

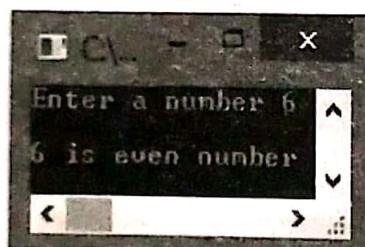
Here, an *inner for loop* is written inside the *outer for loop*. For every value of *j*, *j* takes the value from 1 to *i* and then value is incremented and next iteration of outer loop starts ranging *j* value from 1 to *i*.

Practice on C Program (Topic 5.2.13-5.2.14)

- For any integer input through the keyboard, write a C program to find out whether it is an odd number or even number.

```
#include<stdio.h>
#include<conio.h>
main()
{
    int n,r;
    printf("Enter a number ");
    scanf("%d",&n);
    r=n%2;
    if(r==0)
        printf("\n%d is even number",n);
    else
        printf("\n%d is odd number",n);
    getch();
}
```

Output:

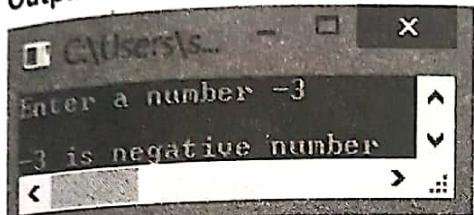


- Write a program to input a number and print it is positive or negative number.

```
#include<stdio.h>
#include<conio.h>
main()
{
    int n;
    printf("Enter a number ");
```

```
scanf("%d",&n);
if(n>0)
    printf("\n%d is positive number",n);
else
    printf("\n%d is negative number",n);
getch();
}
```

Output:



3. Write a program to find the largest number between two numbers.

```
#include<stdio.h>
#include<conio.h>
main()
{
int a, b;
printf("Enter first number ");
scanf("%d",&a);
printf("Enter second number ");
scanf("%d",&b);
if(a>b)
    printf("\n%d is greatest number",a);
else
    printf("\n%d is greatest number",b);
getch();
}
```

4. Write a program to find the largest number among three numbers.

```
#include<stdio.h>
#include<conio.h>
main()
```

```

{
int a, b, c;
printf("Enter first number ");
scanf("%d", &a);
printf("Enter second number ");
scanf("%d", &b);
printf("Enter third number ");
scanf("%d", &c);
if(a>b && a>c)
    printf("\n%d is greatest number", a);
else if(b>a && b>c)
    printf("\n%d is greatest number", b);
else
    printf("\n%d is greatest number", c);
getch();
}

```

5. Write a program to input any three different numbers and find the middle value.

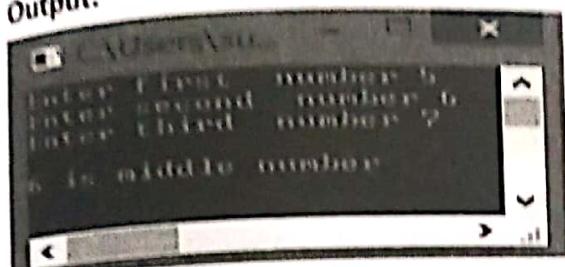
```

#include<stdio.h>
#include<conio.h>
main()
{
int n1, n2, n3;
printf("Enter first number ");
scanf("%d", &n1);
printf("Enter second number ");
scanf("%d", &n2);
printf("Enter third number ");
scanf("%d", &n3);
if(n1==n2 || n1==n3 || n2==n3)
    printf("\nPlease, enter the different numbers ");
else if((n1>n2 && n1<n3) || (n1<n2 && n1>n3))
    printf("\n%d is middle number", n1);
else if((n2>n1 && n2<n3) || (n2<n1 && n2>n3))

```

```
    printf("\n%d is middle number",n2);
else
    printf("\n%d is middle number",n3);
getch();
return(0);
}
```

Output:



6. Write a program to input the cost price and selling price and calculate the profit or loss.

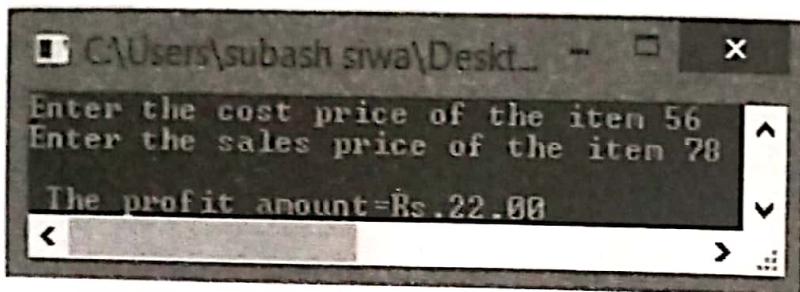
```
#include<stdio.h>
#include<conio.h>
main()
{
float cp,sp,amt;
printf("Enter the cost price of the item ");
scanf("%f",&cp);
printf("Enter the sales price of the item ");
scanf("%f",&sp);
if(sp>cp)
{
    amt=sp-cp;
    printf("\n The profit amount=Rs.%2f",amt);
}
else if(cp>sp)
{
    amt=cp-sp;
    printf("\n The loss amount=Rs.%2f",amt);
}
```

```

    }
else
    printf("\n There is neither profit nor loss");
getch();
}

```

Output:



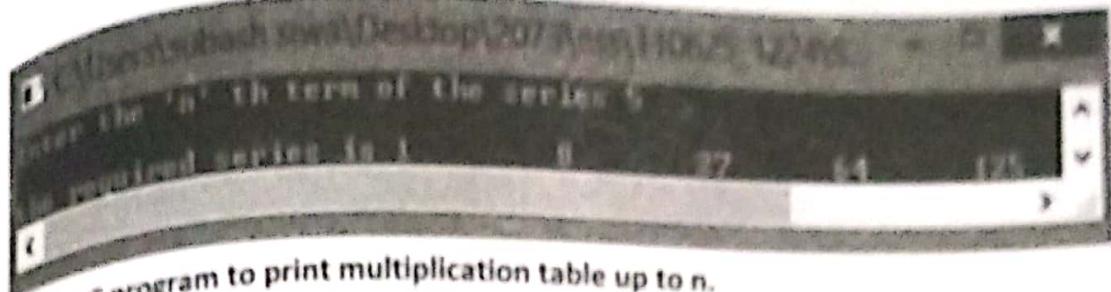
7. Write a program to print the series of cube numbers up to nth term. 1, 8, 27,....

```

#include<stdio.h>
#include<conio.h>
main()
{
int n,i,c;
printf("Enter the 'n' th term of the series ");
scanf("%d",&n);
printf("\nthe required series is ");
for(i=1;i<=n;i++)
{
    c=i*i*i;
    printf("%d\t",c);
}
getch();
return(0);
}

```

Output:



Write a C program to print multiplication table up to n.

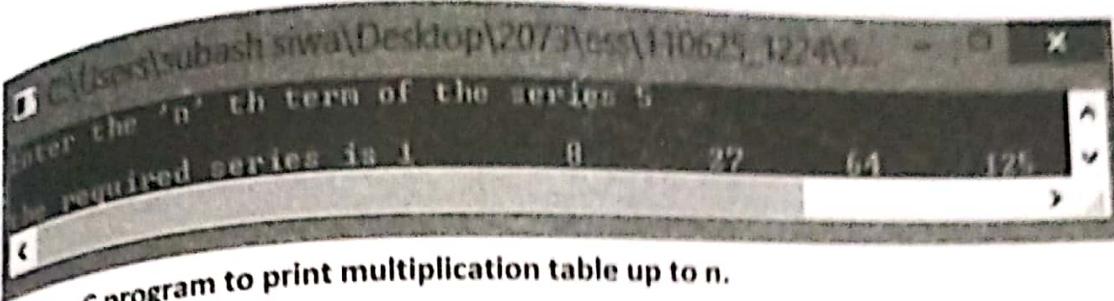
```
#include<stdio.h>
#include<conio.h>
main()
{
    int n,i,j,m;
    printf("Enter the last number for the series of multiplication table ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        printf("\nThe multiplication table of %d is ");
        for(j=1;j<=10;j++)
        {
            m=j*i;
            printf("\n%d * %d = %d",i,j,m);
        }
    }
    getch();
}
```

Output:

The screenshot shows a terminal window with the following text:

```
C:\Users\subash siwak... ->
1 * 1 =1
1 * 2 =2
1 * 3 =3
1 * 4 =4
1 * 5 =5
1 * 6 =6
1 * 7 =7
1 * 8 =8
1 * 9 =9
1 * 10 =10
The multiplication table of 1 is

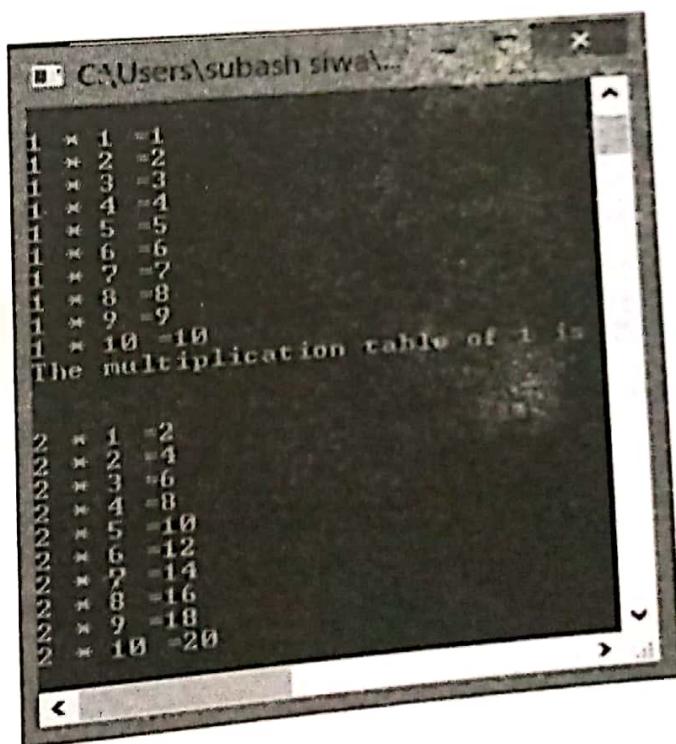
2 * 1 =2
2 * 2 =4
2 * 3 =6
2 * 4 =8
2 * 5 =10
2 * 6 =12
2 * 7 =14
2 * 8 =16
2 * 9 =18
2 * 10 =20
```



Write a C program to print multiplication table up to n.

```
#include<stdio.h>
#include<conio.h>
main()
{
    int n,i,j,m;
    printf("Enter the last number for the series of multiplication table ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        printf("\nThe multiplication table of %d is ");
        for(j=1;j<=10;j++)
        {
            m=j*i;
            printf("\n%d * %d =%d",i,j,m);
        }
    }
    getch();
}
```

Output:



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9. Write a C program to print Fibonacci series upto N terms. [1, 1, 2, 3, 5,]

```
#include<stdio.h>
#include<conio.h>
main()
{
    int a,b,f,n,i;
    printf("Enter the value of 'n' th term : ");
    scanf("%d",&n);
    printf("\n The fibonacci series up to %d th term is :\n\n ",n);
    a = 0;
    b = 1;
    f = 1;
    for(i=1;i<=n;i++)
    {
        printf("%d\t",f);
        f = a + b;
        a=b;
        b=f;
    }
    getch();
}
```

Output:

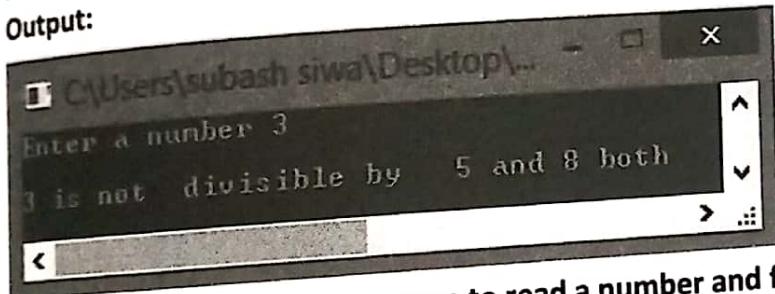
```
F:\Documents\My Documents\Desktop\2073\New\110625_1224\Solved C Programs Practice> fibonacci
Enter the value of 'n' th term : 5
The Fibonacci series up to 5 th term is 1 1 2 3 5
```

10. Write a program to input a number and find whether it is exactly divisible by both 4 and 8 or not.

```
#include<stdio.h>
#include<conio.h>
main()
{
    int n,r1,r2;
    printf("Enter a number ");
```

```
scanf("%d",&n);
r1=n%5;
r2=n%8;
if(r1==0&&r2==0)
    printf("\n%d is exactly divisible by both 5 and 8",n);
else if(r1==0)
    printf("\n%d is exactly divisible by 5 only but not by 8",n);
else if(r2==0)
    printf("\n%d is exactly divisible by 8 only but not by 5",n);
else
    printf("\n%d is not divisible by 5 and 8 both",n);
getch();
}
```

Output:



```
C:\Users\subash siwa\Desktop\...
Enter a number 3
3 is not divisible by 5 and 8 both
```

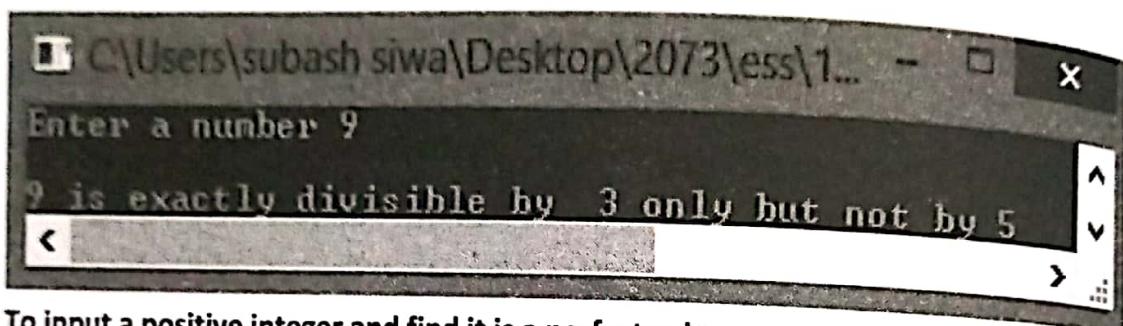
11. Write an algorithm and C program to read a number and find is it exactly divisible by 3 and 5 or not?

```
#include<stdio.h>
#include<conio.h>
main()
{
int n,r1,r2;
printf("Enter a number ");
scanf("%d",&n);
r1=n%3;
r2=n%5;
if(r1==0&&r2==0)
    printf("\n%d is exactly divisible by both 3 and 5",n);
else if(r1==0)
```

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```
printf("\n%d is exactly divisible by 3 only but not by 5",n);
else if(r2==0)
    printf("\n%d is exactly divisible by 5 only but not by 3",n);
else
    printf("\n%d is not divisible by 3 and 5 both",n);
getch();
}
```

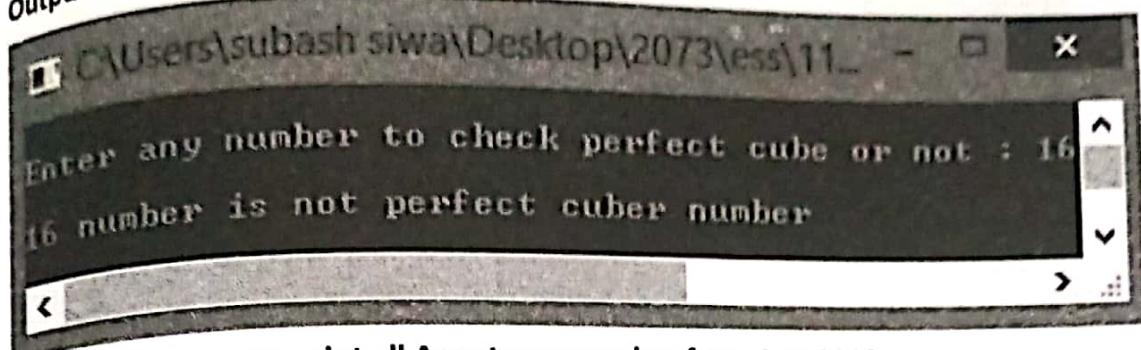
Output:



12. To input a positive integer and find it is a perfect cube number or not.

```
#include<stdio.h>
#include<conio.h>
main()
{
int n, i;
printf("\nEnter any number to check perfect cube or not : ");
scanf("%d",&n);
for(i=1;i<n;i++)
{
if(i*i*i == n)
{
printf("\n %d is perfect cube number",n);
break;
}
}
if(i==n)
printf("\n%d number is not perfect cuber number",n);
getch();
}
```

Output:

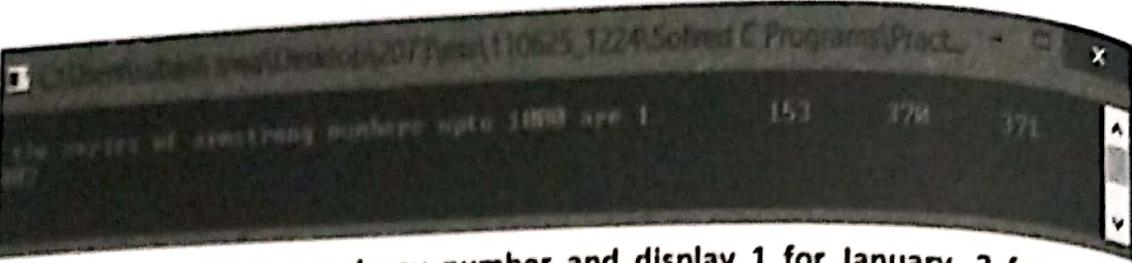


```
C:\Users\subash siwa\Desktop\2073\ess\11_
Enter any number to check perfect cube or not : 16
16 number is not perfect cuber number
```

13. Write a C program to print all Armstrong number from 1 to 1000

```
#include<stdio.h>
#include<conio.h>
main()
{
    int i,n,a,x,r;
    printf("\n the series of armstrong numbers upto 1000 are ");
    for(i=1;i<=1000;i++)
    {
        n=i;
        a=i;
        x=0;
        while(n>0)
        {
            r=n%10;
            x=x+r*r*r;
            n=n/10;
        }
        if(x==a)
            printf("%d\t",a);
    }
    getch();
}
```

Output:



14. Write a C program to read any number and display 1 for January, 2 for February, ..., 12 for December and other for 'wrong input'

```
#include<stdio.h>
#include<conio.h>
main()
{
    int a;
    printf("\nEnter a number between 1 to 12 ");
    scanf("%d",&a);
    switch(a)
    {
        case 1:
            printf("\nJanuary");
            break;
        case 2:
            printf("\nFebruary");
            break;
        case 3:
            printf("\nMarch");
            break;
        case 4:
            printf("\nApril");
            break;
        case 5:
            printf("\nMay");
            break;
        case 6:
            printf("\nJune");
            break;
        case 7:
            printf("\nJuly");
            break;
        case 8:
            printf("\nAugust");
            break;
        case 9:
            printf("\nSeptember");
            break;
        case 10:
            printf("\nOctober");
            break;
        case 11:
            printf("\nNovember");
            break;
        case 12:
            printf("\nDecember");
            break;
        default:
            printf("Wrong Input");
    }
}
```

```
    printf("\nJuly");
    break;

case 8:
    printf("\nAugust");
    break;

case 9:
    printf("\nSeptember");
    break;

case 10:
    printf("\nOctober");
    break;

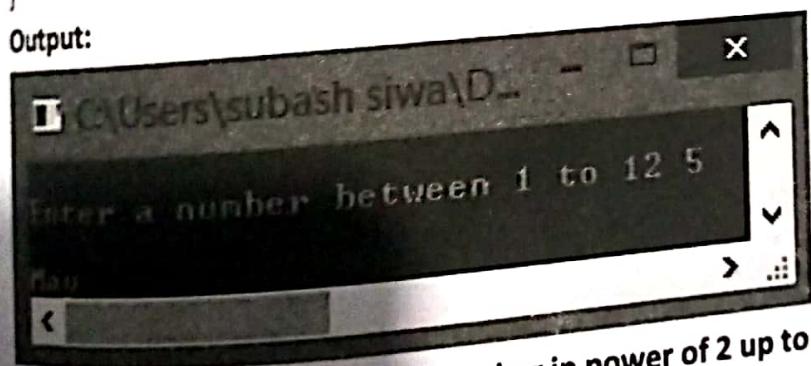
case 11:
    printf("\nNovember");
    break;

case 12:
    printf("\nDecember");
    break;

default:
    printf("\nInvalid number. Please enter a number between 1 to 12 ");
}

getch();
}
```

Output:



15. Write a C program to show the number in power of 2 up to N

```
#include<stdio.h>
#include<math.h>
#include<conio.h>
main()
{
```

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```

long int i, n;
long int ans;
printf("\nEnter how many terms : ");
scanf("%d",&n);
for(i=0;i<=n;i++)
{
    ans = pow(2,i);
    printf("\nThe %d times power of 2 is %ld",i,ans);
}
getch();
}

```

Output:

```

C:\Users\subash si... - □ ×
Enter how many terms : 2
The 0 times power of 2 is 1
The 1 times power of 2 is 2
The 2 times power of 2 is 4

```

16. Write a program to encode user input text and decode them.

```

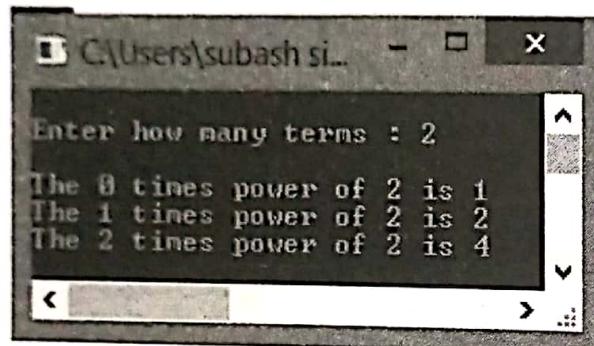
#include<stdio.h>
#include<conio.h>
main()
{
char msg[100], encod[100], decod[100];
int i;
puts("Enter message to encode : ");
gets(msg);
for(i=0;msg[i]!='\0';i++)
    encod[i] = msg[i] - 10; //any value can be placed.
encod[i] = '\0';
printf("\nEncoded message is :\n");
puts(encod);
}

```

```

long int i, n;
long int ans;
printf("\nEnter how many terms : ");
scanf("%d",&n);
for(i=0;i<=n;i++)
{
    ans = pow(2,i);
    printf("\nThe %d times power of 2 is %ld",i,ans);
}
getch();
}

```

Output:

- 16. Write a program to encode user input text and decode them.**

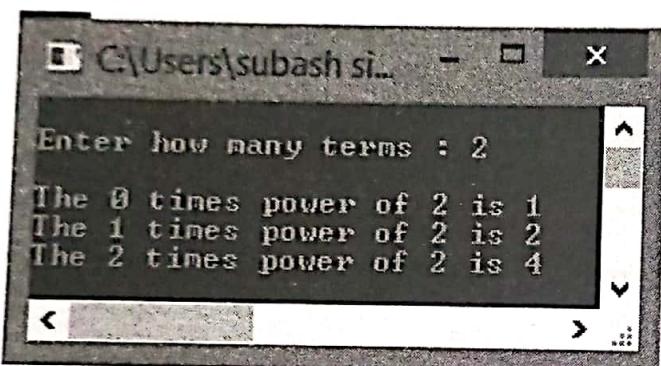
```

#include<stdio.h>
#include<conio.h>
main()
{
    char msg[100], encod[100], decod[100];
    int i;
    puts("Enter message to encode : ");
    gets(msg);
    for(i=0;msg[i]!='\0';i++)
        encod[i] = msg[i] - 10; //any value can be placed.
    encod[i] = '\0';
    printf("\nEncoded message is :\n");
    puts(encod);
}

```

```
long int i, n;
long int ans;
printf("\nEnter how many terms : ");
scanf("%d",&n);
for(i=0;i<=n;i++)
{
    ans = pow(2,i);
    printf("\nThe %d times power of 2 is %ld",i,ans);
}
getch();
```

Output:

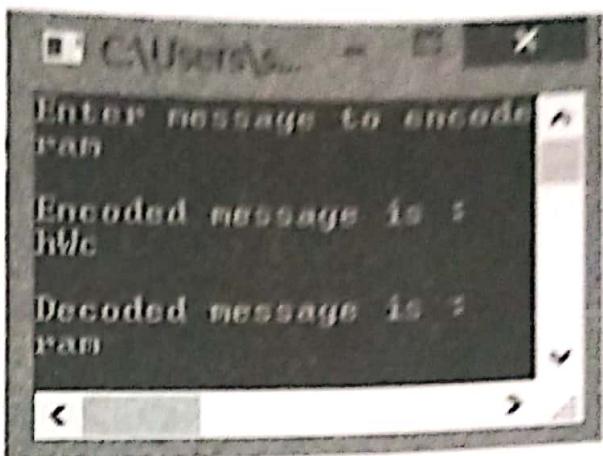


16. Write a program to encode user input text and decode them.

```
#include<stdio.h>
#include<conio.h>
main()
{
char msg[100], encod[100], decod[100];
int i;
puts("Enter message to encode : ");
gets(msg);
for(i=0;msg[i]!='\0';i++)
    encod[i] = msg[i] - 10; //any value can be placed.
encod[i] = '\0';
printf("\nEncoded message is :\n");
puts(encod);
```

```
for(i=0;encod[i] != '\0';i++)
    decod[i] = encod[i] + 10;//same value should be placed.
printf("\nDecoded message is :\n");
puts(decod);
getch();
}
```

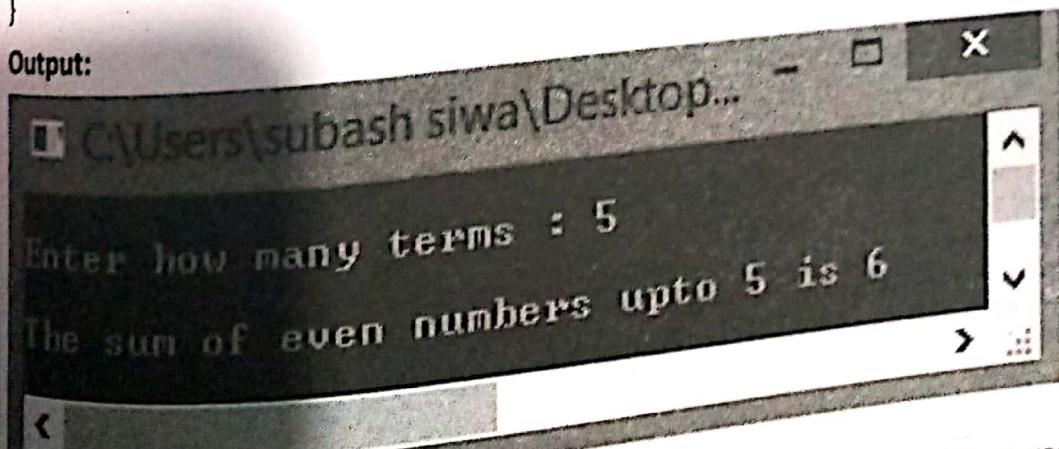
Output:



17. Write a C program to display the sum of 'n' terms of even numbers.

```
#include<stdio.h>
#include<conio.h>
main()
{
    int i, n, evnsum=0;
    printf("\nEnter how many terms : ");
    scanf("%d", &n);
    for(i=0;i<=n;i+=2)
        evnsum += i;
    printf("\nThe sum of even numbers upto %d is %d", n, evnsum );
    getch();
}
```

Output:



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18. Write a C program to print first 10 terms of the following series using FOR loop 1, 5, 9,

```
13    ANSWER
#include<stdio.h>
#include<conio.h>
main()
{
int i, a=1;
printf("\nThe first 10 terms of the series is : ");
for(i=0;i<10;i++)
{
    printf("%d, ",a);
    a = a + 4;
}
getch();
}
```

Output:

```
C:\Users\subash.siva\Desktop\2073\ess\110625_1224\Solved C Program - P x
The first 10 terms of the series is : 1, 5, 9, 13, 17, 21, 25, 29, 33, 37
```

19. Write a program to input an integer number and checks whether it is prime or not.

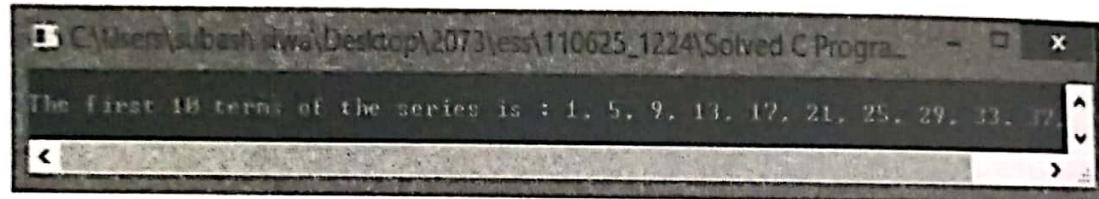
```
#include<stdio.h>
#include<conio.h>
main()
{
int n,r,i;
printf("\n Enter a number ");
scanf("%d",&n);
for(i=2;i<n;i++)
{
    if(n%i==0)
    {
```

18. Write a C program to print first 10 terms of the following series using FOR loop 1, 5, 9,

13

```
#include<stdio.h>
#include<conio.h>
main()
{
    int i, a=1;
    printf("\nThe first 10 terms of the series is : ");
    for(i=0;i<10;i++)
    {
        printf("%d, ",a);
        a = a + 4;
    }
    getch();
}
```

Output:

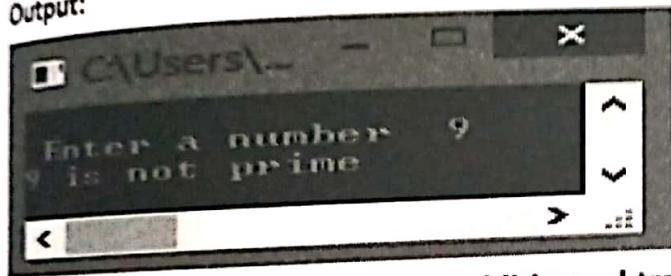


19. Write a program to input an integer number and checks whether it is prime or not.

```
#include<stdio.h>
#include<conio.h>
main()
{
    int n,r,i;
    printf("\n Enter a number ");
    scanf("%d",&n);
    for(i=2;i<n;i++)
    {
        if(n%i==0)
        {
```

```
    printf("%d is not prime",n);
    break;
}
if(i==n)
    printf("\n%d is prime",n);
getch();
}
```

Output:



1. A program on switch statement in addition, subtraction ,product and division.

```
#include<stdio.h>
#include<conio.h>
int main ()
{
    int x, a, b, Add, s, m; float d; printf ("Enter Any two Numbers");
    scanf("%d%d",&a,&b);
    printf(" ----->\n Press 1 for addition \n Press 2 for Subtraction \n Press 3 for
Multiplication \n Press 4 for Division \n Press 5 to Exit"); scanf ("%d",&x);switch(x)
    {
        case 1:
            Add=a+b; printf("Their sum is %d \n", Add); break;
        case 2:
            s=a-b; printf("Their difference is %d \n",s); break;
        case 3:
            m=a*b;
            printf("their product is %d \n",m); break;
        case 4:
            break;
    }
}
```

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```
d=(float)a/b;
printf("%d/%d is %f \n",a,b,d); break;
case 5:
    return 0; break; default: printf ("Enter Valid Number!!!!!!\n");
}
getch();
}
```

21. WAP to enter any character and check whether the entered character is vowel or consonant.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    char ch;
    printf("Enter any character=");
    scanf("%c",&ch);
    if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u' || ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U')
        printf("Vowel");
    else
        printf("Consonant");
    getch();
}
```

22. WAP to prompt the user to enter any integer from 1 to 6 and displays the corresponding day of the week.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int day;
    printf("Enter an integer value from 1 to 7\n");
    scanf("%d",&day);
    if(day==1)
```

```
    printf("Sunday");
else if(day==2)
    printf("Monday");
else if(day==3)
    printf("Tuesday");
else if(day==4)
    printf("Wednesday");
else if(day==5)
    printf("Thursday");
else if(day==6)
    printf("Friday");
else if(day==7)
    printf("Saturday");
else
    printf("Invalid day");
getch();
}
```

Output:

Enter an integer value from 1 to 6

5

Thursday

Write a program to display following patterns:

- a) 1
- 2 2
- 3 3 3
- 4 4 4 4

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j;
    clrscr();
```

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```
    printf("Sunday");
else if(day==2)
    printf("Monday");
else if(day==3)
    printf("Tuesday");
else if(day==4)
    printf("Wednesday");
else if(day==5)
    printf("Thursday");
else if(day==6)
    printf("Friday");
else if(day==7)
    printf("Saturday");
else
    printf("Invalid day");
getch();
}
```

Output:

Enter an integer value from 1 to 6

5

Thursday

Q. Write a program to display following patterns:

- a) 1
 2 2
 3 3 3
 4 4 4 4

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i, j;
    clrscr();
```

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```
for(i=1;i<=4;i++)
{
    for(j=1;j<=i;j++)
        printf("%2d",i);
    printf("\n");
}
getch();}
```

b) 5 4 3 2 1
5 4 3 2
5 4 3
5 4
5

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i, j;
clrscr();
for(i=1;i<=5;i++)
{
    for(j=5;j>=i;j--)
        printf("%2d",j);
    printf("\n");
}
getch();
}
```

c) 1 2 3 4 5
1 2 3 4
1 2 3
1 2
1

```
#include<stdio.h>
```

```
#include<conio.h>
void main()
{
    int i, j;
    clrscr();
    for(i=5;i>=1;i--)
    {
        for(j=1;j<=i;j++)
            printf("%2d",j);
        printf("\n");
    }
    getch();
}
```

d) C O M P U T E R
C O M P U T E
C O M P U T
C O M P U
C O M P
C O M
C O
C

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i, j, k;
    char text[] = "COMPUTER";
    clrscr();
    for(i=0;i<8;i++)
    {
        k=0;
        for(j=8;j>i;j--)
        {
            printf("%2c",text[k]);
            k++;
        }
    }
}
```

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```
        }
        printf("\n");
    }
getch();
}
e)      C
        C O
        C O M
        C O M P U
        C O M P U T
        C O M P U T E
        C O M P U T E R
#include<stdio.h>
#include<conio.h>
void main()
{
int i, j;
char text[] = "COMPUTER";
clrscr();
for(i=0;i<8;i++)
{
    for(j=0;j<=i;j++)
        printf("%2c", text[j]);
    printf("\n");
}
getch();
}
```

24. Write a program to find factorial of a given number.

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i,n;
long int fact=1;
```

```
clrscr();
printf("\n Input any number:- ");
scanf("%d", &n);
if(n<0)
    printf("\n Invalid Number");
else if(n==0 || n==1)
    printf("\n Factorial of %d is 1",n);
else
{
    for(i=1; i<=n; i++)
        fact = fact*i;
    printf("\n Factorial of %2d = %ld", n, fact);
}
getch();
```

25. Write a program to count number of prime numbers from 1 to up to 'n' numbers.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i, j, n, count=0, prime;
    clrscr();
    printf("\n How many terms:- ");
    scanf("%d", &n);
    for(i=1;i<=n;i++)
    {
        prime = 1;
        for(j=2;j<i;j++)
        {
            if(i%j==0)
            {
                prime = 0;
                break;
            }
        }
        if(prime == 1)
            count++;
    }
    printf("\n Total Prime numbers are: %d", count);
}
```

```
        }
    }
if(prime==1)
{
    printf("%5d", i);
    count++;
}
printf("\n There are %d prime numbers between 1 to %d",count,n);
getch();
}
```

26. Write a program to read a positive number less than 20 and display the multiplication table.

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i,n;
clrscr();
printf("\n Input any number:- ");
scanf("%d", &n);
if(n<20)
{
    for(i=1;i<=10;i++)
        printf("\n %2d x %2d = %3d", n, i, n*i);
}
else
    printf("\n Invalid Number");
getch();
}
```

27. Write a program to read a number and display its reverse number.

```
#include<stdio.h>
#include<conio.h>
```

```
void main()
{
    int rem;
    long int num, org, reverse=0;
    clrscr();
    printf("\n Input any number:- ");
    scanf("%ld", &num);
    org = num;
    do
    {
        rem = num%10;
        reverse = reverse*10+rem;
        num = num/10;
    } while(num!=0);
    printf("\n Reverse of %ld is %ld", org, reverse);
    getch();
}
```

Capsules of Fifth Unit second part-Second section:

- Control Structures are just a way to specify flow of control in programs.
- Selective statement means executing different sections of code depending on a specific condition or the value of a variable.
- Simple if statement: It is used to execute an instruction or block of instructions only if a condition is fulfilled. Here false part is neglected.
- switch evaluates expression and checks if it is equivalent to expression.
- Repetitive statements are used when a section of code may either be executed a fixed number of times, or while some condition is true.
- Allows loops to be nested, that is, one loop may be inside another, nested loop.