Lab4_AI23BTECH11033_AI23BTECH11025

The above file contains the code of a RISCV Simulator.

Contents

The compressed zip file Lab4_AI23BTECH11033_AI23BTECH11025.zip contains the following files:

1. main.c

This programs the the main source code of this project

2. run.c run.h

These programs contains functions and their definitions that help in implementing the given assembly code

3. stack.c stack.h

These programs contains functions for implementation of a stack.

4. functions.c functions.h

These programs contains utility functions that are used for parsing,checking a char in string,finding a register from given input etc.

5. Makefile

A makefile that would compile the C codes and generate an executable named riscv_sim.

6. README.md

This file contains the information about this folder and usage instructions.

7. report.pdf

This file contains the project report.It contains our implementation,challenges,error handling ,assumption etc.

8. README.pdf

This file is the md to pdf converted file of README.md

Running the project

to compile and run the project , follow the below steps:

1. Download the Lab4_AI23BTECH11033_AI23BTECH11025.zip zip file

2. Extract the folder into a directory of your choice

3. Make sure to add the input file containing the instructions to this folder.

4. Move to the Extracted folder in the directory in Terminal.

```
cd Lab4_AI23BTECH11033_AI23BTECH11025
```

5. compile the code by using the following command

```
make
```

6. Run the Executable file riscv_asm using the following command

```
./riscv_sim
```

7.Hence a RISC-V Simulator is started in the terminal.use the commands listed below to use the simulator for RISCV assembly code implementation.

Commands

1. load FILE_NAME

Used to load a input file containing riscv assembly code.

2. run

Used to run the assembly code present in input file.

3. exit

Used to exit the simulator.

4. step

Used to run a single instruction of input assembly code.

5. mem ADDRESS COUNT

Used to show the values stored at memory addresses from ADDRESS to ADDRESS+COUNT-1.

6. show-stack

Used to show the call stack at a certain instance of code implementation.

7. break LINE_NUM

Used to create a breakpoint at line having line number as LINE_NUM

8. del break LINE_NUM

Used to delete a breakpoint at line having line number as LINE_NUM.if line at LINE_NUM doesn't have a breakpoint,it returns a error.