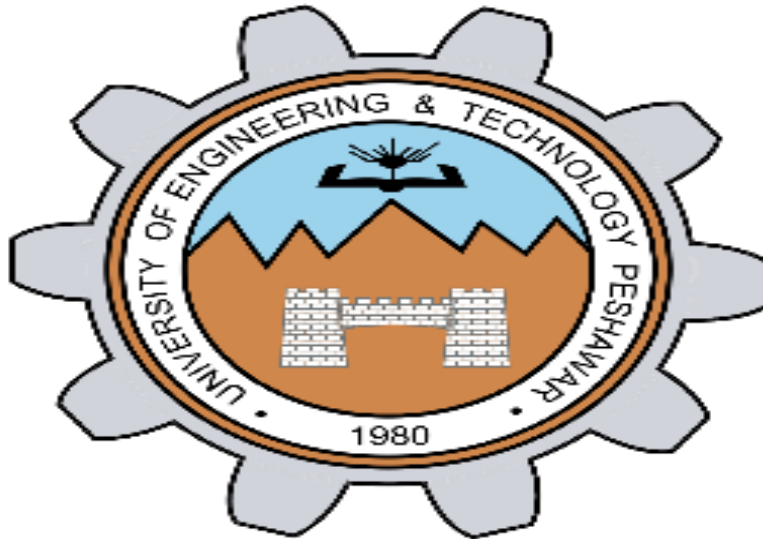


**University of Engineering & Technology,  
Peshawar**

**DEPARTMENT OF COMPUTER SYSTEM ENGINEERING**

**Fall 2021**



**LAB 04**

**(CSE-304L)**

**Computer Organization and Architecture Lab**

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# Task1 : Addition Subtraction Multiplication,Division

```

                                li $v0,4

                                la $a0,str1
                                syscall

.data
str: .asciiz"Anis Ahmad: \n 19PWCSE1770:\n For
Operation \nEnter 1 for addition\n Enter 2 for
subtraction\nEnter 3 for division\nEnter 4 for
multiplication\n "
                                li $v0,5
str1: .asciiz"Enter first number: "
                                syscall
str2: .asciiz"Enter 2nd number: "
                                move $t0,$v0
str3: .asciiz"Enter Operation : "
str4: .asciiz"Invalid Operation "
                                li $v0,4
str5: .asciiz"Result : "
                                la $a0,str2
str6: .asciiz"\nReminder : "
                                syscall
num1: .word 1
                                li $v0,5
num2: .word 2
                                syscall
num3: .word 3
                                move $t1,$v0
num4: .word 4

.text
                                li $v0,4
main:
                                la $a0,str3
                                syscall
                                li $v0,5
                                lw $t5,num1
                                syscall
                                lw $t6,num2
                                li $v0,5
                                lw $t7,num3
                                syscall
                                lw $t8,num4
                                move $t4,$v0

                                li $v0,4
                                la $a0,str
                                syscall
                                beq $t4,$t5 addition
                                beq $t4,$t6 subtraction
                                beq $t4,$t7 division
```

beq \$t4,\$t8 multiplication

li \$v0, 4

la \$a0,str4

syscall

b khan

addition:

add \$t2,\$t0,\$t1

li \$v0, 4

la \$a0,str5

syscall

li \$v0,1

move \$a0,\$t2

syscall

b khan

subtraction:

sub \$t2,\$t0,\$t1

li \$v0, 4

la \$a0,str5

syscall

b khan

li \$v0,1

move \$a0,\$t2

syscall

b khan

division:

div \$t2,\$t0,\$t1

li \$v0, 4

la \$a0,str5

syscall

li \$v0,1

move \$a0,\$t2

syscall

li \$v0, 4

la \$a0,str6

syscall

li \$v0,1

mfhi \$a0

syscall

b khan

multiplication:

mul \$t2,\$t0,\$t1

li \$v0, 4

la \$a0,str5

syscall

li \$v0,1

move \$a0,\$t2

syscall


b khan

khan:

li \$v0,10

syscall

# OUTPUT:

 Console

```
Anis Ahmad:
19PWCSE1770:
For Operation
Enter 1 for addition
Enter 2 for subtraction
Enter 3 for division
Enter 4 for multiplication

Enter first number: 5
Enter 2nd number: 5
Enter Operation : 1
Result : 10
Enter first number: 5
Enter 2nd number: 5
Enter Operation : 2
Result :
Enter first number: 5
Enter 2nd number: 5
Enter Operation : 3
Result : 1
Reminder : 0
Enter first number: 5
Enter 2nd number: 5
Enter Operation : 4
Result : 25
Enter first number: |
```

## Task2 : FINDING THAT NUMBER AT DESIRED BIT LOCATION IS ZERO OR ONE

.data	bit\nEnter 512 for 10th
str: .ascii"Anis Ahmad: \n	bit\n"
19PWCSE1770:\n "	.text
str1: .ascii"\nEnter your	main:
number: "	
str2: .ascii"Enter desired	li \$v0,4
bit number: "	la \$a0,str1
str3: .ascii"Bit at position	syscall
is 0 "	
str4: .ascii"Bit at position	li \$v0,5
is 1 "	syscall
str5: .ascii"Enter 1 for 1st	move \$t0,\$v0
bit\n Enter 2 for 2nd bit\n	
Enter 4 for 3rd bit\n Enter	li \$v0,4
8 for 4th bit\n Enter 16	la \$a0,str5
for 5th bit\n Enter 32 for	syscall
6th bit\n Enter 64 for 7th	
bit\n Enter 128 for 8th	
bit\nEnter 256 for 9th	

li \$v0,4

la \$a0,str2

syscall

li \$v0,5

syscall

move \$t1,\$v0

and \$t2,\$t0,\$t1

beq \$t2,\$0 label

li \$v0,4

la \$a0,str4

syscall

b khan

label:

li \$v0,4

la \$a0,str3

syscall

khan:

li \$v0,10

syscall



Console

```
Enter your number: 245
Enter 1 for 1st bit
Enter 2 for 2nd bit
Enter 4 for 3rd bit
Enter 8 for 4th bit
Enter 16 for 5th bit
Enter 32 for 6th bit
Enter 64 for 7th bit
Enter 128 for 8th bit
Enter 256 for 9th bit
Enter 512 for 10th bit
Enter desired bit number: 32
Bit at position is 1 |
```

245=

## Task3 : Swapping 3<sup>rd</sup> and 7<sup>th</sup> Bit of number

.data

str1: .asciiz"\nEnter your  
number: "

li \$v0,4

la \$a0,str2

str2: .asciiz"\nEnter 68 to  
swap 3rd and 7th: "

syscall

li \$v0,5

str3: .asciiz"\nafter  
swapping 3rd and 7th Bit  
number is: "

syscall

move \$t1,\$v0

.text

main:

xor \$t2,\$t0,\$t1

khan:

li \$v0,4

li \$v0,1

la \$a0,str1

move \$a0,\$t2

syscall

syscall

li \$v0,5

b khan

syscall

li \$v0,10

move \$t0,\$v0

syscall



Output:



Console

Enter your number: 159

Enter 68 to swap 3rd and 7th: 68  
219

Enter your number: 150

Enter 68 to swap 3rd and 7th: 68  
210

Enter your number: |