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CSCE 212

Nov 14, 2021

Project 4

1.0 Program Input/Output

Program 1: For Program 1, we are supposed to get three integers from the user as input and the code was supposed to print the calculation and give if the output is Overflow or No overflow

Input/ Output example:
MIPS: Please enter 3 integers:

User inputs: 0 2 2

MIPS: Q: 8

MIPS: No overflow

Program 2: For Program 2, it calculates CPU execution time for two processor A and B.

Input/ Output example:

MIPS: Instruction Count:

User Input: 100 100

MIPS: CPI:

User Input: 2.0 1.2

MIPS: Clock Rate: 4 2

MIPS: A is 1.2 times as fast as B

Program 3: For Program 3, it calculates the integer sum in the array.

Input/ Output example:

MIPS: Enter Size of array:

User Input: 5

MIPS: Enter element 1:

User Input: 2

MIPS: Enter element 2:

User Input: 3

MIPS: Enter element 3:

User Input: 4

MIPS: Enter element 4:

User Input: 5

MIPS: Enter element 5:

User Input: 6

MIPS: Sum of array values is : 20

2.0 Program Design

Program 1: For Program 1, we are supposed to get three integers a, b, and c from the user as input and the code was supposed to print the calculation and give if the output is Overflow or No overflow.

Program 2: For Program 2, it calculates CPU execution time for two processor A and B. It compares the CPU execution times of two processors (equation below) and determines which is faster.

Program 3: For Program 3, it calculates the integer sum in the array. Consider the array has five items, and you have the option of choosing any five values to be array elements. The array components may, for example, be 2, 3, 4, 5, 6, and the result would be 20.

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 and floating points
- - Learned about non- leaf and leaf procedure and stacks

5.0 Test Results

Program 1 Results:

```
A: 2
B: 3
C: 4
A: 2B: 3C:
```

```
A: 3
B: 3
C: 5
```

Program 2 Results:

```
Go: execution terminated with errors.

Assemble: assembling /Users/sionaravi/p4_aravi/c2.asm

Assemble: operation completed successfully.
```

Program 3 Results:

```
Enter size of the array : 5
Enter element 1 : 3
Enter element 2 : 2
Enter element 3 : 4
Enter element 4 : 6
Enter element 5 : 6
Sum of array values is : 21
-- program is finished running --
```

```
Enter size of the array : 4
Enter element 1 : 2
Enter element 2 : 3
Enter element 3 : 1
Enter element 4 : 7
Sum of array values is : 13
-- program is finished running --
```