COMP3520 Operating Systems Internals Assignment 3 – Discussion Document

General Instructions

For the discussion document, all questions are compulsory. You **must** make a genuine attempt at questions. An attempt at a question is considered genuine **if and only if** it is honest **and** serious.

You must attempt this part of the assignment individually. You will be required to submit your work to *Turnitin* for similarity checking as part of assignment submission.

You must cite and reference all copied or paraphrased material that are not your own. Any suitable referencing scheme may be used. Where practical, you should use your own words.

Unless specifically directed, your answers must be in *Academic English*. You may use diagrams to support your written answers.

Please label your answers with the correct question numbers but do not repeat the question. Please include your University student identification number (but **not** your name) in your discussion document.

Submit your discussion document to the appropriate submission inbox in the COMP3520 Canvas website.

The discussion document is worth **30 %** of full marks for Assignment 3. Marking criteria are included in a separate document.

Suggested length: ~2000 words plus figures

Questions

In your answers, you will be assessed on how well you:

- Demonstrate understanding of relevant operating systems concepts;
- Apply critical thinking, analytical and evaluative skills;
- Present logical responses using appropriate information and ideas from appropriate sources; and
- Use *Academic English* appropriately.

Question 1 (6 points)

In English and pseudocode, describe the algorithm that you have used to implement Memory Requirement Aware Dispatcher (MRAD). In your answer, highlight relevant modifications to the original program that was provided to you, especially those concerning memory management, job admission and job swapping.

Question 2 (7 points)

Give at least THREE small test cases you have designed to test the correctness of your program. For each test case:

- Clearly explain what each test case is designed for;
- State the expected output; and
- State whether your program produces the expected output or not.

Question 3 (9 points)

Critically evaluate MRAD. In your answer, consider the potential advantages and potential disadvantages of this dispatcher.

Question 4 (8 points)

a) Recommend at least TWO changes to MRAD that are aimed at improving its performance.
b) Justify your proposed changes. In your justification, consider the potential advantages and potential disadvantages of your proposed changes.