**--------Program to add numbers input from keyboard------**

.model small

.stack

.data

.code

main proc

.startup

mov ah,01h

int 21h

sub al,30h

mov bl,al

;store 1st

number in bl

mov ah,01

int 21h

sub al,30h

add al,bl

push al

jnc SKIP

mov dl, ‘1’

mov ah,02h

int 21h

SKIP: pop al

add al,30h

mov dl,al

mov ah,02h

int 21h

.exit

main endp

end main

**----------Program to concatenate two Strings------------**

.model small

.stack

.data

string1 db 'Microprocessor$'

string2 db 'Assembly Language$'

string3 db ?



Compiled By: Er. Saroj Bista (Asst. Professor, Nepal College of Information Technology) Page 78

.code

main proc

.startup

mov di,offset string3

mov si,offset string1

mov cx,14

AGAIN1:

mov bx,[si]

mov [di],bx

inc si

inc di

loop AGAIN1

mov si,offset string2

mov cx,18

AGAIN2:

mov bx,[si]

mov [di],bx

inc si

inc di

loop AGAIN2

.exit

main endp

end main

**-----------Program to check password. If Password is wrong print ‘Invalid User’ and if right print ‘Welcome’---------**

.model small

.stack

.data

password db 'secret$'

msg1 db 'Enter the Password:$'

msg2 db 'Welcome$'

msg3 db 'Invalid User$'

val db ?

.code

main proc

.startup



Compiled By: Er. Saroj Bista (Asst. Professor, Nepal College of Information Technology) Page 79

mov dx,offset msg1

mov ah,09h

int 21h

mov bh,0 ; to count no. of character matched

mov cx,5 ; length of password

mov si,offset password

AGAIN: mov ah,01h

int 21h

mov val,al

mov bl,[si]

cmp val,bl

jne SKIP ; jump if not equal inc bh

SKIP:inc si

loop AGAIN

cmp bh,5

jne INVALID

mov dx,offset msg2

mov ah,09h

int 21h

jmp EXIT

INVALID:

mov dx,offset msg3

mov ah,09h

int 21h

EXIT:

.exit

main endp

end main

**---------Program to Print two strings in different lines------**

.model small

.stack

.data

name1 db 'pokhara university',13,10,'$' name2 db 'Kaski Nepal',13,10,'$'



Compiled By: Er. Saroj Bista (Asst. Professor, Nepal College of Information Technology) Page 80

.code

main proc

.startup

mov dx,offset name1

mov ah,09h

int 21h

mov dx,offset name2

mov ah,09h

int 21h

.exit

main endp

end main

**--------Program to change LOWERCASE string into UPPERCASE-----**

.model small

.stack

.data

name1 db 'pokhara university$'

.code

main proc

.startup

mov dx,offset name1

mov ah,09h

int 21h

mov cx,18

mov si, offset name1

UPPERCASE:

sub [si],20h ;note: to change UPPERCASE into lowercase add 20h

mov dl,[si]

mov ah,02h

int 21h

inc si

loop UPPERCASE

.exit

main endp

end main



Compiled By: Er. Saroj Bista (Asst. Professor, Nepal College of Information Technology) Page 81

**---Program to ADD two 8-bit BCD numbers and display result----**

.model small

.stack

.data

num1 db 32

num1 db 51

.code

main proc

.startup

mov al, num1

mov ah, num2

add al, ah

aam

add ax, 3030h

mov bl,al

mov dl,ah

mov ah,02h

int 21h

mov dl,bl

mov ah,02h

int 21h

.exit

main endp

end main

**----------Program to input a string from keyboard and print it in reverse order----------------**

.model small

.stack

.data

string db ?

len db 10

; length of string to be input

.code

main proc

.startup



Compiled By: Er. Saroj Bista (Asst. Professor, Nepal College of Information Technology) Page 82

mov cx, len

mov si, offset string

AGAIN:

mov ah, 01h

int 21h

mov [si], al

inc si

loop AGAIN

mov cx, len

REPEAT:

mov dl, [si]

mov ah, 02h

int 21h

dec si

loop REPEAT

.exit

main endp

end main

**------Program to convert hexadecimal (or binary) to ASCII----- ------ number must be less than 100----------**

.model small

.stack

.data

num db 32h

.code

main proc

.startup

mov al, num

mov ah, 0

aam

add ax, 3030h

mov bl,al

mov dl,ah

mov ah,02h

int 21h



Compiled By: Er. Saroj Bista (Asst. Professor, Nepal College of Information Technology) Page 83

mov dl,bl

mov ah,02h

int 21h

.exit

main endp

end main

**------Program to print number of vowels in given string-------**

.model small

.stack

.data

string db 'microprocessor$'

.code

main proc

|  | .startup |  |
| --- | --- | --- |
|  | mov bh,0 | ; to count no. of vowels |
|  | mov cx,14 | ; length of string |
|  | mov si,offset string | |
| AGAIN: |  |  |
|  | mov al,[si] |  |
|  | cmp al, ‘a’ |  |
|  | je COUNT | ; jump if equal |
|  | cmp al, ‘e’ |  |
|  | je COUNT | ; jump if equal |
|  | cmp al, ‘i’ |  |
|  | je COUNT | ; jump if equal |
|  | cmp al, ‘o’ |  |
|  | je COUNT | ; jump if equal |
|  | cmp al, ‘u’ |  |
|  | jne SKIP | ; jump if not equal |
| COUNT: | inc bl |  |
| SKIP: | inc si |  |
|  | loop AGAIN |  |



Compiled By: Er. Saroj Bista (Asst. Professor, Nepal College of Information Technology) Page 84

add bl,30h mov dl,bl mov ah,02h int 21h

;convert count to ASCII to print

.exit

main endp

end main

**------Program to convert ASCII to Hexadecimal (or Binary)----- ------Result stored in AX---------**

.model small

.stack

.data

string db ‘Enter two digit Number:$’ num db ?

.code

main proc

| .startup |  |  |
| --- | --- | --- |
| mov cx, | 10 | ;multiplier of 10 |
| mov dx, | offset string | |
| mov ah, | 09h |  |
| int 21h |  |  |
| mov ah, | 01h |  |
| int 21h |  |  |
| sub al, | 30h |  |
| mov ah, | 0 |  |
| mul cx |  | ;multiplies ax by cx |
| push ax |  | ;save result |
| mov ah, | 01h |  |
| int 21h |  |  |
| sub al, | 30h |  |
| mov bl, | al |  |
| mov bh, | 0 |  |
| pop ax |  |  |

add ax, bx

.exit

main endp

end main