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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 **a** and **b** from the user, and these numbers a and b are used to calculate the equation **$f = a*i + b$** , where **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 asks 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 - \$s3	Are used to register numbers

4.0 Learning Coverage

- MIPS code syntax and structure - Addition , 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
i  a  b  f
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.

Data Segment								
Address	Value (+0)	Value (+4)	Value (+8)	Value (+12)	Value (+16)	Value (+20)	Value (+24)	Value (+28)
268500992	0x706f6f4c	0x61747320	0x21737472	0x6f6f4c00	0x6e652070	0x00217364	0x00000000	0x00000000
268501024	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501056	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501088	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501120	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501152	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501184	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501216	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501248	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501280	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501312	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501344	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501376	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501408	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501440	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
268501472	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000

Loop starts!Loop ends!

-- program is finished running (dropped off bottom) --