

# Iteration Statements and Jump Statements

## LAB # 04



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CSE-102L COMPUTER PROGRAMMING LAB

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"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

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Submitted to:

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## Lab 4: Iteration Statements and Jump Statements

### Objectives:

To understand the programming using iteration statements like while, do-while and for Loop and jump statements like continue, break, return and goto.

### Tasks:

1. Write a program to create Simple Calculator using switch case (the calculator must have a loop that it could keep on running and ask the user again for input after showing output from the previous inputs).
2. Write a program that takes a number as input, checks it if it is between 1 and 10 and if it is in valid range your program should output a line containing that number of adjacent asterisks. On invalid input number, the program should end.  
For example, if your program input is 7, it should print \*\*\*\*\*.
3. Write a program to find Factorial of a number.
4. Write a program to print multiplication table of any number.
5. Write a program to input two integer numbers and display the sum of even numbers between these two input numbers.
6. Write a program to print all-natural numbers in reverse (from n to 1).
7. Write a program that takes the base and exponent as input and display the result of power.
8. Write a program that prints your name and registration number 10 times using loop and on the 5<sup>th</sup> iteration (run) of your loop it should skip and display this “Mid of loop” and then continue displaying your name and registration number.

9. Write a program that performs a survey tally on beverages. The program should prompt for the next person until a sentinel value of  $-1$  is entered to terminate the program. Each person participating in the survey should choose their favorite beverage from the following list:

1. Coffee      2. Tea      3. Coke      4. Orange Juice

**Sample Run:**

Please input the favorite beverage of person #1: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
4

Please input the favorite beverage of person #2: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
1

Please input the favorite beverage of person #3: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
3

Please input the favorite beverage of person #4: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
1

Please input the favorite beverage of person #5: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
1

Please input the favorite beverage of person #6: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
-1

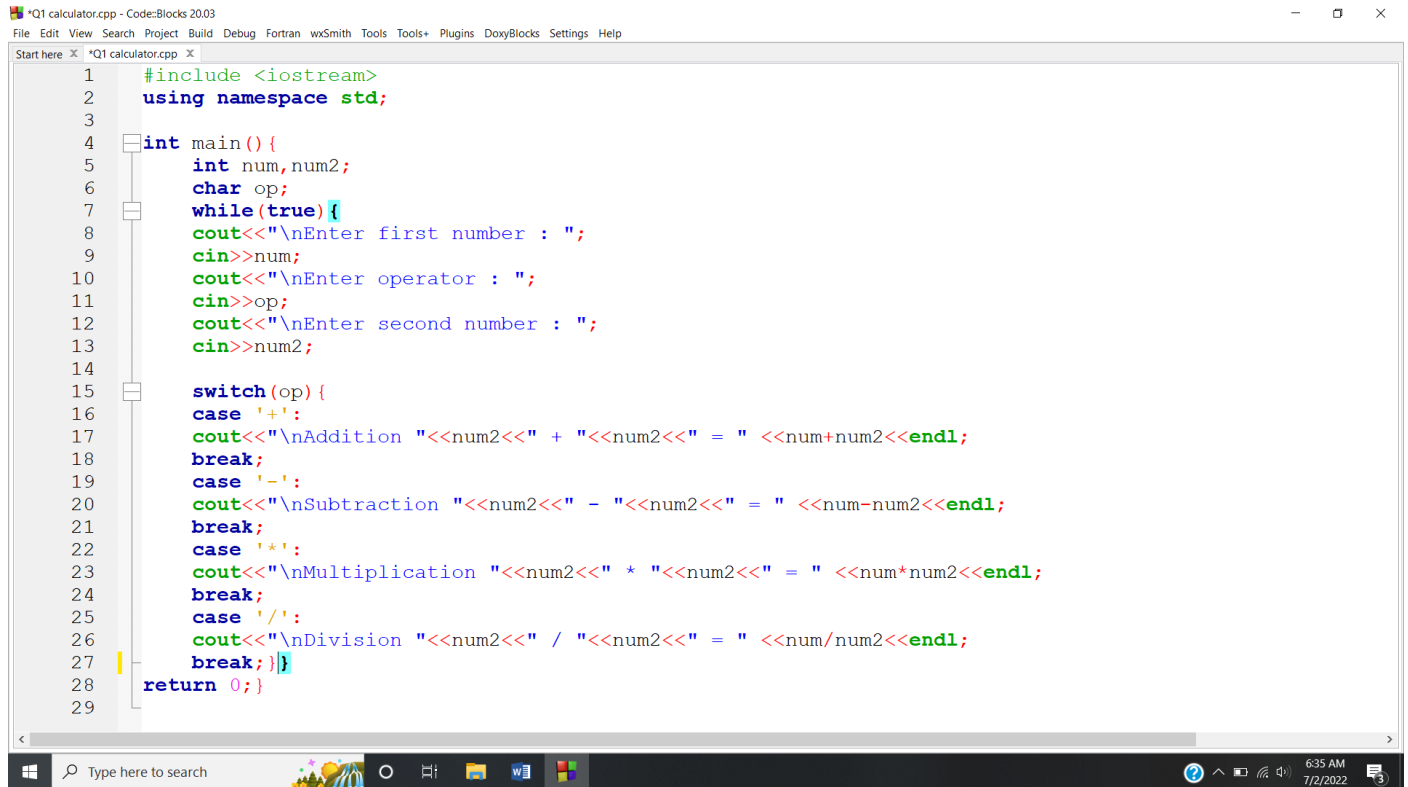
The total number of people surveyed is 5. The results are as follows:

Beverage	Number of Votes
*****	
Coffee	3
Tea	0
Coke	1
Orange Juice	1

# COMPUTER PROGRAMMING LAB # 4

## Answer #1

### CODE:



```
1  #include <iostream>
2  using namespace std;
3
4  int main() {
5      int num, num2;
6      char op;
7      while(true) {
8          cout<<"\nEnter first number : ";
9          cin>>num;
10         cout<<"\nEnter operator : ";
11         cin>>op;
12         cout<<"\nEnter second number : ";
13         cin>>num2;
14
15         switch(op) {
16             case '+':
17                 cout<<"\nAddition "<<num<<" + "<<num2<<" = " <<num+num2<<endl;
18                 break;
19             case '-':
20                 cout<<"\nSubtraction "<<num<<" - "<<num2<<" = " <<num-num2<<endl;
21                 break;
22             case '*':
23                 cout<<"\nMultiplication "<<num<<" * "<<num2<<" = " <<num*num2<<endl;
24                 break;
25             case '/':
26                 cout<<"\nDivision "<<num<<" / "<<num2<<" = " <<num/num2<<endl;
27                 break;
28             default:
29                 break;
30         }
31     }
32     return 0;
33 }
```

### OUTPUT:

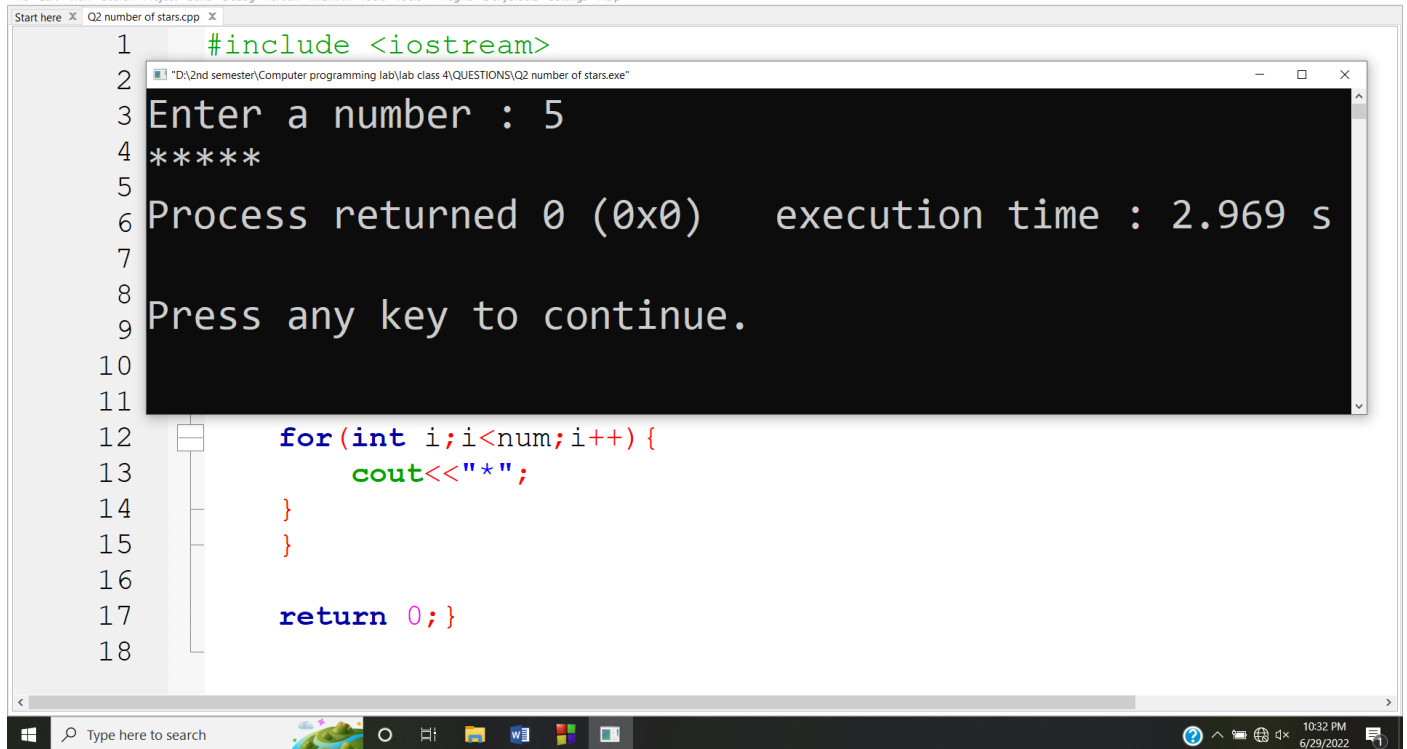
```
Enter first number : 5
Enter operator : *
Enter second number : 5
Multiplication 5 * 5 = 25
Enter first number :
```

## Answer #2

### CODE:

```
Q2 number of stars.cpp - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Start here x Q2 number of stars.cpp x
1  #include <iostream>
2  using namespace std;
3
4  int main()
5  {
6      int num;
7      cout<<"\nEnter a number : ";
8      cin>>num;
9
10     if(num>1&&num<10){
11
12         for(int i;i<num;i++){
13             cout<<"*";
14         }
15     }
16
17     return 0;}
18
```

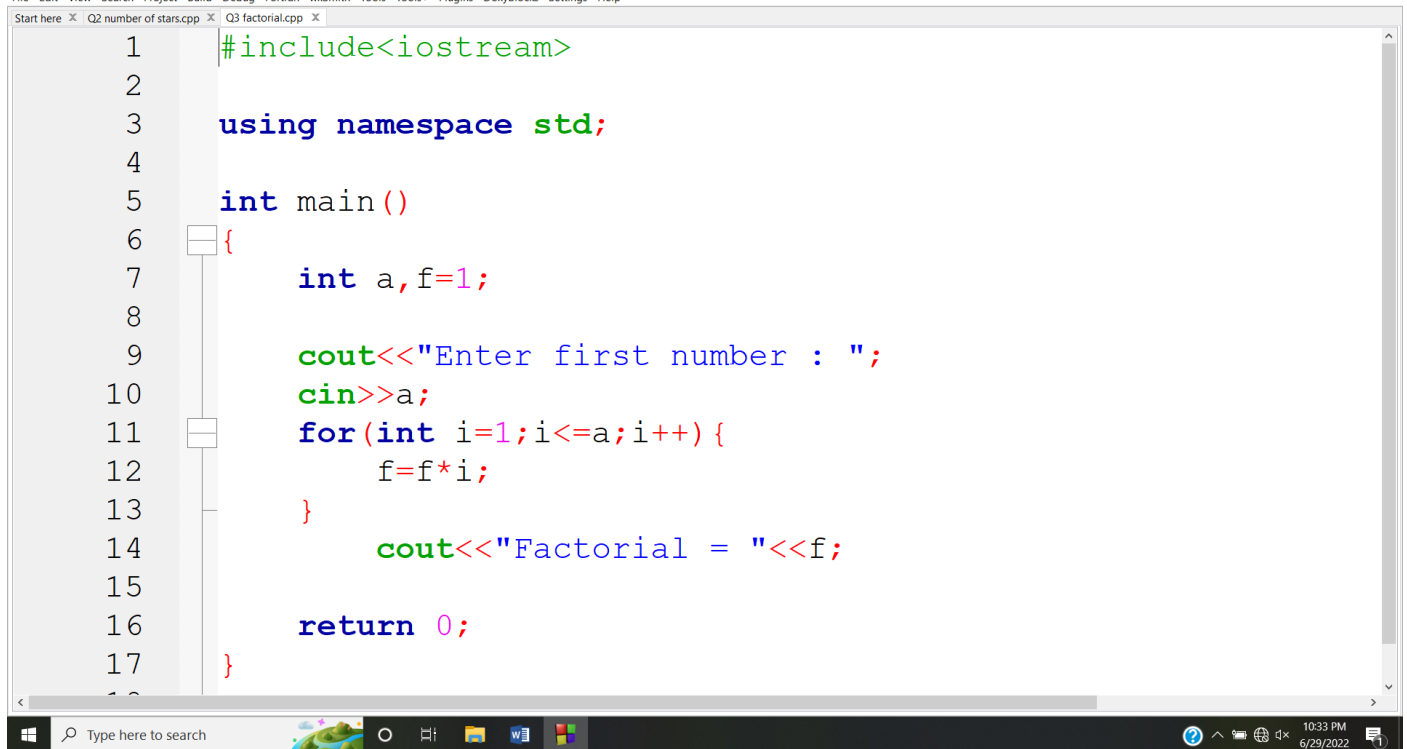
### OUTPUT:



```
1 #include <iostream>
2
3 Enter a number : 5
4 *****
5
6 Process returned 0 (0x0) execution time : 2.969 s
7
8 Press any key to continue.
9
10
11
12 for(int i;i<num;i++){
13     cout<<"*";
14 }
15
16
17 return 0;}
```

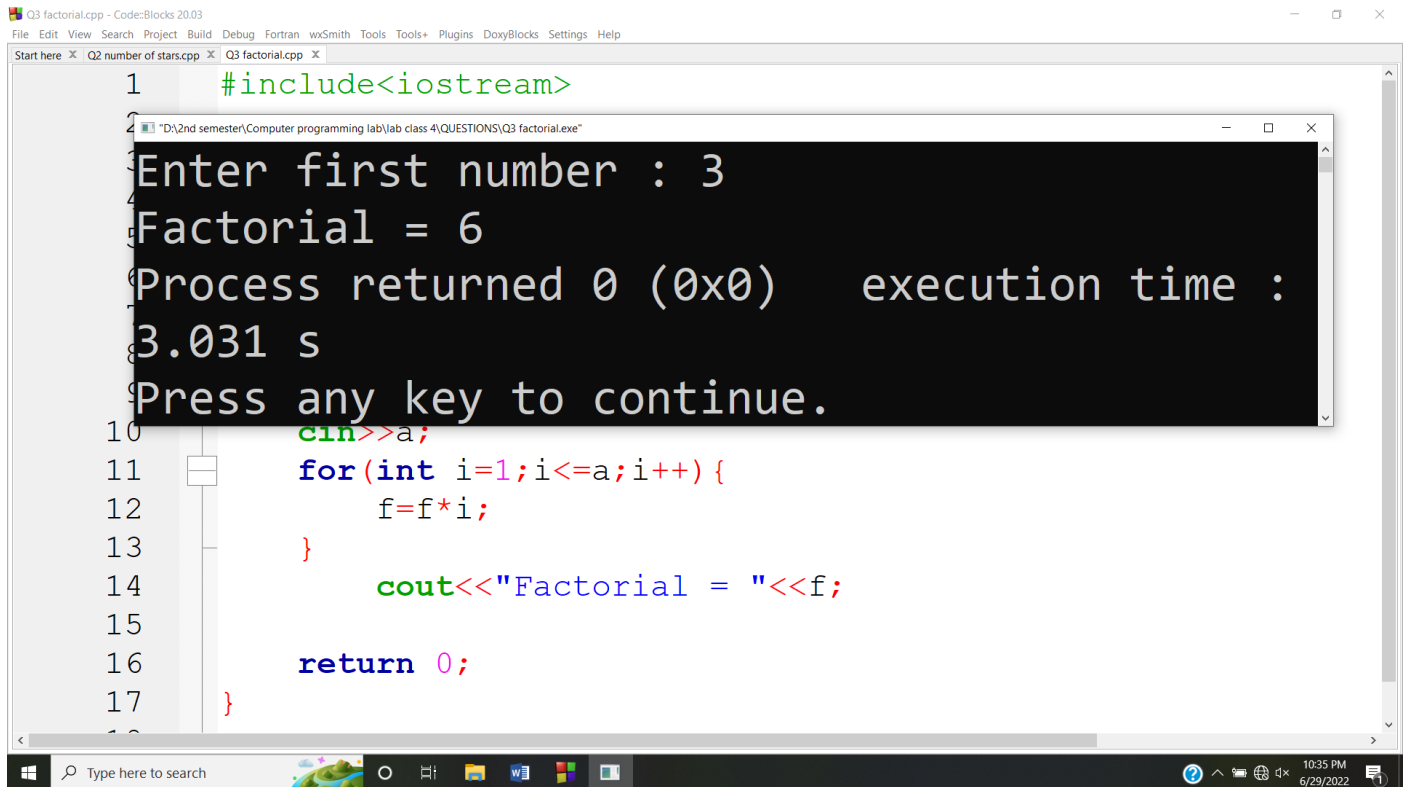
## Answer #3

### CODE:



```
1 #include<iostream>
2
3 using namespace std;
4
5 int main()
6 {
7     int a,f=1;
8
9     cout<<"Enter first number : ";
10    cin>>a;
11    for(int i=1;i<=a;i++){
12        f=f*i;
13    }
14    cout<<"Factorial = "<<f;
15
16    return 0;
17 }
```

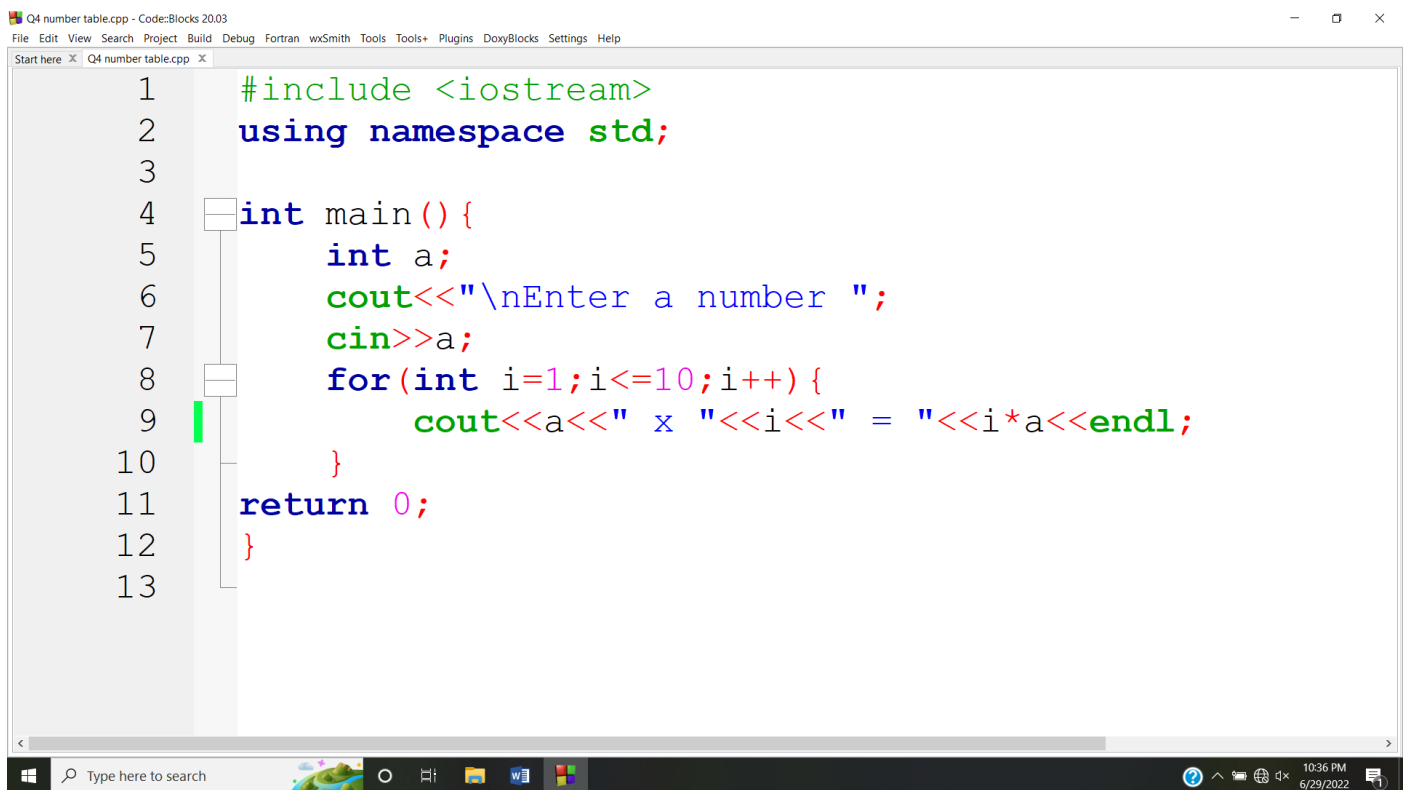
### OUTPUT:



```
1 #include<iostream>
2
3 Enter first number : 3
4 Factorial = 6
5 Process returned 0 (0x0) execution time :
6 3.031 s
7 Press any key to continue.
8
9
10 cin>>a;
11 for(int i=1;i<=a;i++){
12     f=f*i;
13 }
14 cout<<"Factorial = "<<f;
15
16 return 0;
17 }
```

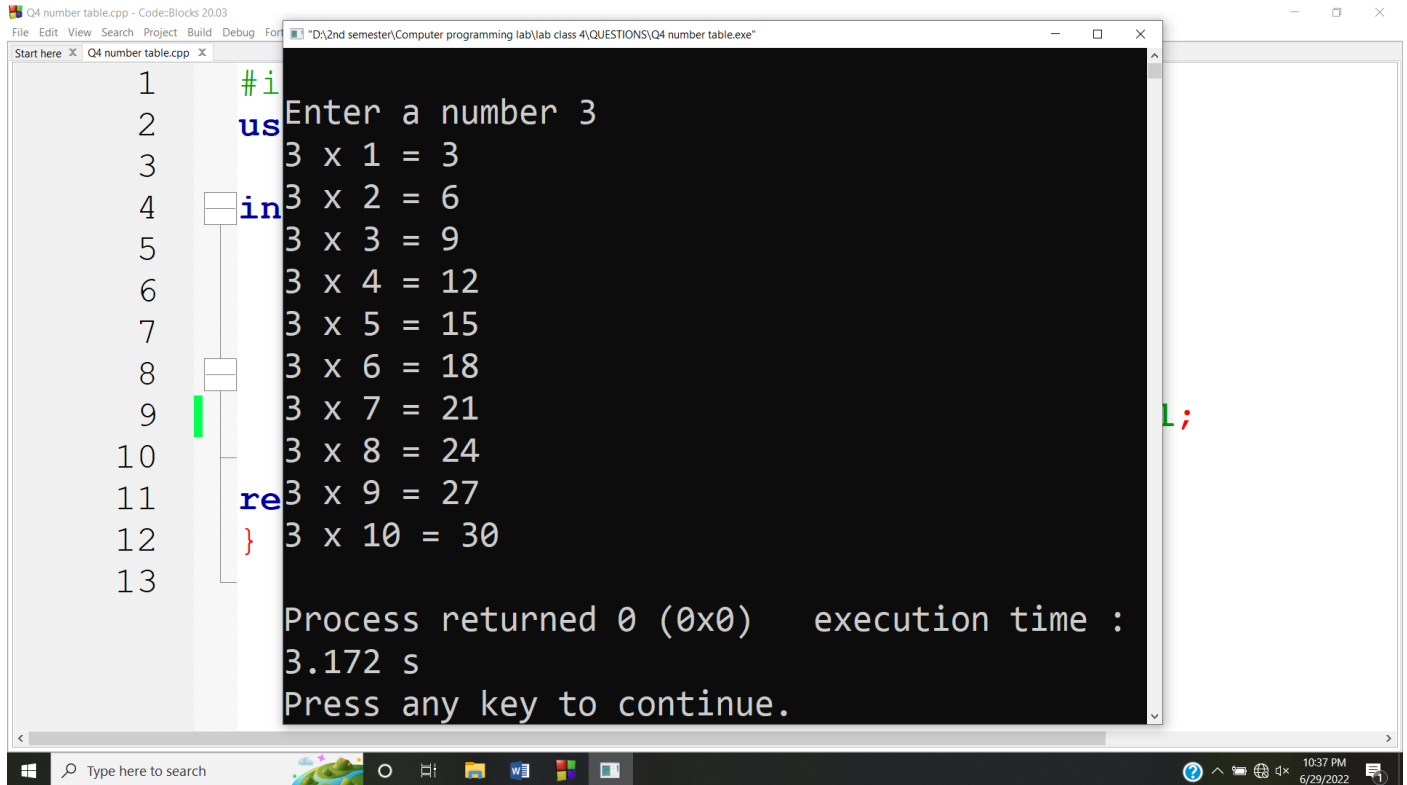
## Answer #4

### CODE:



```
1 #include <iostream>
2 using namespace std;
3
4 int main(){
5     int a;
6     cout<<"\nEnter a number ";
7     cin>>a;
8     for(int i=1;i<=10;i++){
9         cout<<a<<" x "<<i<<" = "<<i*a<<endl;
10     }
11     return 0;
12 }
13
```

### OUTPUT:



```
#include <iostream>
using namespace std;
int main()
{
    int a,b;
    cout<<"Enter a number : ";
    cin>>a;
    for(int i=1;i<=10;i++)
    {
        cout<<a<<" x "<<i<<" = "<<a*i<<"\n";
    }
    return 0;
}
```

Enter a number 3

3 x 1 = 3

3 x 2 = 6

3 x 3 = 9

3 x 4 = 12

3 x 5 = 15

3 x 6 = 18

3 x 7 = 21

3 x 8 = 24

3 x 9 = 27

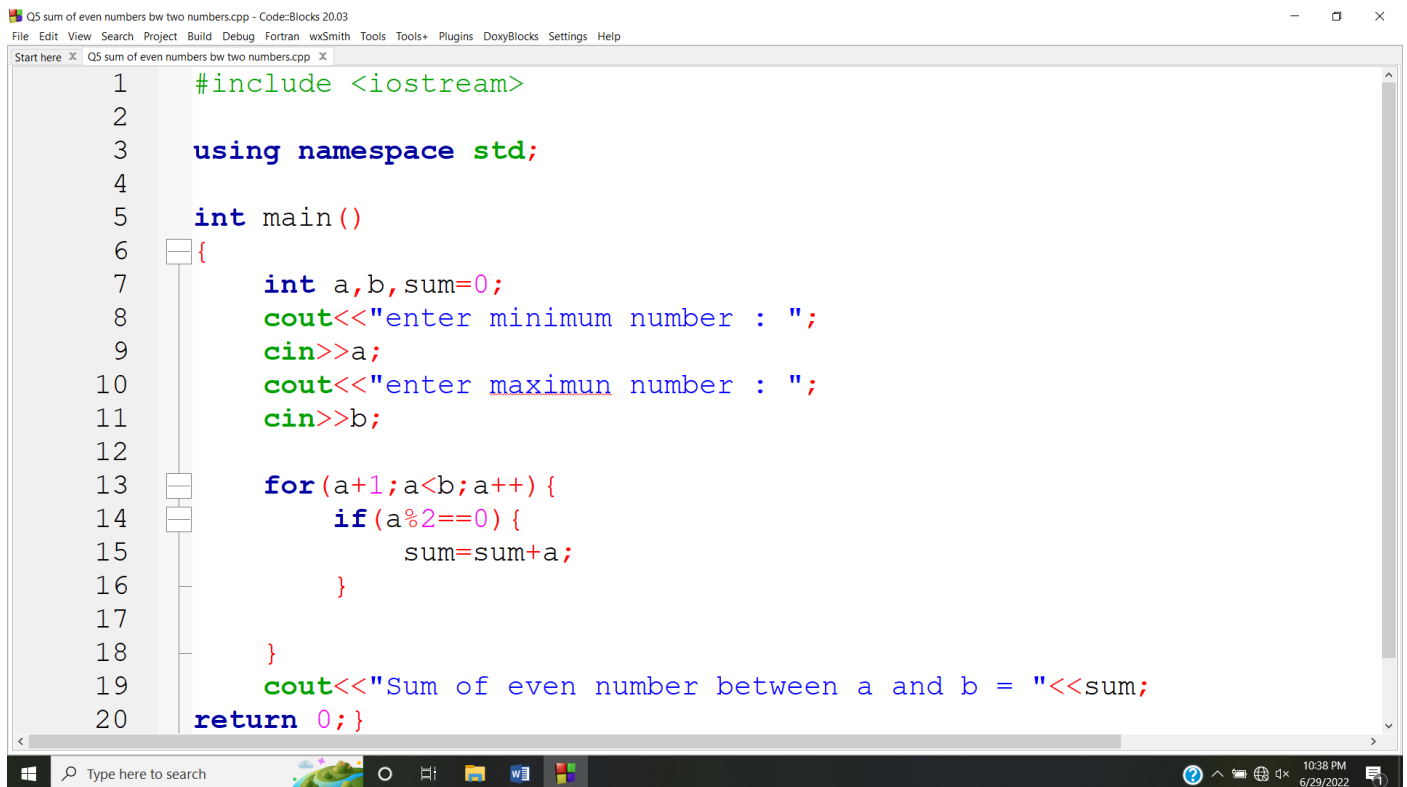
3 x 10 = 30

Process returned 0 (0x0) execution time : 3.172 s

Press any key to continue.

## Answer #5

### CODE:



```
#include <iostream>
using namespace std;
int main()
{
    int a,b,sum=0;
    cout<<"enter minimum number : ";
    cin>>a;
    cout<<"enter maximum number : ";
    cin>>b;
    for(a+1;a<b;a++) {
        if(a%2==0) {
            sum=sum+a;
        }
    }
    cout<<"Sum of even number between a and b = "<<sum;
    return 0;
}
```

enter minimum number : 1

enter maximum number : 10

Sum of even number between a and b = 30

### OUTPUT:



```
Start here X Q5 sum of even numbers bw two numbers.cpp X
1  #include <iostream>
2
3  using namespace std;
4
5  int main() {
6      int a, b;
7      cout << "enter minimum number : ";
8      cin >> a;
9      cout << "enter maximun number : ";
10     cin >> b;
11     int sum = 0;
12     for (int i = a; i <= b; i++) {
13         if (i % 2 == 0) {
14             sum = sum + i;
15         }
16     }
17     cout << "Sum of even number between a and b = " << sum;
18     return 0;
19 }
20
```

enter minimum number : 10  
enter maximun number : 20  
Sum of even number between a and b = 70  
Process returned 0 (0x0) execution time : 4.906 s  
Press any key to continue.

## Answer #6

### CODE:

```
Start here X Q6 all natural numbers in reverse order.cpp X
1  #include <iostream>
2
3  using namespace std;
4
5  int main() {
6      int a;
7      cout << "enter natural number ";
8      cin >> a;
9      for (; a >= 1; a--) {
10         cout << a << endl;
11     }
12     return 0;
13 }
```

### OUTPUT:

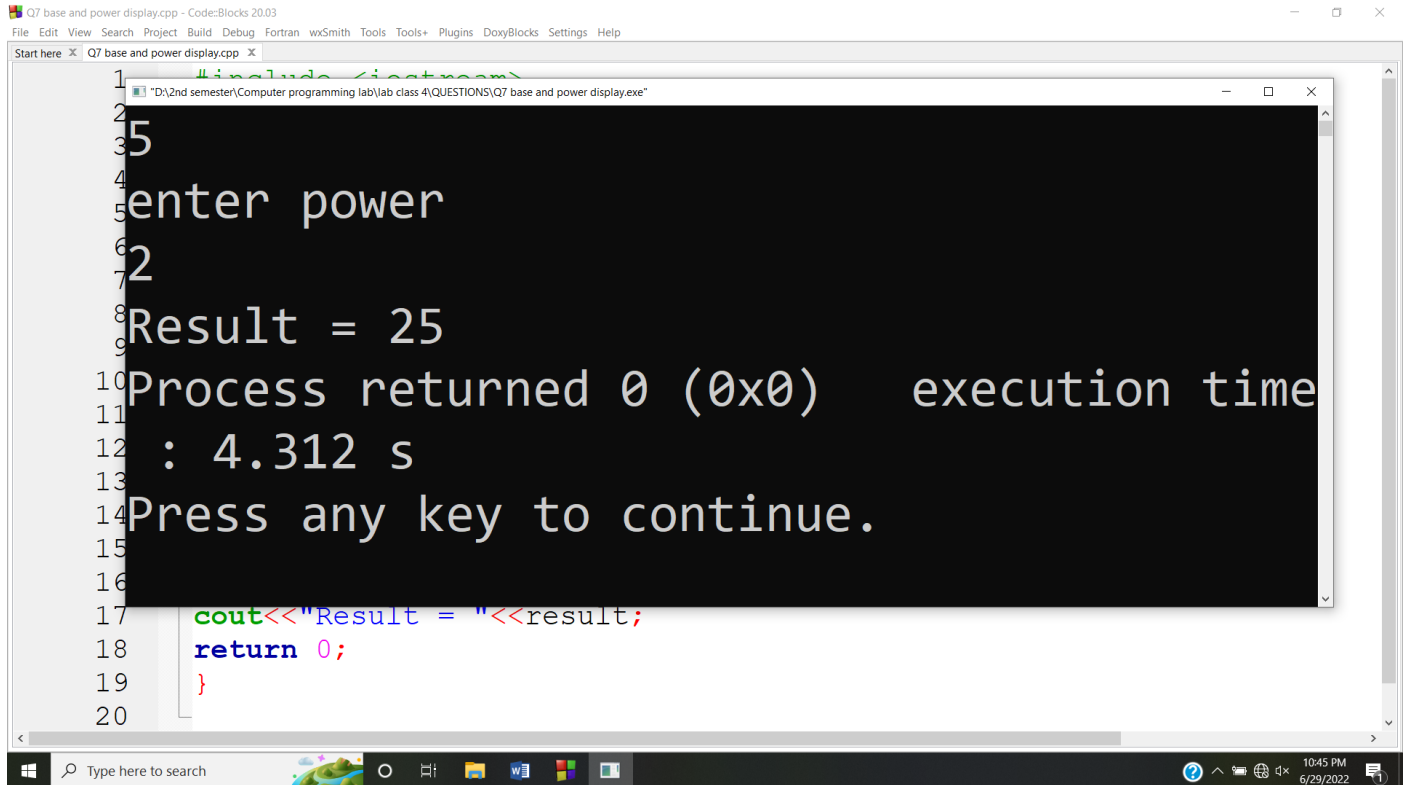
```
1 #include <iostream>
2
3 enter natural number 4
4 4
5 3
6 2
7 1
8
9
10 Process returned 0 (0x0)   execution time :
11 3.515 s
12
13 Press any key to continue.
```

## Answer #7

### CODE:

```
1 #include <iostream>
2
3 using namespace std;
4
5 int main() {
6     int power, base, result=1;
7     cout<<"enter base "<<endl;
8     cin>>base;
9     cout<<"enter power "<<endl;
10    cin>>power;
11
12
13    while(power!=0) {
14        result*=base;
15        power--;
16    }
17    cout<<"Result = "<<result;
18    return 0;
19 }
20
```

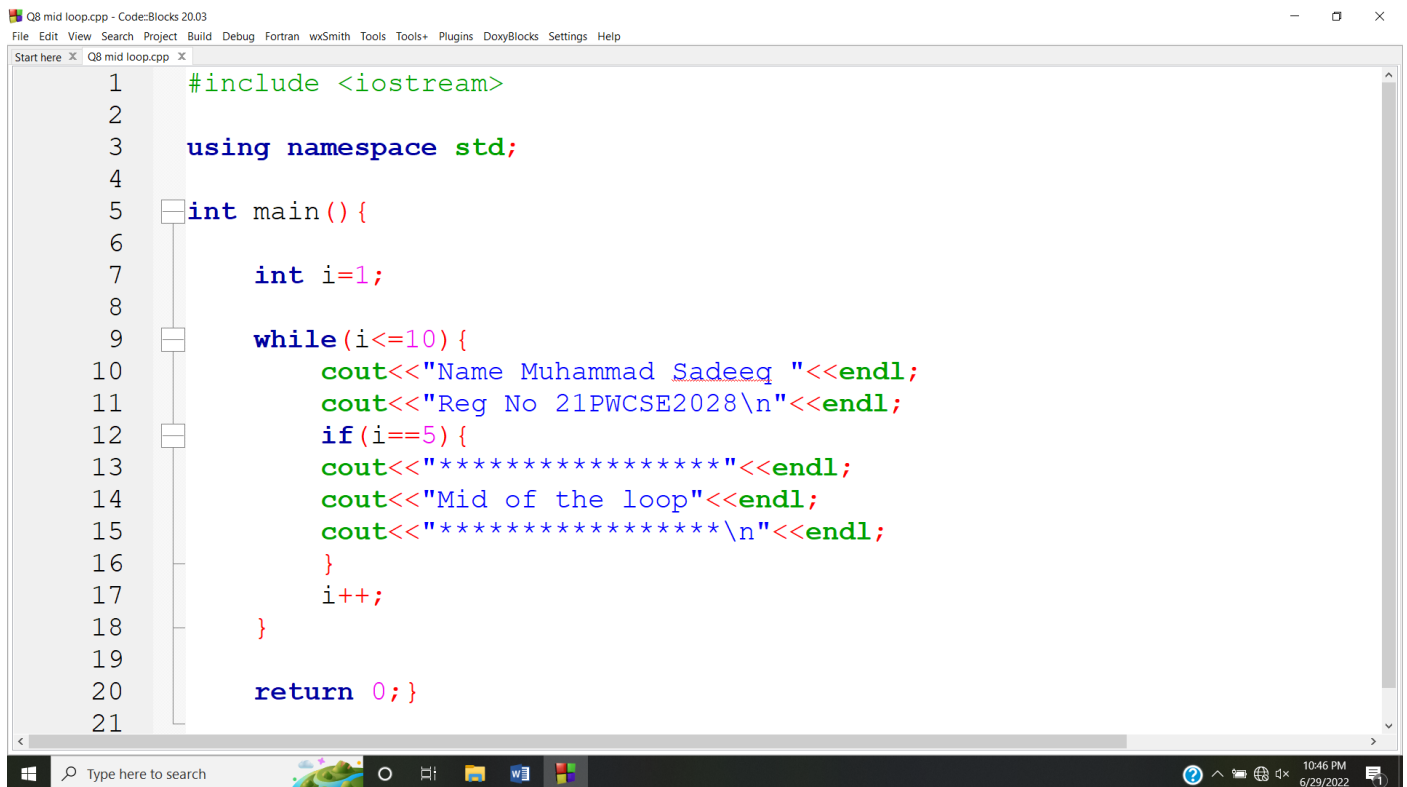
### OUTPUT:



```
1 #include <iostream>
2
3 5
4
5 enter power
6 2
7
8 Result = 25
9
10 Process returned 0 (0x0)   execution time
11 : 4.312 s
12
13 Press any key to continue.
14
15
16
17 cout<<"Result = "<<result;
18 return 0;
19 }
20
```

## Answer #8

### CODE:



```
1 #include <iostream>
2
3 using namespace std;
4
5 int main() {
6
7     int i=1;
8
9     while(i<=10) {
10         cout<<"Name Muhammad Sadeeq "<<endl;
11         cout<<"Reg No 21PWCSE2028\n"<<endl;
12         if(i==5) {
13             cout<<"*****"<<endl;
14             cout<<"Mid of the loop"<<endl;
15             cout<<"*****\n"<<endl;
16         }
17         i++;
18     }
19
20     return 0; }
21
```

### OUTPUT:

D:\2nd semester\Computer programming lab\lab class 4\QUESTIONS\Q8 mid loop.exe

```
Name Muhammad Sadeeq
Reg No 21PWCSE2028

Name Muhammad Sadeeq
Reg No 21PWCSE2028

Name Muhammad Sadeeq
Reg No 21PWCSE2028

Name Muhammad Sadeeq
Reg No 21PWCSE2028

Name Muhammad Sadeeq
Reg No 21PWCSE2028

*****
Mid of the loop
*****

Name Muhammad Sadeeq
Reg No 21PWCSE2028

Name Muhammad Sadeeq
Reg No 21PWCSE2028

Name Muhammad Sadeeq
Reg No 21PWCSE2028

Name Muhammad Sadeeq
Reg No 21PWCSE2028

Name Muhammad Sadeeq
Reg No 21PWCSE2028
```

## Answer #9

### CODE:

Q9 beverages.cpp - Code::Blocks 20.03


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```
Start here x Q9 beverages.cpp x
1  #include <iostream>
2
3  using namespace std;
4
5  int main()
6  {
7      int per=0,b;
8      int coke=0,coffee=0,tea=0,orange=0;
9
10     while(b!=-1) {
11         cout<<"\t*****"<<endl;
12         cout<<"\tPlease input the favorite beverage of person #"<<per+1<<endl;
13         cout<<"\t1.Coffee 2.Tea 3.Coke 4.Orange Juice"<<endl;
14         cout<<"\tChoose 1,2,3 or 4 from the above menu or -1 to exit the program\n";
15         cout<<"\t*****\n\t";
16
17         cin>>b;
18
19         if(b==1) {
20             coffee++;
21             per++;}
22
23         else if(b==2) {
24             tea++;
25             per++;}
26     }
```

```
Q9 beverages.cpp - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

Start here x Q9 beverages.cpp x
22
23 else if(b==2) {
24     tea++;
25     per++;}
26
27 else if(b==3) {
28     coke++;
29     per++;}
30
31 else if(b==4) {
32     orange++;
33     per++;}
34 }
35
36 cout<<"\t*****"<<endl;
37 cout<<"\tThe total number of people surveyed is "<<per<<" the results are as follows "<<endl;
38 cout<<"\t*****"<<endl;
39 cout<<"\tbeverage"<<" "<<"Number of votes"<<endl;
40 cout<<"\t*****"<<endl;
41 cout<<"\tcoffee"<<"\t\t"<<coffee<<endl;
42 cout<<"\ttea"<<"\t\t"<<tea<<endl;
43 cout<<"\tcoke"<<"\t\t"<<coke<<endl;
44 cout<<"\torange juice"<<"\t"<<orange<<endl;
45
46     return 0;}
47
```

**OUTPUT:**

 "D:\2nd semester\Computer programming lab\lab class 4\QUESTIONS\Q9 beverages.exe"

```
*****
Please input the favorite beverage of person #1
1.Coffee  2.Tea  3.Coke  4.Orange Juice
Choose 1,2,3 or 4 from the above menu or -1 to exit the program
*****
1
*****
Please input the favorite beverage of person #2
1.Coffee  2.Tea  3.Coke  4.Orange Juice
Choose 1,2,3 or 4 from the above menu or -1 to exit the program
*****
1
*****
Please input the favorite beverage of person #3
1.Coffee  2.Tea  3.Coke  4.Orange Juice
Choose 1,2,3 or 4 from the above menu or -1 to exit the program
*****
2
*****
Please input the favorite beverage of person #4
1.Coffee  2.Tea  3.Coke  4.Orange Juice
Choose 1,2,3 or 4 from the above menu or -1 to exit the program
*****
2
*****
Please input the favorite beverage of person #5
1.Coffee  2.Tea  3.Coke  4.Orange Juice
Choose 1,2,3 or 4 from the above menu or -1 to exit the program
*****
-1
*****
The total number of people surveyed is 4 the results are as follows
*****
beverage    Number of votes
*****
coffee      2
tea          2
coke         0
orange juice 0

Process returned 0 (0x0)   execution time : 6.434 s
Press any key to continue.
```