Siona Ravi

**CSCE 212** 

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Project 2

### 1.0 Program Input/Output

Program 1: So, for program 1, the MIPS code is functioned to get two positive numbers  $\mathbf{a}$  and  $\mathbf{b}$  from the user, and these numbers  $\mathbf{a}$  and  $\mathbf{b}$  are used to calculate the equation  $\mathbf{f} = \mathbf{a} * \mathbf{i} + \mathbf{b}$ , where  $\mathbf{i}$  is an integer that starts from 0 to 4.

For example: a = 5, b = 3

$$f = 5*(0) + 3 = 3$$

$$f = 5*(1) + 3 = 8$$

And so on til i = 4.

Program 2: So, for program 2, the MIPS code is functioned to do a for loop. That starts by printing "Loop starts!" And after the loop ends it is supposed to print "Loop ends!". This program doesn't take any user input so it was a little bit less complicated.

Program 3: So, for program 3, the MIPS code is functioned to get two positive numbers **a** and **b** from the user, and use the numbers in if else statement. It was a bit similar to program 1 for this project.

### 2.0 Program Design

### Program 1:

- Mips asks integer for a
- Mips askes integer for b
- Then solves f=a\*I+b
- With I = 0,1,2,3,4

### Program 2:

- Prints "Loop starts!"
- After the for loops
- Prints "Loop ends!"

## Program 3:

- Takes integer a:
- Takes integer b:
- Solves the if-else statement

## 3.0 Program Design

Register Purpose & Label	
\$a0, \$a1	Are used to pass arguments
\$v0, \$v1	Are to hold return value
\$t0 - \$t5	Are used to register numbers
\$s0 <b>-</b> \$s3	Are used to register numbers

# 4.0 Learning Coverage

- MIPS code syntax and structure Addiction, Subtractions
- convert equation to MIPS code learned how to use MARS
- learned the logic of MIPS assembly code
- Learned making decision loops
- Learned batch instructions: beq, bne...

#### **5.0 Test Results**

### 5.1 Program 1 and Program 3:

### **Program1:**

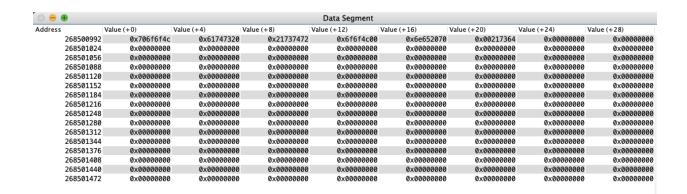
```
Hello we are solving f = a * i + b
Enter the value for a: 5
Enter the value for b: 3
iabf
0 5 3 3
1 5 3 8
2 5 3 13
3 5 3 18
4 5 3 23
— program is finished running —
Hello we are solving f = a * i + b
Enter the value for a: 4
Enter the value for b: 20
i a b f
0 4 20 20
1 4 20 24
2 4 20 28
3 4 20 32
4 4 20 36
— program is finished running —
```

### Program3:

```
Hello we are using if else statement here
Enter the value for a: 5
Enter the value for b: 4
-- program is finished running --
```

```
Hello we are using if else statement here
Enter the value for a: 8
Enter the value for b: 7
-- program is finished running --
```

#### 5.2 Program 2.



Loop starts!Loop ends! -- program is finished running (dropped off bottom) --