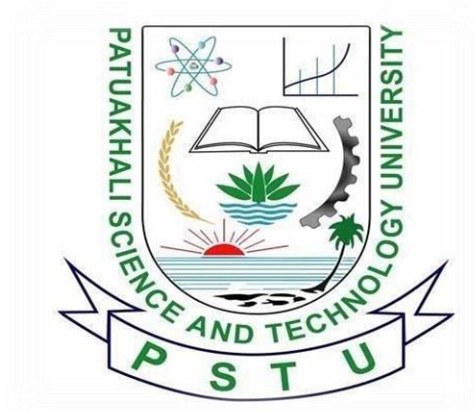


PATUAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY



COURSE CODE 112

SUBMITTED TO:

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Chapter 6

Multiple choice Question

6.1/ ☐ if else

6.2/ ☐ X is assigned the value 5 and string
condition is true is printed.

6.3/ ☐ True if $5 \leq a \leq 10$, False otherwise.

6.4/ ☐ True if the given positive integer is a
multiple of 3 and 7, False otherwise.

6.5/ ☐ String "Hello world" is printed

True or False

☐ False ☐ False ☐ True ☐ True ☐ False

☐ False ☐ True ☐ False ☐ True

☐ True ☐ False ☐ True

Fill in the gaps.

(a) && (and).

(b) Switch.

(c) break.

(d) $x == y$.

(e) if - else.

(f) || (or)

(g) go to

6.3/ In the following statement if
the value of $n = 1$ than condition
will be true. But the value of n
 $= 0$ than the condition will not be true.
So if $n = 1$ than the program will run.
Other wise it will be an error.

6.41 (a) if (grade <= 59)
printf(" --- "

6.41 (a) if (grade <= 59)
{ if (grade >= 50)
second = second + 1;
}

(b) if (number > 100)
printf("out of range");
else if (number < 0)
printf("out of range");
else
sum = sum + number;

(c) if (m1 > 60)
{ if (m2 > 60)
printf("Admitted\n");
else if (T > 200)
printf("Admitted\n");
else
printf("Not Admitted");

6.5/ (a) - False

(b) True

(c) False

(d) True.

6.6/ (a) error. (b) error

(c) no error. (d) error.

6.7/ (a) $x > 10$

(b) $(x \neq 10) \parallel ((y \neq 5) \parallel (z \neq 0)) = (x > 0)$

(c) $((x + y \neq z) \text{ and } (z > 5)) = (x < z)$

(d) $(x > 5) \text{ and } (y \neq 10) \text{ and } (z > 5) = (x > 5)$

6.8/

(a) Output: 10, 10.

(b) output: 1, 0.

(c) output: 10, 0.

(d) output: 0, 1.

6.9/ (a) output: 1, 0;

(b) output: 0, 0, 0

6.10/ Output: 8,

6.11/ Output: Delhi Bangalore.

6.12/ Output:

1

4

3

8

6.13/ output: 0 0 2

6.14/ output: 25.

6.15/ output: Number is Negative.

6.16/ The program is not correct. Because switch statement can only work with an integer number. But there is float character datatype in this switch statement. So the program is a error.

6.17/ Output: 10

6.18/ Output: 10.

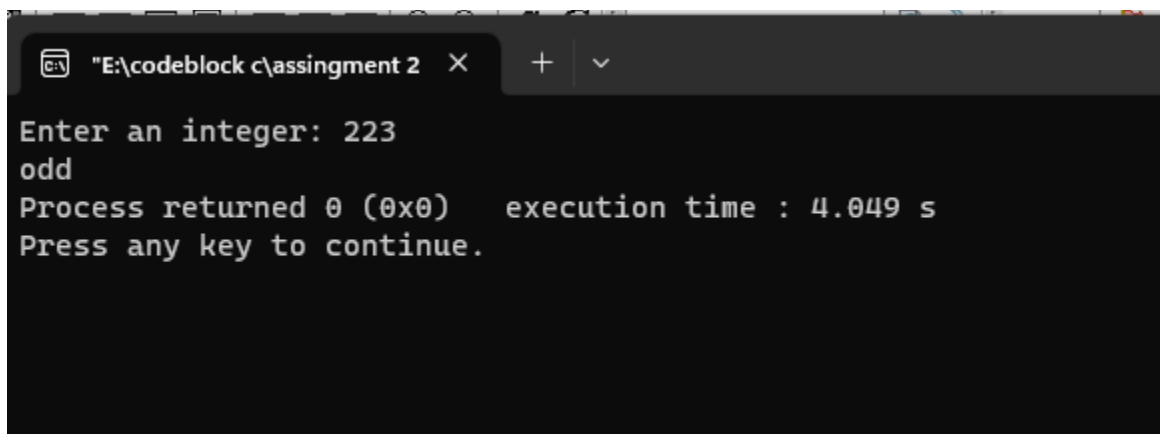
Programming Exercise

6.1 Even or Odd

```
#include<stdio.h>

int main()
{ int num;

  printf("Enter an integer: ");
  scanf("%d",&num);
  if(num%2==0)
    printf("Even");
  else if(num!=0)
    printf("odd");
  else
    printf("the number is 0");
  return 0;
}
```



```
"E:\codeblock c\assingment 2" X + v
Enter an integer: 223
odd
Process returned 0 (0x0)   execution time : 4.049 s
Press any key to continue.
```

6.2 sum of all integers greater than 100 and less than 200 that are divisible by 7.

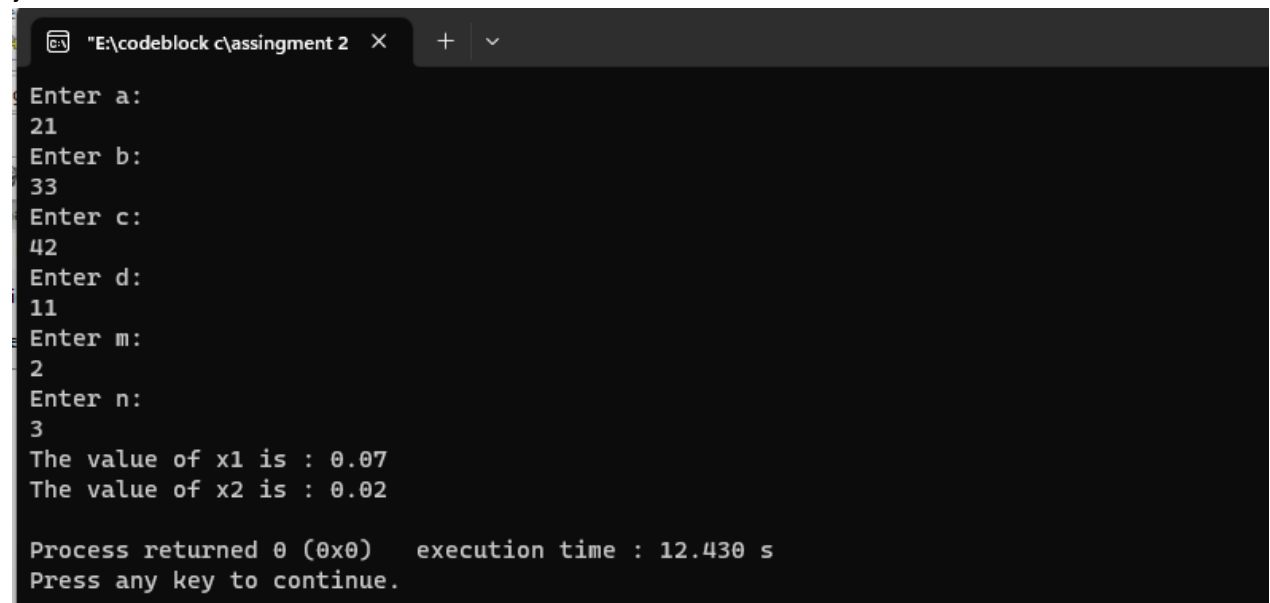
```
#include<stdio.h>
int main()
{
    int sum=0,n=200,i;
    for(i=101;i<n;i++)
    {
        if(i%7==0)
        {
            sum=sum+i;
        }
    }

    printf("The sum is: %d",sum);
}
```

```
"E:\codeblock c\assingment 2" X + v
The sum is: 2107
Process returned 0 (0x0)   execution time : 0.016 s
Press any key to continue.
```


6.3 two linear equations with two unknowns x1 and x2

```
#include<stdio.h>
int main()
{
    float a,b,c,d,m,n,x1,x2;
    printf("Enter a: \n");
    scanf("%f",&a);
    printf("Enter b: \n");
    scanf("%f",&b);
    printf("Enter c: \n");
    scanf("%f",&c);
    printf("Enter d: \n");
    scanf("%f",&d);
    printf("Enter m: \n");
    scanf("%f",&m);
    printf("Enter n: \n");
    scanf("%f",&n);
    x1=((m*d-b*n)/(a*d-c*b));
    x2=((n*a-m*c)/(a*d-c*b));
    printf("The value of x1 is : %0.2f\n",x1);
    printf("The value of x2 is : %0.2f\n",x2);
}
```



```
"E:\codeblock c\assingment 2" X + v
Enter a:
21
Enter b:
33
Enter c:
42
Enter d:
11
Enter m:
2
Enter n:
3
The value of x1 is : 0.07
The value of x2 is : 0.02

Process returned 0 (0x0)   execution time : 12.430 s
Press any key to continue.
```

6.4 Admission to a professional course is subject

```
#include<stdio.h>

int main()
{
    int m,p,c,s,mp;

    printf("Requirement:\n");

    printf("Mark in mathematics: 60\nMark in Physics: 50\nMark in Chemistry: 40\nTotal number
in all three subject: 200+\nOr Total marks in Math and Physics:150 \n");

    printf("Enter your Mathematics number: ");

    scanf("%d",&m);

    printf("Enter your Physics number: ");

    scanf("%d",&p);

    printf("Enter your Chemistry number: ");

    scanf("%d",&c);

    s=p+c+m;

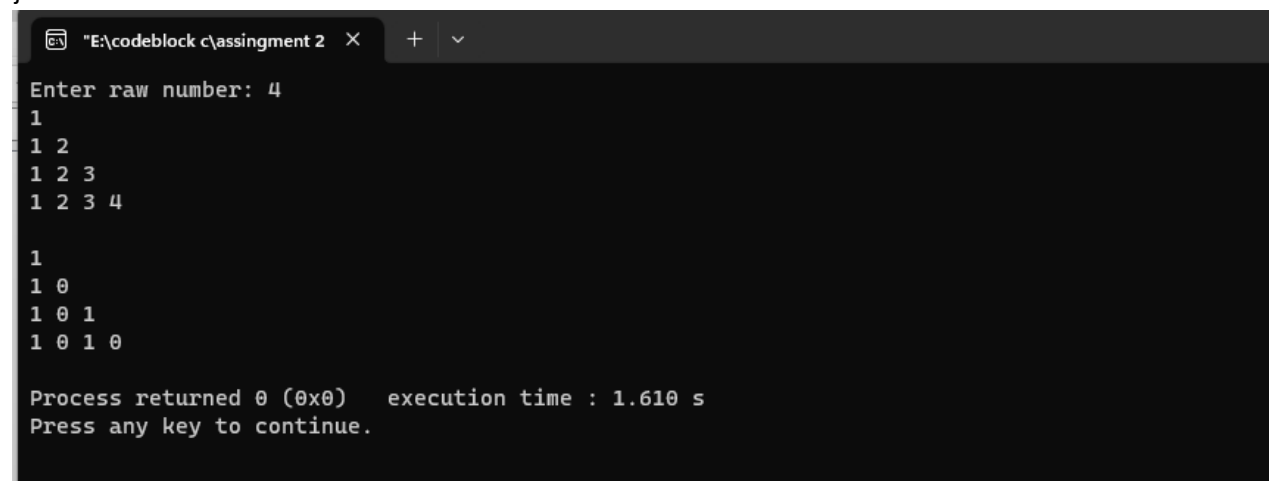
    mp=m+p;

    if(m>=60 && p>=50 && c>=40)
    {
        if(s>=200 || mp>=150)
        {
            printf("You are eligible candidate");
        }
    }
    else
        printf("Not eligible");
}
```

```
"E:\codeblock c\assingment 2" X + v
Requirement:
Mark in mathematics: 60
Mark in Physics: 50
Mark in Chemistry: 40
Total number in all three subject: 200+
Or Total marks in Math and Physics:150
Enter your Mathematics number: 45
Enter your Physics number: 23
Enter your Chemistry number: 44
Not eligible
Process returned 0 (0x0)   execution time : 9.929 s
Press any key to continue.
```

6.7 Pattern

```
#include<stdio.h>
int main()
{
    int n,r,c;
    printf("Enter raw number: ");
    scanf("%d",&n);
    for(r=1;r<=n;r++)
    {
        for(c=1;c<=r;c++)
        {
            printf("%d ",c);
        }
        printf("\n");
    }
    printf("\n");
    for(r=1;r<=n;r++)
    {
        for(c=1;c<=r;c++)
        {
            printf("%d ",c%2);
        }
        printf("\n");
    }
}
```



```
"E:\codeblock c\assingment 2" X + v
Enter raw number: 4
1
1 2
1 2 3
1 2 3 4

1
1 0
1 0 1
1 0 1 0

Process returned 0 (0x0)   execution time : 1.610 s
Press any key to continue.
```

6.8 seasonal discounts on purchase of items

```
#include<stdio.h>

int main()
{
    float ch,p;
    int n;

    printf("Discount on a purchase of items\n");

    printf("1. Purchase amount: 0 - 100\n2. Purchase amount: 101 - 200\n3. Purchase amount: 201 -300\n4. Purchase amount: 300 or above\n");

    printf("Enter Your Purchase ammount: \n");

    scanf("%f",&ch);

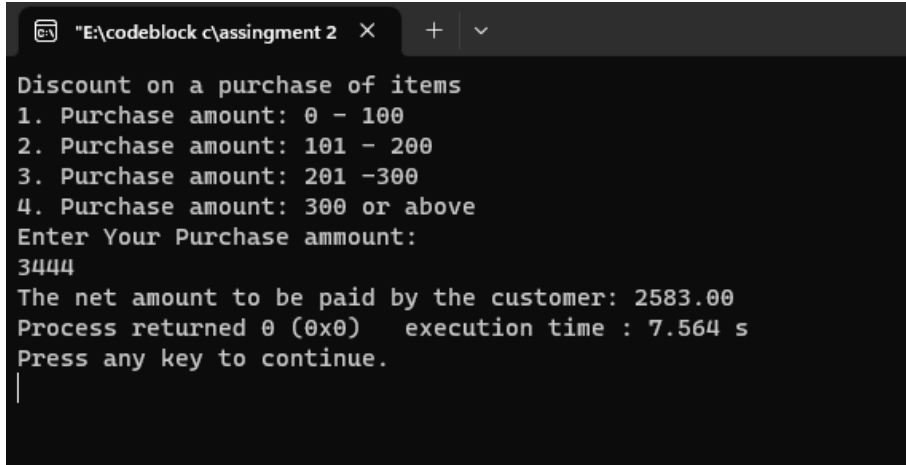
    if(ch>=0 && ch<=100)
    {
        p=ch-ch*0.05;
    }

    else if(ch>=101 && ch<=200)
    {
        p=ch-ch*0.125;
    }

    else if(ch>=201 && ch<=300)
    {
        p=(ch-(ch*0.175));
    }

    else if(ch>=301)
    {
        p=(ch-(ch*0.25));
    }
}
```

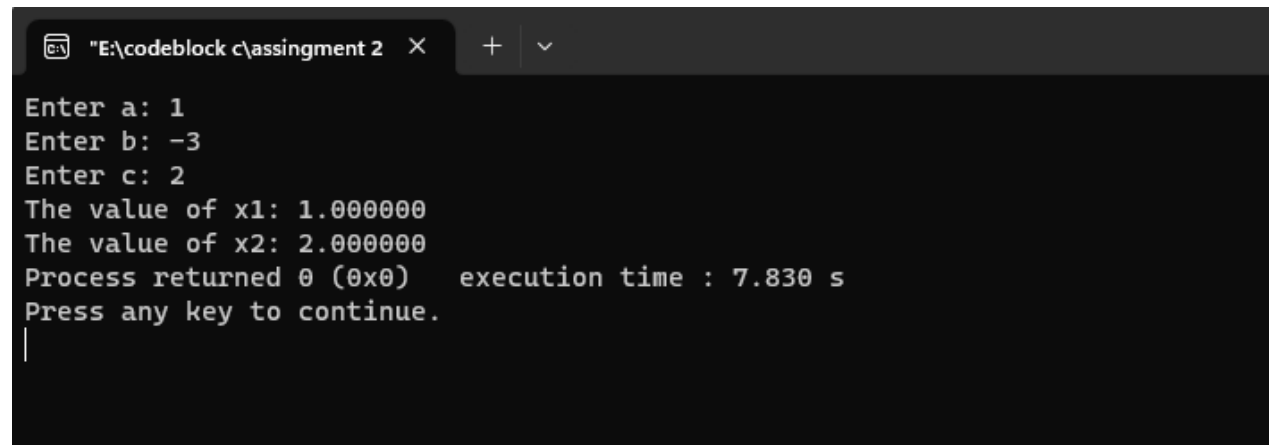
```
}  
  
printf("The net amount to be paid by the customer: %0.2f",p);  
}
```



```
"E:\codeblock c\assingment 2" X + v  
Discount on a purchase of items  
1. Purchase amount: 0 - 100  
2. Purchase amount: 101 - 200  
3. Purchase amount: 201 -300  
4. Purchase amount: 300 or above  
Enter Your Purchase ammount:  
3444  
The net amount to be paid by the customer: 2583.00  
Process returned 0 (0x0)   execution time : 7.564 s  
Press any key to continue.  
|
```

6.10 compute the real roots of a quadratic equation

```
#include<stdio.h>
int main()
{
    float a,b,c,n1,n2,D;
    printf("Enter a: ");
    scanf("%f",&a);
    printf("Enter b: ");
    scanf("%f",&b);
    printf("Enter c: ");
    scanf("%f",&c);
    D= sqrt(b*b-4*a*c);
    x1=(-b-D)/(2*a);
    x2=(-b+D)/(2*a);
    printf("The value of x1: %f",x1);
    printf("The value of x2: %f",x2);
}
```

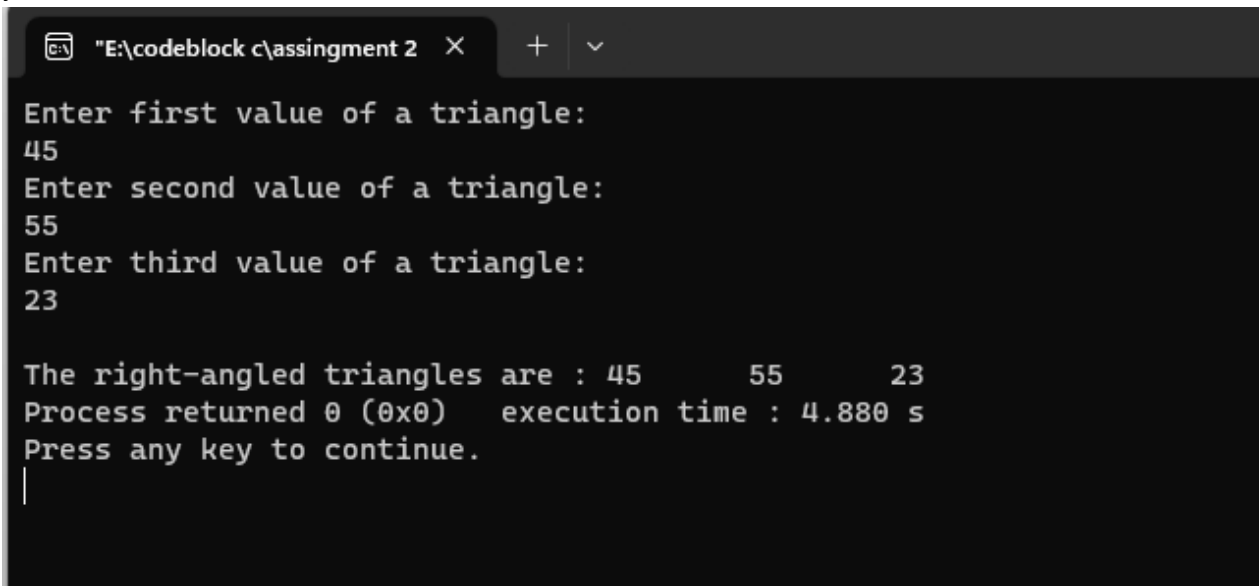


The screenshot shows a code editor window with the title bar "E:\codeblock c\assingment 2". The editor contains the C code from the previous block. Below the code, the output of the program is displayed in a terminal-like window. The output shows the user entering values for a, b, and c, followed by the calculated roots x1 and x2. The execution time is also shown as 7.830 s.

```
Enter a: 1
Enter b: -3
Enter c: 2
The value of x1: 1.000000
The value of x2: 2.000000
Process returned 0 (0x0)   execution time : 7.830 s
Press any key to continue.
|
```

6.11 displays the output stating that they are the sides of right-angled triangle

```
#include<stdio.h>
int main()
{
    int n1,n2,n3;
    printf("Enter first value of a triangle:\n");
    scanf("%d",&n1);
    printf("Enter second value of a triangle:\n");
    scanf("%d",&n2);
    printf("Enter third value of a triangle:\n");
    scanf("%d",&n3);
    printf("\nThe right-angled triangles are : %d\t %d\t %d\t",n1,n2,n3);
}
```



The screenshot shows a code editor window with the title "E:\codeblock c\assingment 2". The code is the same as in the previous block. The output of the program is displayed in the console area, showing the prompts and the user input (45, 55, 23). The final output line is "The right-angled triangles are : 45 55 23". Below this, the console shows "Process returned 0 (0x0) execution time : 4.880 s" and "Press any key to continue." with a cursor on a new line.

6.12 An electricity board charges

```
#include<stdio.h>
int main()
{
    float unit,sum=100;
    printf("Enter Electricity in unit : ");
    scanf("%f",&unit);
    if(unit<=200)

        sum=sum+unit*0.8;

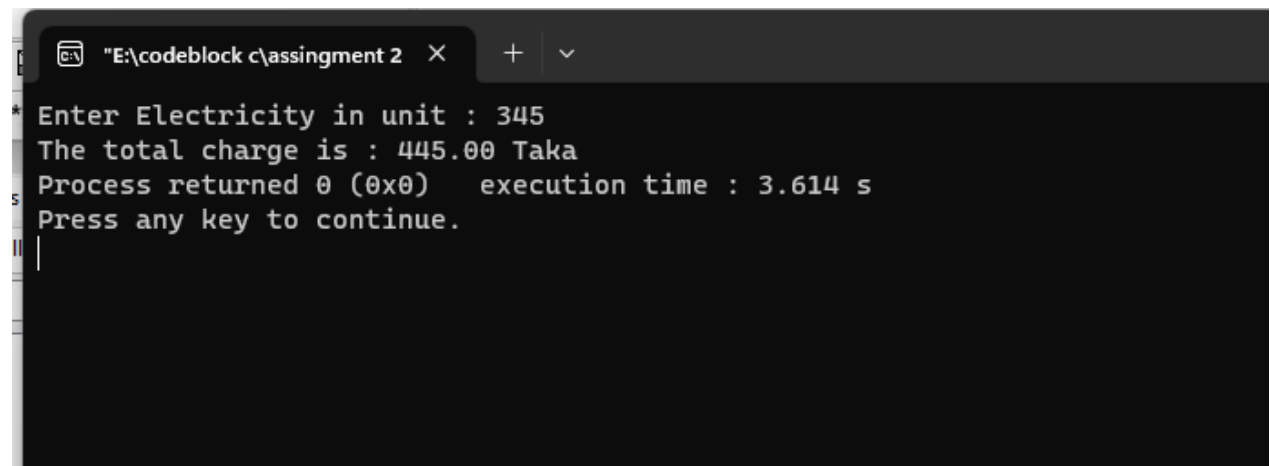
    else if(unit>200&&unit<=300)

        sum=sum+unit*0.9;

    else if(unit>300)

        sum=sum+unit*1;

    printf("The total charge is : %0.2f Taka",sum);
}
```

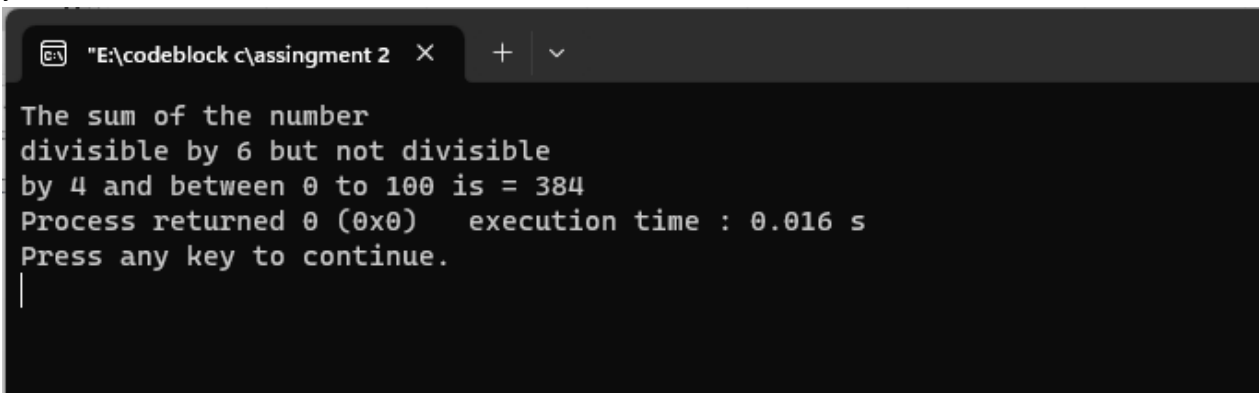


```
"E:\codeblock c\assingment 2" x + v
* Enter Electricity in unit : 345
  The total charge is : 445.00 Taka
s Process returned 0 (0x0)   execution time : 3.614 s
  Press any key to continue.
  |
```

6.13 compute and display the sum of all integers that are divisible by 6 but not divisible by 4 and lie between 0 and 100

```
#include<stdio.h>
int main()
{
    int sum=0,i,n;
    n=100;
    for(i=0;i<=n;i++)
    {
        if(i%6==0&& i%4!=0)
            sum= sum+i;

    }
    printf("The sum of the number \ndivisible by 6 but not divisible \nby 4 and between 0 to 100
is = %d",sum);
}
```



The screenshot shows a code editor window with the title bar "E:\codeblock c\assingment 2". The output of the program is displayed in the console area, showing the sum of numbers divisible by 6 but not by 4 between 0 and 100, which is 384. The output also includes the process return code (0) and execution time (0.016 s).

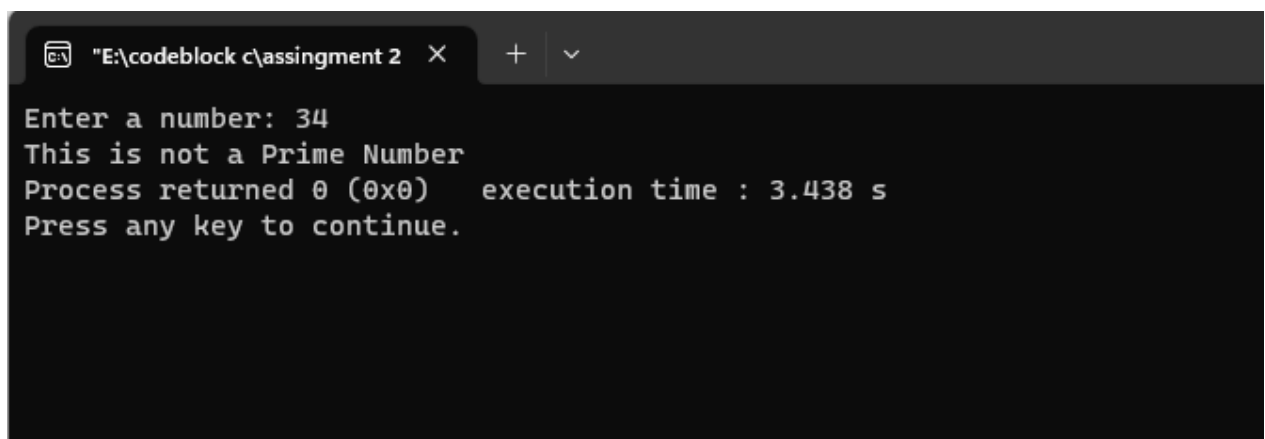
```
"E:\codeblock c\assingment 2" X + v
The sum of the number
divisible by 6 but not divisible
by 4 and between 0 to 100 is = 384
Process returned 0 (0x0)   execution time : 0.016 s
Press any key to continue.
|
```

6.14 the number is a prime number and display the output accordingly.

```
#include<stdio.h>
int main()
{
    int n,i,count=0;
    printf("Enter a number: ");
    scanf("%d",&n);

    for(i=2;i<n;i++)
    {
        if(n%i==0){
            count++;
            break;}
    }
    if(count==0)
    {
        printf("This is a Prime Number");
    }
    else
    {
        printf("This is not a Prime Number");
    }

    return 0;
}
```



```
E:\codeblock c\assingment 2
Enter a number: 34
This is not a Prime Number
Process returned 0 (0x0)   execution time : 3.438 s
Press any key to continue.
```

6.15 double-type value x that represents angle in radians

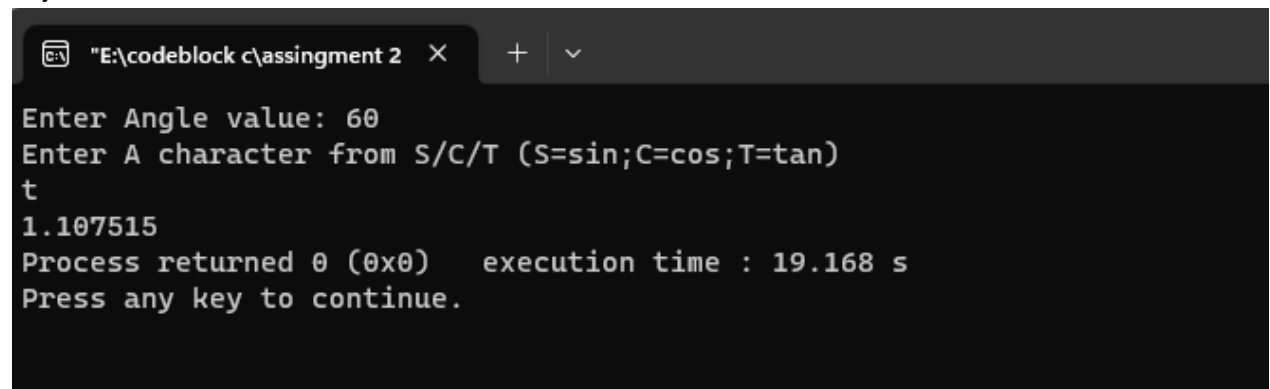
```
#include<stdio.h>
#include<math.h>
int main()
{
    double n,x,r;
    char T;
    printf("Enter Angle value: ");
    scanf("%lf",&x);
    r=x*(180/3.1416);
    printf("Enter A character from S/C/T \n");
    scanf("%s",&T);

    switch(T){
    case 's':
    case 'S':

        n=sin(r);
    case 'c':
    case 'C':

        n=cos(r);
    case 't':
    case 'T':

        n=tan(r);
    }
    printf("%lf",n);
}
```



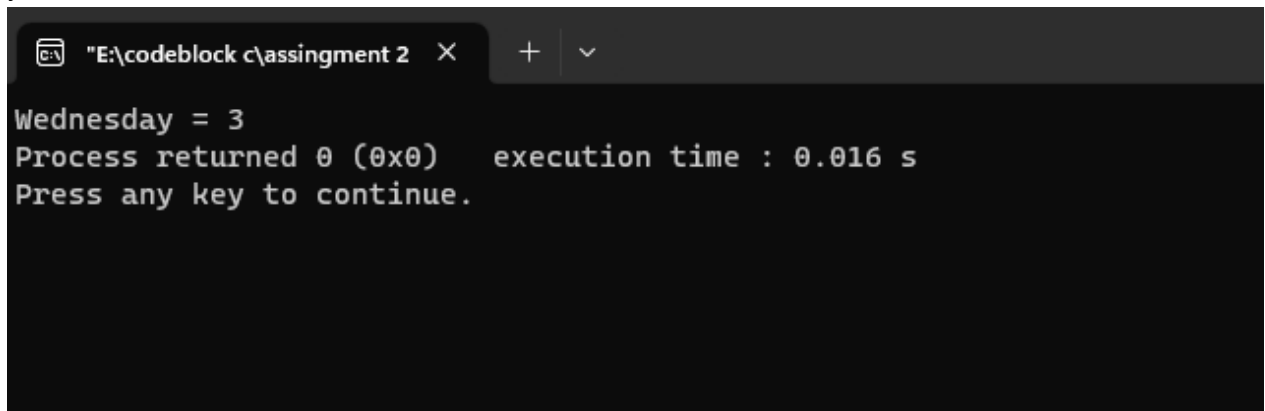
```
"E:\codeblock c\assingment 2" × + v
Enter Angle value: 60
Enter A character from S/C/T (S=sin;C=cos;T=tan)
t
1.107515
Process returned 0 (0x0)   execution time : 19.168 s
Press any key to continue.
```

6.16 Enumaration

```
#include<stdio.h>
enum days_in_week{
monday=1,tuesday,wednesday,thursday,friday,saturday,sunday

};
int main()
{
    enum days_in_week day1
    day1=wednesday;
    printf("Wednesday = %d");

}
```

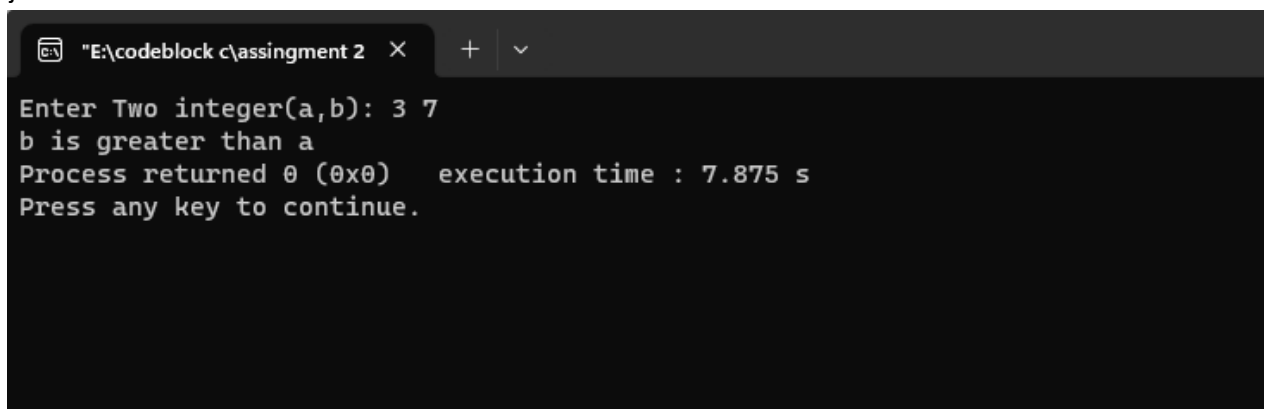


```
"E:\codeblock c\assingment 2" X + v
Wednesday = 3
Process returned 0 (0x0)   execution time : 0.016 s
Press any key to continue.
```

6.17 Greater or smaller or equal

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

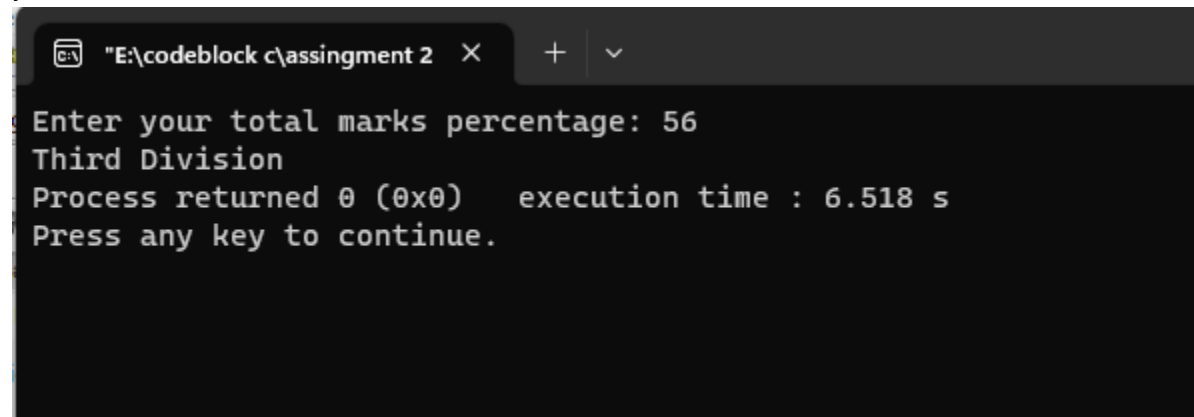
    int a,b;
    printf("Enter Two integer(a,b): ");
    scanf("%d %d",&a,&b);
    if(a>b)
        printf("a is greater than b");
    else if(a<b)
        printf("b is greater than a");
    else
        printf("a and b are equal");
}
```



```
"E:\codeblock c\assingment 2" X + v
Enter Two integer(a,b): 3 7
b is greater than a
Process returned 0 (0x0)   execution time : 7.875 s
Press any key to continue.
```

6.18 Mark distribution with Grading system

```
#include<stdio.h>
int main()
{
    int n;
    printf("Enter your total marks percentage: ");
    scanf("%d",&n);
    if(n>=80)
        printf("First Division");
    else if(n>=60 && n<80)
        printf("Second Division");
    else if(n<60)
        printf("Third Division");
}
```



```
"E:\codeblock c\assingment 2" X + v
Enter your total marks percentage: 56
Third Division
Process returned 0 (0x0)   execution time : 6.518 s
Press any key to continue.
```

6.19 display the corresponding number of days in that month

```
#include<stdio.h>

int main()
{

    int n;

    printf("The 12 months
are\n1.January\n2.February\n3.March\n4.April\n5.May\n6.June\n7.July\n8.August\n9.Septem
ber\n10.October\n11.November\n12.December");

    printf("\nChoose month number: ");

    scanf("%d",&n);

    switch(n)
    {
case 1:
        printf("January = 31 days");
case 2:
        printf("February = 28 days");
case 3:
        printf("March = 31 days");
case 4:
        printf("April = 30 days");
case 5:
        printf("May = 31 days");
case 6:
        printf("June = 30 days");
case 7:
        printf("July = 31 days");
```


case 8:

```
printf("August = 31 days");
```

case 9:

```
printf("September = 30 days");
```

case 10:

```
printf("October = 31 days");
```

case 11:

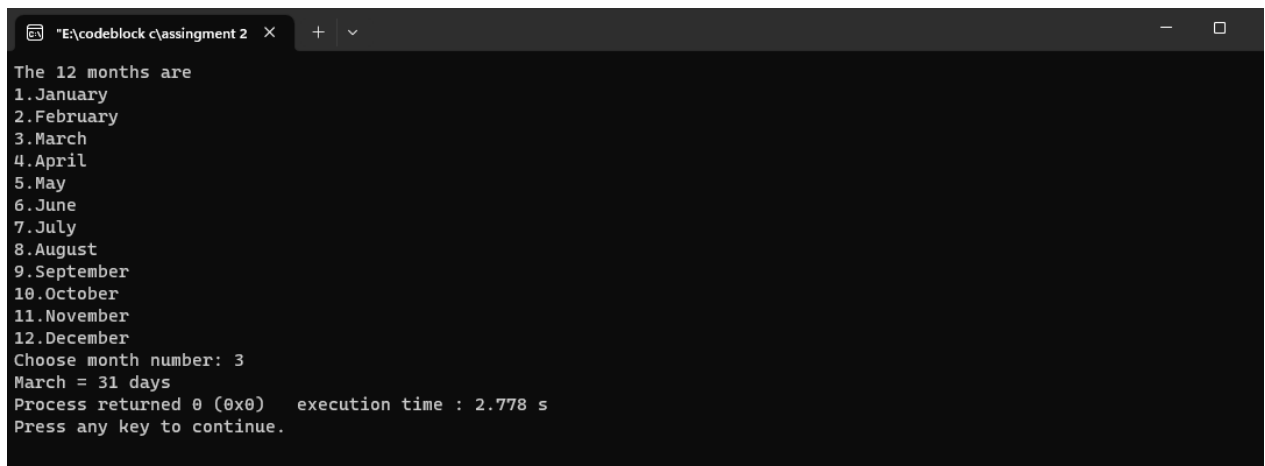
```
printf("November = 30 days");
```

case 12:

```
printf("December = 31 days");
```

```
}
```

```
}
```



```
"E:\codeblock c\assingment 2" x + v
The 12 months are
1.January
2.February
3.March
4.April
5.May
6.June
7.July
8.August
9.September
10.October
11.November
12.December
Choose month number: 3
March = 31 days
Process returned 0 (0x0)   execution time : 2.778 s
Press any key to continue.
```