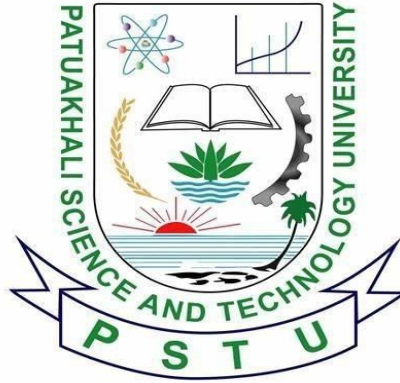# PATUAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY

Course Code: CIT-112

SUBMITTED TO:

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1. Pattern All in one by function

```c
#include<stdio.h>
int pattern1(int n)
{
    for(int i=1;i<=n;i++)
    {
        for(int j=1;j<=i;j++)
        {
            printf("* ");

        }
        printf("\n");

    }

}
int pattern2(int n)
{
    for(int i=0;i<n;i++)
    {
        for(int j=n;j>i;j--)
        {
            printf("* ");

        }
        printf("\n");

    }

}
int pattern3(int n)
{
    for(int i=1;i<=n;i++)
    {
        for(int j=1;j<=n;j++)
        {

                printf("* ");

        }
        printf("\n");

    }

}
int pattern4(int n)
```

```c
{
    for(int i=1;i<=n;i++)
    {
        for(int j=1;j<i;j++)
        {
            printf("  ");
        }
        for(int j=i;j<=n;j++)
        {
            printf("* ");
        }
        printf("\n");

    }
}
int pattern5(int n)
{
    for(int i=1;i<=n;i++)
    {
        for(int j=n-1;j<=1;j--)
        {
            printf("  ");
        }
        for(int j=i;j<=n;j++)
        {
            printf("* ");
        }
        printf("\n");

    }
}
int pattern6(int n)
{
    for(int i=1;i<=n;i++)
    {
        for(int j=1;j<=i-1;j++)
        {
            printf("  ");
        }
        for(int j=i;j<=n;j++)
        {
            printf("* ");
        }
        for(int j=n-1;j<=1;j--)
        {
            printf("  ");
        }
```

```c
        for(int j=i;j<=n;j++)
        {
           printf("* ");
        }
        printf("\n");

    }
}
int pattern7(int n)
{
   for(int i=1;i<=n;i++)
   {
      for(int j=1;j<=n;j++)
      {

            if(i==1 || i==n || j==1 || j==n)
               printf("* ");
            else
               printf("  ");

      }
      printf("\n");

   }

}
int pattern8(int n)
{
   for(int i=1;i<=n;i++)
   {
      for(int j=1;j<=n;j++)
      {

            if(j==i || i==n  || j==1)
               printf("* ");
            else
               printf("  ");

      }
      printf("\n");

   }

}

int main()
{
```
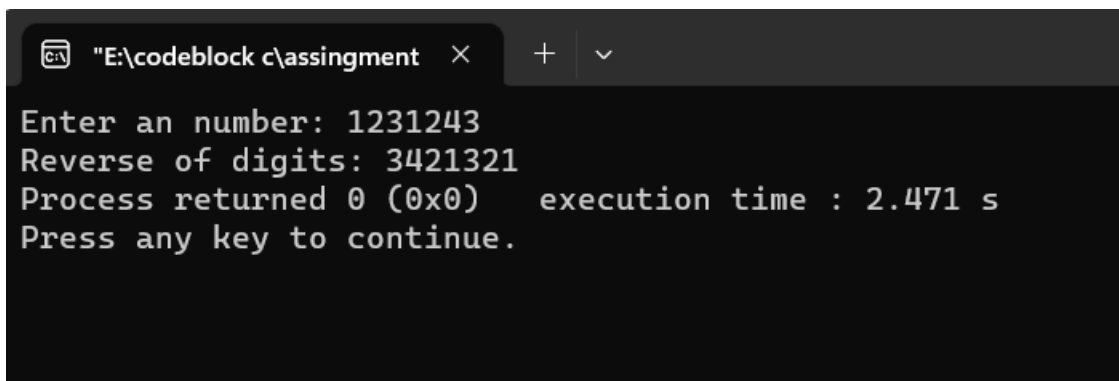
```c
    int n;
    scanf("%d",&n);
    pattern1(n);
    printf("\n");
    pattern2(n);
    printf("\n");
    pattern3(n);
    printf("\n");
    pattern4(n);
    printf("\n");
    pattern5(n);
    printf("\n");
    pattern6(n);
    printf("\n");
    pattern7(n);
    printf("\n");
    pattern8(n);


}
```

```
7
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```

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      * * * * * * *
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          * * *
            *

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*           *
*           *
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*     *
*       *
*         *
* * * * * *

Process returned 0 (0x0)    execution time : 4.332 s
Press any key to continue.
```

2. Reverse a Number

```c
#include<stdio.h>
int main()
{
    int n,sum=0,temp;
    printf("Enter an number: ");
    scanf("%d",&n);
    while(n!=0)
    {
        temp=n%10;
        sum=sum*10+temp;
        n=n/10;

    }
    printf("Reverse of digits: %d",sum);
}
```
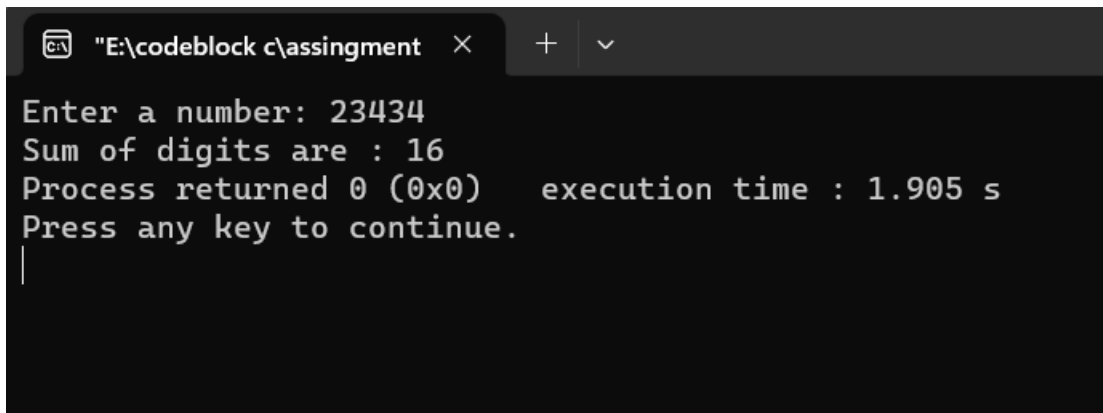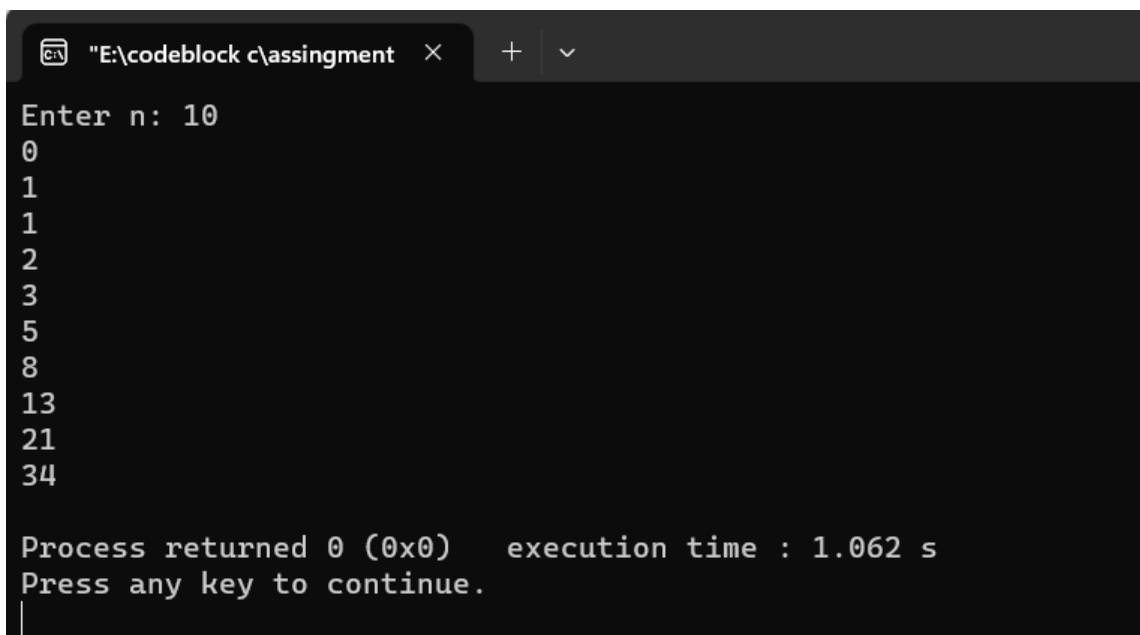
```
"E:\codeblock c\assingment    ×    +    ∨

Enter an number: 1231243
Reverse of digits: 3421321
Process returned 0 (0x0)    execution time : 2.471 s
Press any key to continue.
```

3. Sum of all Digits

```c
#include<stdio.h>
int main()
{
    int n,sum=0,r,x;
    printf("Enter a number: ");
    scanf("%d",&n);
    while(n!=0){

    r=n%10;
    sum=sum+r;
    n=n/10;}
    printf("Sum of digits are : %d",sum);



}
```



```
Enter a number: 23434
Sum of digits are : 16
Process returned 0 (0x0)   execution time : 1.905 s
Press any key to continue.
```

4. Fibonacci Number

```c
#include<stdio.h>
int main()
{  //fibonacci number
   int n,i,num1=0,num2=1,fib;
   printf("Enter n: ");
   scanf("%d",&n);
   printf("%d\n",num1);
   printf("%d\n",num2);
   for(i=0;i<=n-3;i++)
   {
      fib=num1+num2;
      num1=num2;
      num2=fib;
      printf("%d\n",fib);
   }

}
```

```
CMD  "E:\codeblock c\assingment   ✕    +  ⌄

Enter n: 10
0
1
1
2
3
5
8
13
21
34

Process returned 0 (0x0)   execution time : 1.062 s
Press any key to continue.
```
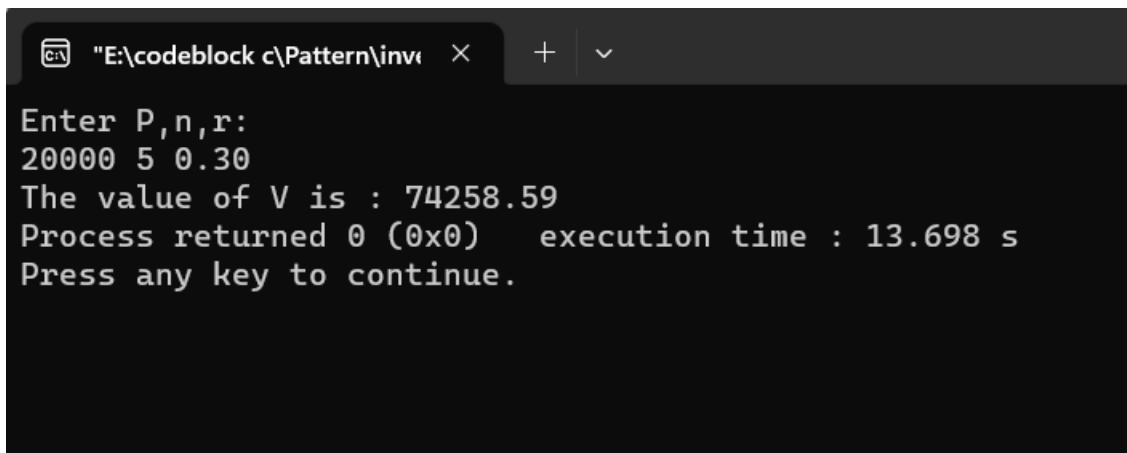
5. Investment Equation

```c
#include<stdio.h>
int main()
{
    float p,n,r;
    printf("Enter P,n,r:\n");
    scanf("%f %f %f",&p,&n,&r);
    float x;
    x=1+r;
    float v;
    v=p*pow(x,n);
    printf("The value of V is : %0.2f",v);

}
```
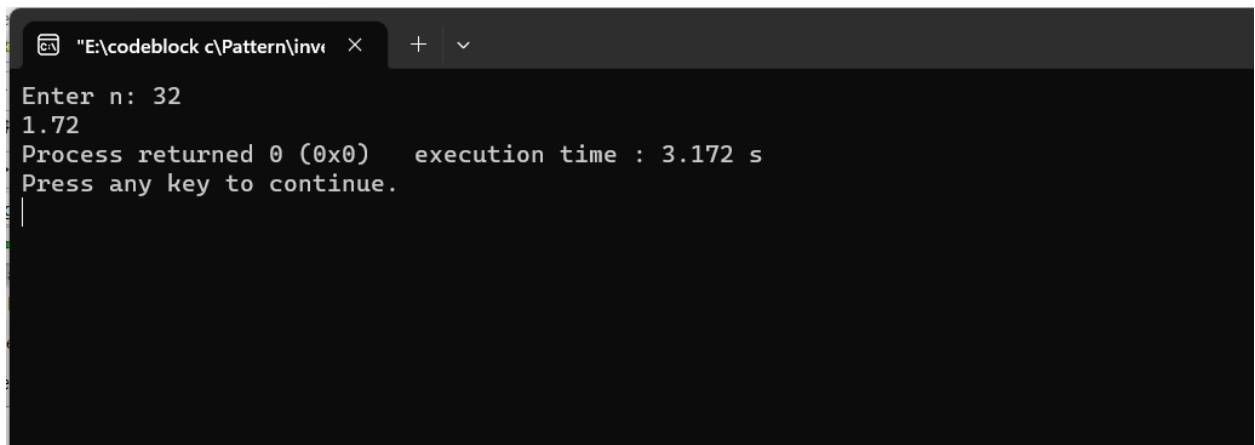
```
"E:\codeblock c\Pattern\inv    X    +    v

Enter P,n,r:
20000 5 0.30
The value of V is : 74258.59
Process returned 0 (0x0)    execution time : 13.698 s
Press any key to continue.
```

6. E= 1 + ½! + 1/3! + ¼! …….+1/n! math

```c
#include<stdio.h>

int main()
{
float n,sum=0;
printf("Enter n: ");
scanf("%f",&n);
for(int i=1;i<=n;i++)
{
    float x=1;
    for(int j=1;j<=i;j++)
    {
        x=x*j;
    }
    sum=sum+(1/x);
}
printf("%0.2f",sum);
}
```
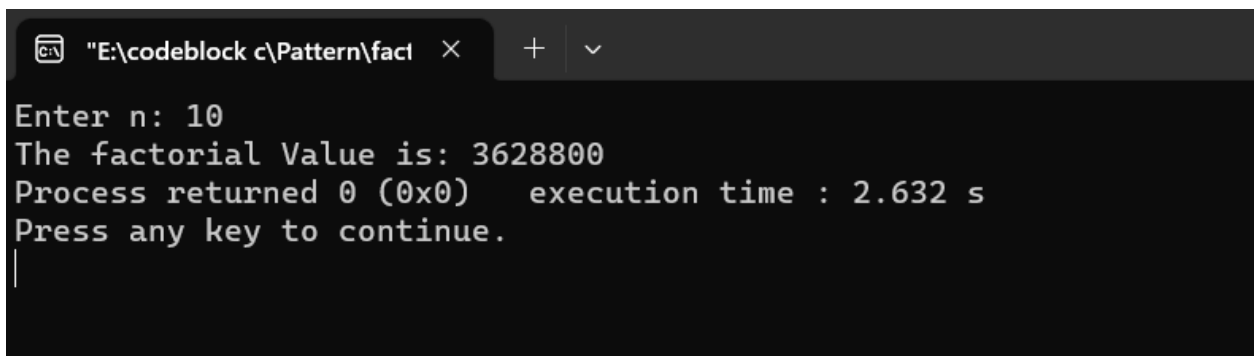


```
"E:\codeblock c\Pattern\inv   ✕    +  ∨

Enter n: 32
1.72
Process returned 0 (0x0)    execution time : 3.172 s
Press any key to continue.
```

7. Factorial Value

```c
#include<stdio.h>
int main()
{
    int n;
    printf("Enter n: ");
    scanf("%d",&n);
    int sum=1;
    for(int i=1;i<=n;i++)
    sum=sum*i;
    printf("The factorial Value is: %d",sum);
}
```

```
"E:\codeblock c\Pattern\fact   ×    +   ∨

Enter n: 10
The factorial Value is: 3628800
Process returned 0 (0x0)    execution time : 2.632 s
Press any key to continue.
```