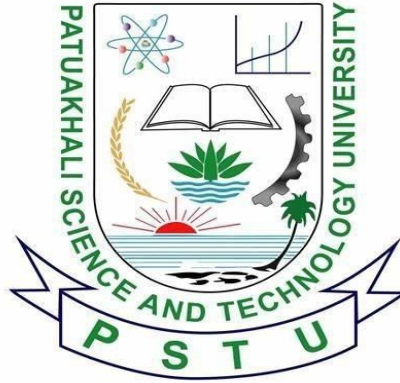


PATUAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY



Course Code: CIT-112

SUBMITTED TO:

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Date of submission: 5-31-2023

1. Pattern All in one by function

```
#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)
```

```

{
    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(" ");
        }
    }
}

```

```

        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");
    }
}

}

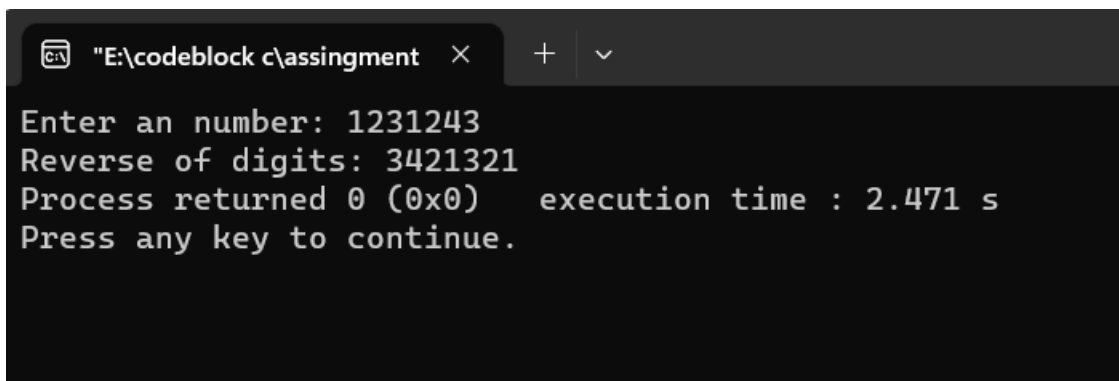
int main()
{

```


2. Reverse a Number

```
#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);
}
```



The screenshot shows a Code::Blocks IDE window with the title bar "E:\codeblock c\assingment". The console output displays the program's execution: it prompts for an input number, receives "1231243", calculates the reverse as "3421321", reports a return code of 0, shows an execution time of 2.471 seconds, and prompts the user to press any key to continue.

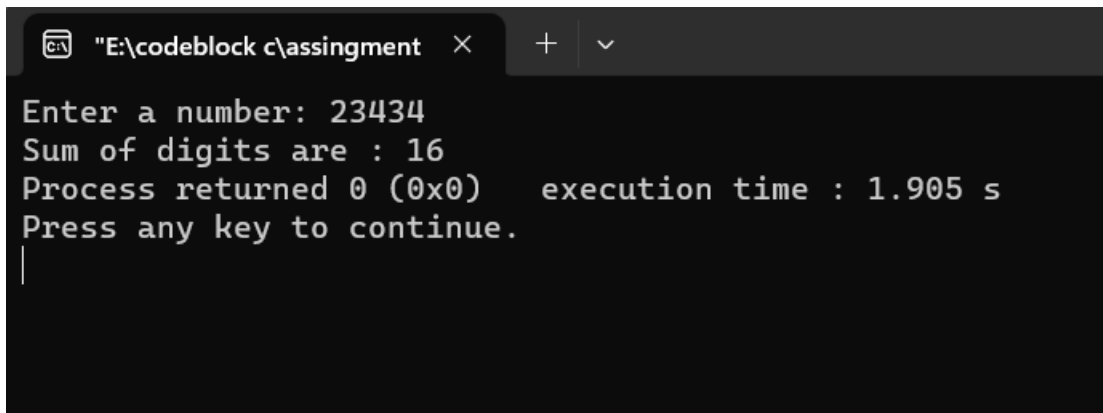
```
"E:\codeblock c\assingment" × + ▾
Enter an number: 1231243
Reverse of digits: 3421321
Process returned 0 (0x0)   execution time : 2.471 s
Press any key to continue.
```

3. Sum of all Digits

```
#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);

}
```



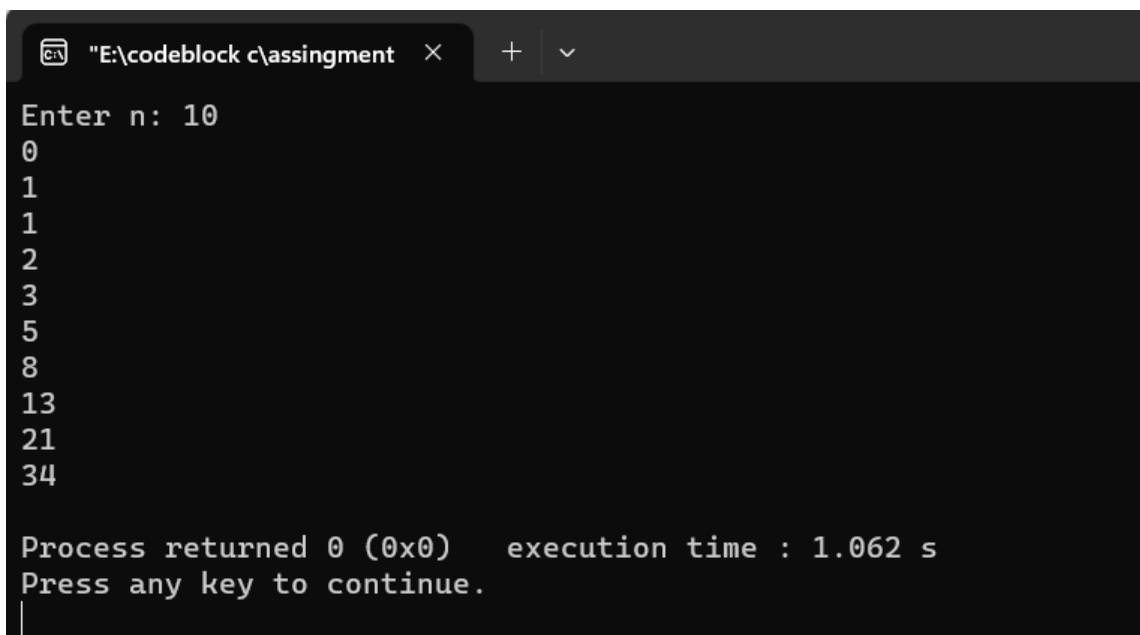
The screenshot shows a terminal window titled "E:\codeblock c\assingment" with a dark background and light-colored text. The output of the program is as follows:

```
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

```
#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);
    }
}
```



The screenshot shows a code editor window with a single tab titled "E:\codeblock c\assingment". The code is the same as shown in the previous block. The output of the program is displayed in the console area, showing the sequence of Fibonacci numbers for n=10: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34. Below the output, it says "Process returned 0 (0x0) execution time : 1.062 s" and "Press any key to continue." with a cursor on a new line.

```
"E:\codeblock c\assingment" × + ▾
Enter n: 10
0
1
1
2
3
5
8
13
21
34

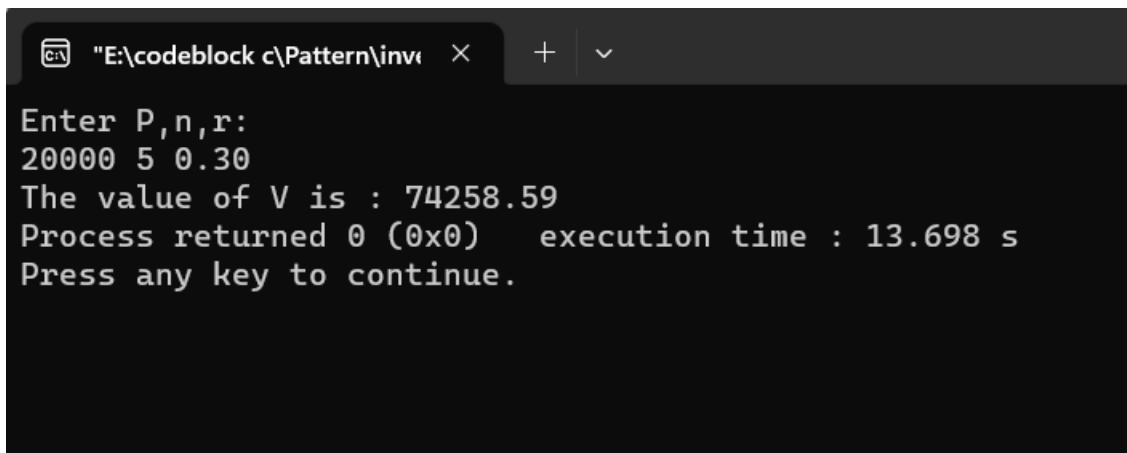
Process returned 0 (0x0)   execution time : 1.062 s
Press any key to continue.
|
```


5. Investment Equation

```
#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);

}
```



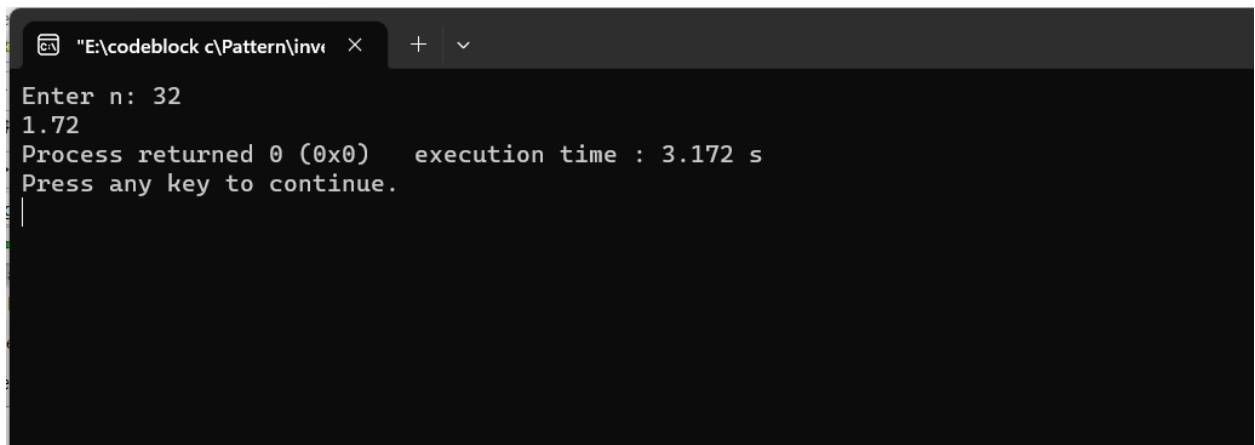
The screenshot shows a Code::Blocks IDE window with a single tab titled "E:\codeblock c\Pattern\invt". The terminal output is as follows:

```
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. $E = 1 + \frac{1}{2!} + \frac{1}{3!} + \frac{1}{4!} + \dots + \frac{1}{n!}$ math

```
#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);
}
```

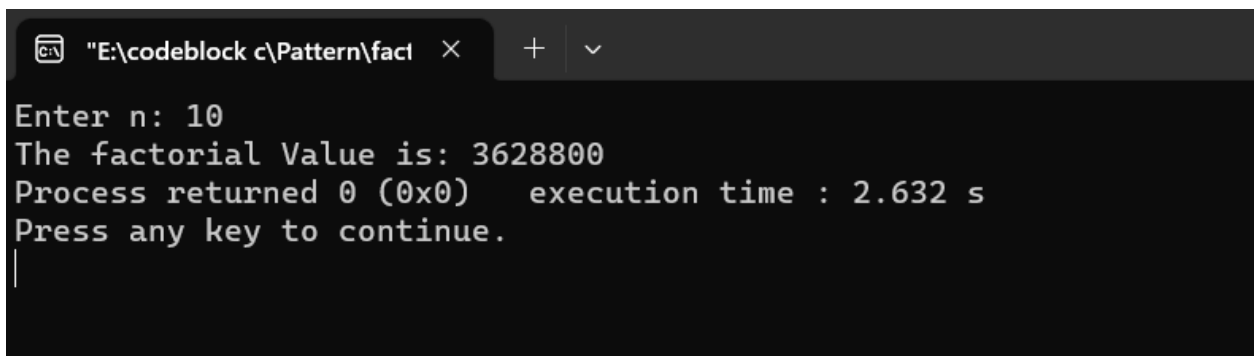


```
"E:\codeblock c\Pattern\inv" × + ▾
Enter n: 32
1.72
Process returned 0 (0x0)   execution time : 3.172 s
Press any key to continue.
|
```

7. Factorial Value

```
#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);
}
```



The screenshot shows a code editor window with a single tab titled "E:\codeblock c\Pattern\fact". The editor contains the C code for calculating the factorial of a number. Below the code, the output of the program is displayed in a terminal-like window. The output shows that the user entered '10', and the program calculated the factorial as 3628800. It also displays the process return code as 0 (0x0) and the execution time as 2.632 seconds. The prompt 'Press any key to continue.' is shown at the bottom of the output window, with a cursor indicating that a key has been pressed.

```
"E:\codeblock c\Pattern\fact" × + v
Enter n: 10
The factorial Value is: 3628800
Process returned 0 (0x0)   execution time : 2.632 s
Press any key to continue.
|
```