**CS2106 Introduction to Operating Systems**

**Lab 1 - Leveling Up on C**

**Answer Book**

Please read the instructions in the main lab sheet before completing this document. Submission deadline is **Sunday 6 February 2022, 11.59 pm**.

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Section 1.

**Question 1.1 (1 mark)**

#include <filename> is used for system header files. It searches for a file named “filename” in a standard list of system directories (standard C library that is stored in a predefined location).

#include “filename” is used for user-defined header files in local directory. It searches for a file named “filename” in the directory that contains the current file, then in the quote directories (directories that have been passed as arguments using the `iquote` option), and then in the same directories used for <filename>.

**Question 1.2 (1 mark)**

The “static” declaration means that the variables remain in memory while the program is running. Static variables are allocated memory in the data segment (not stack).

**Question 1.3 (1 mark)**

`enq` and `deq` are implemented in a different source file (queue.c) from which they are called (lab1p1.c) and there are no function prototypes before the main function in lab1p1.c

**Question 1.4 (1 mark)**

`deq` is not declared in the source file from which it is called so the default return type is int. The returned double from deq is truncated to give an int (0) which is typecasted to 0.00 for v.

**Question 1.5 (1 mark)**

<Your answer here>

Section 2

**Question 2.1 (1 mark)**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Global / Local** | **Address** |
| p1 |  |  |
| p2 |  |  |
| p3 |  |  |
| p4 |  |  |
| w |  |  |
| x |  |  |
| y |  |  |
| z |  |  |

**Question 2.2 (1 mark)**

|  |  |
| --- | --- |
| **Variable** | **Location (S, D, T or H)** |
| p1 |  |
| p2 |  |
| p3 |  |
| p4 |  |
| w |  |
| x |  |
| y |  |
| z |  |

How I inferred these answers from Q2.1:

**Question 2.3 (1 mark)**

<Your answer here>

**Question 2.4 (1 mark)**

<Your answer here>

**Question 2.5 (1 mark)**

<Your answer here>

Section 3

**Question 3.1 (1 mark)**

<Your answer here>

**Question 3.2 (1 mark)**

<Your answer here>

**Question 3.3 (1 mark)**

<Your answer here>

**TOTAL: \_\_\_\_\_\_\_\_\_\_\_ / 13**