**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 8 September 2024, 11.59 pm (2359 hrs)**.

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Section 1.

**Question 1.1 (1 mark)**

It looks for the stdio.h file in the directory “/usr/include”.

**Question 1.2 (1 mark)**

It means the variables have internal linkage and are local to the current source file (i.e. they are inaccessible to other source files). They are stored in the data segment in memory.

**Question 1.3 (1 mark)**

Missing function declarations/prototypes for enq(double) and deq() in “queue.h”.

**Question 1.4 (1 mark)**

void enq(double);

double deq();

Section 2

**Question 2.1 (1 mark)**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Global / Local** | **Address** |
| p1 | G | 0x561f88008018 |
| p2 | G | 0x561f88008020 |
| p3 | G | 0x561f88008028 |
| p4 | G | 0x561f88008030 |
| w | L | 0x561f88008038 |
| x | L | 0x7fff9262182c |
| y | L | 0x7fff92621828 |
| z | L | 0x7fff92621834 |

**Question 2.2 (1 mark)**

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

How I inferred these answers from Q2.1:

Variables in the same location share the same value for the front part of their addresses.

**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>

Section 4

**Question 4.1 (1 mark)**

<Your answer here>

**Question 4.2 (1 mark)**

<Your answer here>

**TOTAL: \_\_\_\_\_\_\_\_\_\_\_ / 14**