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CSCE 212

Oct 27, 2021

Project 3

1.0 Program Input/Output

Program 1: For Program 1, we are supposed to get three positive integers from the user as input and the code was supposed to print out the maximum number on the screen.

Input/ Output example:

MIPS: Please enter 3 integers:

User inputs: 2 5 8

MIPS: The maximum integer: 8

(As 8 is the biggest number from the user's input)

Program 2: For Program 2, it calculates BMI of a person, and evaluates if the person is underweight, normal weight or overweight.

Input/ Output example:

MIPS: Name:

User inputs: Siona

MIPS: Weight (lbs):

User Inputs: 120

MIPS: Height (inches):

User Inputs: 63

MIPS: Siona Calculated BMI: 21.254725

MIPS: This is considered normal weight.

Program2 ends here.

Program 3: For Program 3, it calculates total work of a person in hours.

Input/ Output example:

MIPS: Hello, calculate the total hours of work here!

MIPS: No of homework:

User Inputs: 3

MIPS: Time taken for homworks:

User Inputs: 1

MIPS: No of exercise:

User Inputs: 2

MIPS: Time take for exercise:

User Inputs: 2

MIPS: Total Hours worked: 7

End of Program3.

2.0 Program Design

Program 1: For Program 1, we are supposed to get three positive integers from the user as input and the code was supposed to print out the maximum number on the screen.

Program 2: For Program 2, the MIPS code was designed to calculate BMI (Body Mass Index) of a person. And the BMI formula is Weight / height ^2 x 703. My MIPS code asks the person's name, weight (lbs), height (inches), after that it takes the user's input and calculates the BMI and then identifies if the person is underweight, normal weight or underweight.

Program 3: For Program 3, the MIPS code was designed to calculate the total work time of a person including their homework and hours it took and also exercises and hours it took to finish exercises in that day. So for example, if a person did 3hws x 1 hour + 2 exercises x 2 hours = 7 hours. This is what the code is supposed to calculate.

3.0 Symbol Table

Register Purpose & Label	
$a0, $a1	Are used to pass arguments
$v0, $v1	Are to hold return value
$t0 - $t6	Are used to register numbers
$s0 - $s3	Are used to register numbers

4.0 Learning Coverage

- Learnt how to use a float in the MIPS code
- Learned the purpose of labels, which is used to name a location in memory.
- Learned more about branch instructions and their uses
- Learned how to do procedures in mips
- Learned about non- leaf and leaf procedure and stacks

5.0 Test Results

Program 1 Results:

```
Please enter 3 integers: 2
4
5
The maximum integer: 5
-- program is finished running --


Please enter 3 integers: 34
2
9
The maximum integer: 34
-- program is finished running --
```

Program 2 Results:

```
Name: Harry
Weight (whole pounds): 159
Height (whole inches): 75
Harry Calculated BMI: 19.871468
This is considered normal weight.
-- program is finished running --
```

```
Name: Marissa
Weight (whole pounds): 105
Height (whole inches): 69
Marissa Calculated BMI: 15.504096
This is considered underweight.
-- program is finished running --
```

Program 3 Results:

```
Hello, calculate the total hours of work here!
No of homeworks: 10
Time taken for homeworks: 5

No of exercises: 3
Time taken for exercises: 2
Total Hours worked: 56
-- program is finished running --
```

```
Hello, calculate the total hours of work here!
No of homeworks: 4
Time taken for homeworks: 1

No of exercises: 6
Time taken for exercises: 3
Total Hours worked: 22
-- program is finished running --
```