Assignment - 2
Lab Assignment

CSL3020: Computer Architecture
AY 2024-25, Semester – V
Due on: 23-08-2024

Total:100 Marks

General Instructions:

1. Clearly mention the assumptions you have made, if any.
2. Clearly report any resources you have used while attempting the assignment.
3. Any submission received in another format or after the deadline will not be evaluated.
4. Make sure to add references to the resources that you have used while attempting the assignment.
5. Plagiarism of any kind will not be tolerated and will result in zero marks.

Submission Guidelines:

1. Submit a single report depicting methods, results, and observations. Preparing a report is mandatory; failing it will lead to non-evaluation of the assignment.

2. Name your report as YourRollNo.pdf. And your program codes as yourRollNo.asm

3. There is no need to make a zip file. Just upload the report and program directly on the google-classroom, that is, submission will contain{YourRollNo.pdf, YourRollNo.asm}. Do not upload files in any other format.

4. Do not copy-paste screenshots, etc. in the report. The report should look like a technical document, containing plots, tables, etc. whenever necessary.

5. Adhere to the instructions given, failing them may result in a penalty.

Objective:

The purpose of this lab assignment is to familiarize students with the basics of MIPS assembly language. You will write, execute, and debug simple MIPS programs that perform basic arithmetic operations like addition, multiplication, etc.

You are expected to perform task - 1 of this assignment in the lab and task - 2 (which will be released soon) as a take-home assignment.

Instructions:

1. **Software Installation**:
    - **MARS (MIPS Assembler and Runtime Simulator)**:
        1. Visit the official MARS website.
        2. Download the latest version of MARS (`MARS4_5.jar`).
        3. Ensure you have Java installed on your system. If not, download and install Java from here.
        4. Run the `MARS4_5.jar` file by double-clicking it or using the command line: `java -jar MARS4_5.jar`.

Task - 1 **[40 marks]**

Lab Tasks: Write MIPS assembly programs to perform the following tasks:

- **Subtask 1: Addition**: [10]
    - Write a program that adds two integers and stores the result in a register.
- **Subtask 2: Multiplication**: [10]
    - Write a program that multiplies two integers and stores the result in a register.
- **Subtask 3: Subtraction**: [10]
    - Write a program that subtracts one integer from another.
- **Subtask 4: Input / Output**: [10]
    - Write a program that prompts the user with text for taking integer input and performs all the above arithmetic operations and prints the output.

Task - 2 **[60 marks]**

To be released soon….

Deliverables:

- MIPS assembly code (submitted as a .asm file).
- A brief report detailing the installation and usage of MARS, along with an explanation of how the program works and its functionality.
- Your report should contain a detailed summary of each section of your code which should reflect your understanding.

Note:

- **You are required to submit a combined single report and code for both tasks before the deadline for the second task.**
- **Keep the code and screenshots of task one from the lab with you for adding it in the report.**