DHA Suffa University
Department of Computer Science
Computer Organization & Assembly Language
Fall 2017
Lab # 03 (Branches)

Objective:

To deal with branches in MIPS.

Branches

- Comparison for conditional branches is built into instruction

```
b       target          # unconditional branch to program label target
beq     $t0,$t1,target  # branch to target if  $t0 = $t1
blt     $t0,$t1,target  # branch to target if  $t0 < $t1
ble     $t0,$t1,target  # branch to target if  $t0 <= $t1
bgt     $t0,$t1,target  # branch to target if  $t0 > $t1
bge     $t0,$t1,target  # branch to target if  $t0 >= $t1
bne     $t0,$t1,target  # branch to target if  $t0 <> $t1
```

Example:

```
Int i=0;

Int count=5;

for(i=0;i<5;i++){
        printf(i);
}
```

```
li $t0,0
li $t1,5
For1:
    bge $t0,$t1,Exit1
    add $t0,$t0,1
    li $v0,1
    move $a0,$t0
    syscall
    b For1
Exit1:
    li $v0,10
    syscall
```

Example:

```
# Take two numbers from the user and tell which is greater
.data
var1 : .asciiz "Enter the first value\n"
var2 : .asciiz "Enter the second value\n"
.globl main
.text
main:
        li $v0 , 4
        la $a0 , var1
        syscall

        li $v0 , 5
        syscall
        move $t0 , $v0

        li $v0 , 4
        la $a0 , var2
        syscall

        li $v0 , 5
        syscall
        move $t1 , $v0

        bgt  $t0 , $t1 , ifGreater
        move $t2 , $t1
        b    printNow

ifGreater:
        move $t2 , $t0
printNow:
        move $a0 , $t2
        li $v0, 1
        syscall

        li $v0 , 10
        syscall
```

LAB TASK

(1) Write the MIPS code for the following C code:

```
main()
{
   int count=1;
   while (count <=6)
   {
      printf("%d ", count);
      count++;
   }
}
```

(2) Take an integer as input from user and print its Table till 10.

LAB ASSIGNMENT<03>

(1) Write the MIPS code for the following C code:

```
main()
{
int i=1;
while (i!=0)
{
        scanf("%d", &i);
        printf("%d",i);
}
printf("\n Program finished");
}
```

(2) Write the MIPS code for the following C code:

```
int main()
{
   int num, count, sum = 0;
   printf("Enter a positive integer: ");
   scanf("%d", &num);
   for(count = 1; count <= num; count++)
   {
      sum =sum+count;
   }
   printf("Sum = %d", sum);
   return 0;
}
```

Submission Guidelines:

Save all (.s) files in a zip folder and name it to your roll number: (CS161XXX.zip)

Submit on Google Classroom.

Class code= u99td8