COMPUTER ORGANIZATION & ARCHITECTURE

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LAB SESSION: 02
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Title: MIPS Basics

LAB SESSION 2

Computer Organization & Architecture

Learn to use Temporary Registers:

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Let’s implement the following algorithm;

- Load 5 into $t1
- Load 10 into $t2
- Add $t1 and $t2
- Store result in $t0.

add2.s; A program that computes sum of two numbers from two registers t1 and t2
registers used: $t0 & $t1 $t2 –

- You can use the program add.s that we implemented in previous Lab to implement this task
- Here we will use add instead of addi, as we are not using immediate value in this example

```
        .data
        .text
        .globl main
main:


li $t1, 5                       #load 5 in $t1
li $t2, 10                      #load 10 in $t2
add $t0, $t1, $t2               #add registers t1 and t2 and store result in t0
display:
move $a0, $t0                    #display routine requires value should be in $a0
li $v0, 1                        #$v0 must be loaded with 1 to display an integer
syscall
Exit:
li $v0, 10                      #Exit routine requires 10 in $v0
syscall
# end of add2.s
```

Save this file as add2.s

Students' Task

1. Write programs to implement following instructions. You are required to explain the code in your own words.
   a.
      - Load 10 into a register
      - Add that register to an immediate value 20
      - Store result in t1
      - Display result
      - Also a program to add unsigned (MIPS instruction addu will be used)
   b.
      - Load 10 in a register
      - Load 5 in another register
      - Subtract 5 from 10 (MIPS instruction sub)
      - Display result
   c.
      - Load 50 in a register
      - Load 20 in a register
      - Divide 50 by 20 (MIPS instruction div)
      - Display results