EECS665

Compiler Construction

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Lecture: LEEP2 G415
MWF 3:00-3:50

Lab: Eaton 1005B

ANOUNCEMENTS | LAB | SCHEDULE | MATERIALS | ASSIGNMENTS

Homework 9

Due on November 16th @ 3:00 PM (in class, to Drew, or at Engineering front office)

Not accepted late

ALL homework must be done individually

Question 1

Generate MIPS code that takes two ints (say "a" and "b") from input (i.e. using the read_int syscall) and prints the result of

```
(a * b) + 2(a + b)
```

Don't worry about overflow. Your code should not use memory (perform all operations using registers).

Question 2

Generate MIPS code to implement the following C code snippet:

```
y = 7;
switch (x){
        case 2:
                y += 4;
        case 4:
                y += 3;
                break;
        case 6:
                y += 2;
                break;
        default:
                y += 1;
}
```

Assume that x and y are 32-bit signed ints that are already defined at the label _x and _y,

respectively.

Question 3

Consider the following block of MIPS code:

```
.text
main:
        li $t0 1
        li $t1 2
        addu $t0 $t1 $t0
        sw $t0 ($sp)
        sw $t1 4($sp)
```

```
li $t2 8
subu $sp $sp $t2
lw $t3 4($sp)
lw $t0 8($sp)
li $ra 0x0
jr $ra
```

List the values in each of the following registers immediately after the jr instruction:

- `$t0`
- `$t1`
- `$t2`
- `$t3`
- `PC` (the instruction pointer/program counter)

If any value is undefined by the function put **undefined** as the value.