30marks)

## (a) 17 marks

### Book Title page

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

### Search Function

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

### Book Detail Function

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

## (b) 11 marks

### (i) Book class

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

### (ii) Make changes to the application to use the Book documents in MongoDB

### Book Title Page

|  |
| --- |
| **file: (Provide file name)**  **Code snippet in Q2a:**  **Changes/new code snippet for Q2b:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet in Q2a:**  **Changes/new code snippet for Q2b:**  **Explain what code does.** |
| Add more rows if required |

### Search Function

|  |
| --- |
| **file: (Provide file name)**  **Code snippet in Q2a:**  **Changes/new code snippet for Q2b:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet in Q2a:**  **Changes/new code snippet for Q2b:**  **Explain what code does.** |
| Add more rows if required |

### Book Detail Page

|  |
| --- |
| **file: (Provide file name)**  **Code snippet in Q2a:**  **Changes/new code snippet for Q2b:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet in Q2a:**  **Changes/new code snippet for Q2b:**  **Explain what code does.** |
| Add more rows if required |

## (c) 2 marks

**Register, Login and Logout**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet in Past Reference:**  **Changes/new code snippet for Q2c:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet in Past Reference:**  **Changes/new code snippet for Q2c:**  **Explain what code does.** |
| Add more rows if required |

# Question 3 (40 marks)

## Add New Book function 15 marks

**Frontend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

**Backend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

## 5 marks

### (i) Modification to Book Titles

**Frontend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

**Backend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

### (ii) Modification to Book Detail page

**Frontend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

**Backend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

### (i) Book class

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

## 20 marks

### (i) Loan class

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

### (ii) Make a Loan function

**Frontend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

**Backend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

### (ii) View Loan function

**Frontend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

**Backend Component**

|  |
| --- |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| **file: (Provide file name)**  **Code snippet:**  **Explain what code does.** |
| Add more rows if required |

# Appendix: