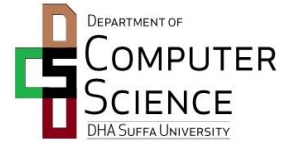




**DHA Suffa University**  
**Department of Computer Science**  
**Computer Organization & Assembly Language**  
**Fall 2017**  
**Lab # 03 (Branches)**



**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:

<pre>Int i=0;  Int count=5;  for(i=0;i&lt;5;i++){     printf(i); }</pre>	<pre>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</pre>
--	--

**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