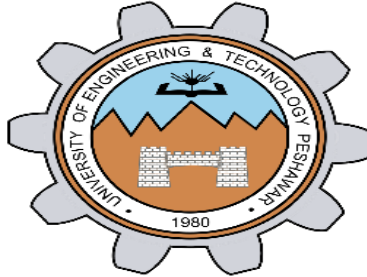


Lab report no 6



Fall 2021

Computer Architecture and organization Lab

Submitted By

Names

Registration No

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19pwcse1801

Section: A

Date: 26,1,2021

Submitted to:

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Task no 9 (even number): -

.data

msg: .ascii "Muhammad Ali, 19pwcse1801 \n finding even number between the range \n"

msg1: .ascii "enter starting number of the range \n"

msg2: .ascii "enter ending number of the range \n"

msg3: .ascii "even numbers between the given range are \n"

space: .ascii " "

.text

li \$t7, 2

li \$t6, 1

li \$v0, 4

la \$a0, msg

syscall

li \$v0, 4

la \$a0, msg1

syscall

li \$v0, 5

syscall

move \$t0, \$v0 # starting range number

li \$v0, 4

la \$a0, msg2

syscall

```
li $v0, 5
syscall          # ending range number
move $t1, $v0
```

```
li $v0, 4
la $a0, msg3
syscall
```

```
    addi $t2,$t0, 1
loop:
    beq $t2, $t1, end
    div $t2, $t7
    mfhi $t4
    beq $t4, $zero , even
    addi $t2,$t2, 1
b loop
syscall
```

```
even:
li $v0, 1
move $a0, $t2
syscall
```

```
li $v0 ,4
la $a0, space
syscall
    addi $t2,$t2, 1
    b loop
```

end:

li \$v0, 10

syscall

Register: -

Registers	Coproc 1	Coproc 0	
Name	Number	Value	
\$zero	0	0x00000000	
\$at	1	0x00000001	
\$v0	2	0x0000000a	
\$v1	3	0x00000000	
\$a0	4	0x0000003c	
\$a1	5	0x00000000	
\$a2	6	0x00000000	
\$a3	7	0x00000000	
\$t0	8	0x0000000c	
\$t1	9	0x00000005	
\$t2	10	0x00000000	
\$t3	11	0x00000000	
\$t4	12	0x00000000	
\$t5	13	0x00000000	
\$t6	14	0x00000000	
\$t7	15	0x0000003c	
\$s0	16	0x00000000	
\$s1	17	0x00000000	
\$s2	18	0x00000000	
\$s3	19	0x00000000	
\$s4	20	0x00000000	
\$s5	21	0x00000000	
\$s6	22	0x00000000	
\$s7	23	0x00000000	
\$t8	24	0x00000000	
\$t9	25	0x00000000	
\$k0	26	0x00000000	
\$k1	27	0x00000000	
\$gp	28	0x10008000	
\$sp	29	0x7ffffeffc	
\$fp	30	0x00000000	
\$ra	31	0x00000000	
pc		0x004000ac	

Consul: -

Mars Messages	Run I/O
Clear	Muhammad Ali, 19pwcse1801 finding LCM of two numbers enter a number 12

Mars Messages	Run I/O
Clear	12 enter second number 5 LCM of two numbers are

Mars Messages	Run I/O
Clear	5 LCM of two numbers are 60 -- program is finished running --

Task no 10 (lcm): -

.data

msg: .asciiz "Muhammad Ali, 19pwcse1801 \n finding LCM of two numbers \n"

msg1: .asciiz "enter a number \n"

msg2: .asciiz "enter second number \n"

msg3: .asciiz "LCM of two numbers are \n"

.text

li \$v0, 4

la \$a0, msg

syscall

li \$v0, 4

la \$a0, msg1

syscall

li \$v0, 5

syscall

move \$t0, \$v0 # first number

li \$v0, 4

la \$a0, msg2

syscall

li \$v0, 5

syscall # second number

```
move $t1, $v0
```

```
li $v0, 4
```

```
la $a0, msg3
```

```
syscall
```

```
bgt $t0, $t1, first_is_greater
```

```
move $t7, $t1
```

```
first_is_greater:
```

```
move $t7, $t0
```

```
loop:
```

```
div $t7, $t0
```

```
mfhi $t4
```

```
beq $t4, $zero, check_second
```

```
addi $t7, $t7, 1
```

```
b loop
```

```
check_second:
```

```
div $t7, $t1
```

```
mfhi $t4
```

```
beq $t4, $zero, LCM
```

```
addi $t7, $t7, 1
```

```
b loop
```

```
syscall
```

LCM:

```
li $v0, 1  
  
move $a0, $t7  
  
syscall  
  
b end
```

end:

```
li $v0, 10  
  
syscall
```

Register: -

Registers	Coproc 1	Coproc 0	
Name	Number		Value
\$zero	0		0x00000000
\$at	1		0x10010000
\$v0	2		0x0000000a
\$v1	3		0x00000000
\$a0	4		0x100100b8
\$a1	5		0x00000000
\$a2	6		0x00000000
\$a3	7		0x00000000
\$t0	8		0x00000002
\$t1	9		0x00000008
\$t2	10		0x00000008
\$t3	11		0x00000000
\$t4	12		0x00000001
\$t5	13		0x00000000
\$t6	14		0x00000001
\$t7	15		0x00000002
\$s0	16		0x00000000
\$s1	17		0x00000000
\$s2	18		0x00000000
\$s3	19		0x00000000
\$s4	20		0x00000000
\$s5	21		0x00000000
\$s6	22		0x00000000
\$s7	23		0x00000000
\$t8	24		0x00000000
\$t9	25		0x00000000
\$k0	26		0x00000000
\$k1	27		0x00000000
\$gp	28		0x10008000
\$sp	29		0x7ffffefffc
\$fp	30		0x00000000
\$ra	31		0x00000000
pc			0x004000ac

Consul: -

Mars Messages	Run I/O
Muhammad Ali, 19pwcse1801	
Clear	finding even number between the range
	enter starting number of the range
	2

Mars Messages	Run I/O
<div>Clear</div> <pre> 2 enter ending number of the range 8 even numbers between the given range are </pre>	

Mars Messages	Run I/O
<div>Clear</div> <pre> 8 even numbers between the given range are 4 6 -- program is finished running -- </pre>	

Task no 11 (hcf): -

.data

msg: .ascii "Muhammad Ali, 19pwcse1801 \n finding LCM of two numbers \n"

msg1: .ascii "enter a number \n"

msg2: .ascii "enter second number \n"

msg3: .ascii "HCF of two numbers is \n"

.text

li \$v0, 4

la \$a0, msg

syscall

li \$v0, 4

la \$a0, msg1

syscall

li \$v0, 5

syscall

move \$t0, \$v0 # first number


```
li $v0,4
```

```
la $a0, msg2
```

```
syscall
```

```
li $v0, 5
```

```
syscall          # second number
```

```
move $t1, $v0
```

```
li $v0, 4
```

```
la $a0, msg3
```

```
syscall
```

```
blt $t0, $t1, first_is_smaller
```

```
move $t7, $t1
```

```
first_is_smaller:
```

```
move $t7, $t0
```

```
li $t6, 1    #iteration variable
```

```
li $t4, 1    #HCF variable
```

```
loop:
```

```
bgt $t6,$t7,HCF      # $t6 is started with one and increment by 1 in each iteration
```

```
div $t0, $t6
```

```
mfhi $t4
```

```
beq $t4, $zero, check_second
```

```
addi $t6,$t6, 1
```

```
b loop
```

```
syscall
```

check_second:

div \$t1, \$t6

mfhi \$t4

beq \$t4, \$zero , increment

addi \$t6,\$t6, 1

b loop

increment:

move \$4,\$t6

addi \$t6,\$t6, 1

b loop

HCF:

li \$v0, 1

move \$a0, \$t4

syscall

b end

end:

li \$v0, 10

syscall

Register: -

Registers		Coproc 1	Coproc 0
Name	Number	Value	
\$zero	0	0x00000000	
\$at	1	0x00000001	
\$v0	2	0x0000000a	
\$v1	3	0x00000000	
\$a0	4	0x00000004	
\$a1	5	0x00000000	
\$a2	6	0x00000000	
\$a3	7	0x00000000	
\$t0	8	0x00000018	
\$t1	9	0x0000001c	
\$t2	10	0x00000000	
\$t3	11	0x00000000	
\$t4	12	0x00000004	
\$t5	13	0x00000000	
\$t6	14	0x00000019	
\$t7	15	0x00000018	
\$s0	16	0x00000000	
\$s1	17	0x00000000	
\$s2	18	0x00000000	
\$s3	19	0x00000000	
\$s4	20	0x00000000	
\$s5	21	0x00000000	
\$s6	22	0x00000000	
\$s7	23	0x00000000	
\$t8	24	0x00000000	
\$t9	25	0x00000000	
\$k0	26	0x00000000	
\$k1	27	0x00000000	
\$gp	28	0x10008000	
\$sp	29	0x7ffffeffc	
\$fp	30	0x00000000	
\$ra	31	0x00000000	
pc		0x004000c8	

Consul: -

Mars Messages

Run I/O

Clear

Muhammad Ali, 19pwcse1801
finding LCM of two numbers
enter a number
24

Mars Messages

Run I/O

Clear

enter a number
24
enter second number
28

Mars Messages

Run I/O

Clear

28
HCF of two numbers is
4
-- program is finished running --