TED ÜNİVERSİTESİ

Computer Engineering Department

CMPE361: Computer Organization
Lab 2.2: MIPS Assembly-2

Deadline: 10 November 2024, 23:59PM

1. Introduction

In this lab, you will write relatively complex MIPS assembly programs. Use MARS simulator for writing, executing, and testing the programs.

2. Assignment

Task 1: (20 Points)

Write a MIPS assembly code for the C code given below.

C Code:

```
int a=5;
int b=23;
if (a<b)
    c=a*2;
else
    d=a+b;
```

Task 2: (40 points)

a. Write the associated MIPS assembly code for the C code given below (**20 Points**).

C Code:

```
int a=256;
int b=0;
while (a!=1){
        a=a/2;
        b=b+1;
}
```

b. Explain what each line of your MIPS assembly code does, write modified registers, and values the modified registers get using a table given below. Note that you can extend the rows of the table as much as required (**20 Points**).

MIPS Assembly Code Line	Explanation of the Line	Modified Registers	Values of the Modified Registers
…	…	…	…

Task 3: (40 Points)

Write the MIPS assembly code for the C code given.

C Code:

```
int array [2000];
int a;
for (a=0; a<=2000; a=a+2)
    array[a]=array[a]*4;
```

MIPS Assembly Code:

#$s0=array base address (you will decide for the base address and write the addresses accordingly)

$s1=a

3. Submission and Evaluation

Write MIPS assembly programs for Task 1, 2.a, 3 and save the as task1.asm, task2a.asm, and task3.asm respectively. For Task 2.b use a file named "sumbitFile2p2".docx. Compress all those files together rename it as **"StudentName_ID_Lab2p2".zip**, and upload on the LMS.

The lab submission will be evaluated out of 100. Important considerations for the lab evaluation are:

1. Correctness of the programs and submission

2. Plagiarism (a submission that is copied from any other sources will result 0 grade)

There will be no individual quiz for this lab assignments. However, it will be included in quiz 2.