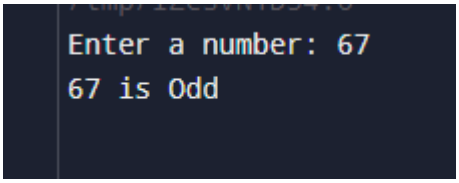
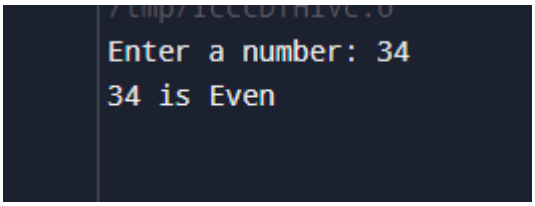
```
// Write a program to check if the number is even or odd.
#include <iostream>
using namespace std;

int main() {
    int num;
    cout << "Enter a number: ";
    cin >> num;

    if (num % 2 == 0)
        cout << num << " is Even" << endl;
    else
        cout << num << " is Odd" << endl;

    return 0;
}
```




```
// Write a program to check voting eligibility:
#include <iostream>
using namespace std;

int main() {
    int age;
    cout << "Enter your age: ";
    cin >> age;

    if (age >= 18)
        cout << "You are eligible to vote!" << endl;
    else
        cout << "You are not eligible to vote." << endl;

    return 0;
}
```

```
Enter your age: 12
You are not eligible to vote.
```

```
Enter your age: 20
You are eligible to vote!
```

```
// Write a program to find factorial of entered of given number
#include <iostream>
using namespace std;

int main() {
    int n;
    int factorial =1;

    cout << "Enter a number: ";
    cin >> n;

    if (n < 0)
        cout << "Error! Factorial of a zero/negative number doesn't exist.";
    else {
        for(int i = 1; i <= n; ++i) {
            factorial *= i;
        }
        cout << "Factorial of " << n << " = " << factorial;
    }

    return 0;
}
```

```
Enter a number: 4
Factorial of 4 = 24
```

```
// Write a program to check entered number is prime or not
#include <iostream>
using namespace std;
int main() {
    int num,count=0;
    cout<<"Enter a number: ";
    cin>>num;
    for(int i=2;i<=num;i++){
    if(num%i==0)
```

```
    {
        count++;
    }
    }
    if(count==1){
        cout<<"The entered number is prime number"<<endl;
    }
    else{
        cout<<"The entered number is not prime number"<<endl;
    }

    return 0;
}
```

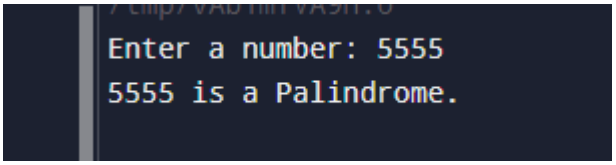
```
Enter a number: 33
The entered number is not prime number
```

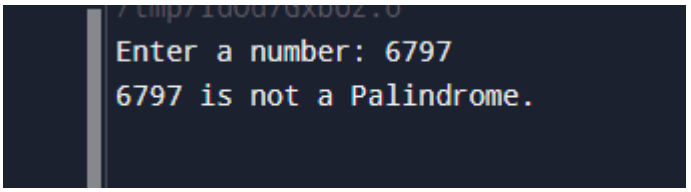
```
Enter a number: 5
The entered number is prime number
```

```
// Write a program to display reverse of given number
#include <iostream>
using namespace std;
int reverse(int n){
    int rev;
    int rem;
    while(n!=0){
        rem=n%10;
        rev=rev*10+rem;
        n=n/10;

    }
    return rev;
}
int main() {
    int num;
    cout<<"Enter a number: ";
    cin>>num;
    int result=reverse(num);
    cout<<"Reverse of "<<num<<" is: "<<result<<endl;
    return 0;
}
```

```
Enter a number: 6734
Reverse of 6734 is: 4376
```

```cpp
// Write a program to check whether the number is a palindrome  or not.
#include <iostream>
using namespace std;

int main() {
    int num, reversed = 0, original, remainder;
    cout << "Enter a number: ";
    cin >> num;

    original = num;
    while (num != 0) {
        remainder = num % 10;
        reversed = reversed * 10 + remainder;
        num /= 10;
    }

    if (original == reversed)
        cout << original << " is a Palindrome." << endl;
    else
        cout << original << " is not a Palindrome." << endl;

    return 0;
}
```




```cpp
// Write a program for calculating total of odd and even numbers till 50
#include <iostream>
using namespace std;

int main() {
    int evenSum = 0, oddSum = 0;

    for (int i = 1; i <= 50; i++) {
        if (i % 2 == 0)
            evenSum += i;
        else
            oddSum += i;
    }
```

```
    cout << "Sum of even numbers till 50 is: " << evenSum << endl;
    cout << "Sum of odd numbers till 50 is: " << oddSum << endl;

    return 0;
}
```

```
Sum of even numbers till 50 is: 650
Sum of odd numbers till 50 is: 625
```

```
// Write a program to check greatest of three numbers
#include <iostream>
using namespace std;
int main() {
    int n1,n2,n3;
    cout<<"Enter 3 numbers: ";
    cin>>n1>>n2>>n3;
    if(n1>n2&&n1>n3){
        cout<<"The greatest number is: "<<n1<<endl;
    }
    else if(n2>n1&&n2>n3){
        cout<<"The greatest number is: "<<n2<<endl;
    }
    else{
        cout<<"The greatest number is: "<<n3<<endl;
    }

    return 0;
}
```

```
Enter 3 numbers: 33 56 91
The greatest number is: 91
```

```
// Write a program to print days of week by using switch case
#include <iostream>
using namespace std;
int main() {
    int day;
    cout<<"What day is today?"<<endl;
```

```
    cout<<"Enter your choice according to the
menu:\n1.Sunday\n2.Monday\n3.Tuesday\n4.Wedneday\n5.Thursday\n6.Friday\n7.Saturday
\nYour choice: ";
    cin>>day;
    switch(day){
        case 1:cout<<"It's Sunday!"<<endl;
        break;
        case 2:cout<<"It's Monday!"<<endl;
        break;
        case 3:cout<<"It's Tuesday!"<<endl;
        break;
        case 4:cout<<"It's Wednesday!"<<endl;
        break;
        case 5:cout<<"It's Thursday!"<<endl;
        break;
        case 6:cout<<"It's Friday!"<<endl;
        break;
        case 7:cout<<"It's Saturday!"<<endl;
        break;
        default:cout<<"Invalid Choice!"<<endl;
        break;
    }
    cout<<"Have a great day\nBye...";

    return 0;
}
```

```
What day is today?
Enter your choice according to the menu:
1.Sunday
2.Monday
3.Tuesday
4.Wedneday
5.Thursday
6.Friday
7.Saturday
Your choice: 4
It's Wednesday!
Have a great day
Bye...
```

```
//Write a program to display table of entered number
#include <iostream>
using namespace std;
int main() {
    int n,i=1,p;
```

```
    cout<<"The table of number you want is: ";
    cin>>n;
    while(i<=10){
        p=i*n;
        cout<<n<<"x"<<i<<"="<<p<<endl;
        i++;
            }
    return 0;
}
```

```
The table of number you want is: 3
3x1=3
3x2=6
3x3=9
3x4=12
3x5=15
3x6=18
3x7=21
3x8=24
3x9=27
3x10=30
```

//Write a program to print asterisks in given format:

```
*
**
***
****
*****
```

```
#include <iostream>
using namespace std;

int main() {
    for (int i = 1; i <= 5; i++) {
        for (int j = 1; j <= i; j++) {
            cout << "*";
        }
        cout << endl;
    }

    return 0;
}
```

//Write a c++ program to print numbers in the given format :

1

1 2
1 2 3

```
#include <iostream>
using namespace std;

int main() {
    // Outer loop for each row
    for (int i = 1; i <= 3; i++) {
        // Inner loop for printing numbers in each row
        for (int j = 1; j <= i; j++) {
            cout << j << " ";
        }
        cout << endl; // Move to the next line after each row
    }
    return 0;
}
```

//Write a c++ program to print alphabets in the given format :
a
b c
d e f

```
#include <iostream>
using namespace std;

int main() {
    char ch = 97 ;// Starting character

    // Outer loop for each row
    for (int i = 97; i <= 99; i++) {
        // Inner loop for printing characters in each row
        for (int j = 97; j <= i; j++) {
            cout << ch << " "; // Print the current character
            ch++; // Move to the next character
        }
        cout << endl; // Move to the next line after each row
    }

    return 0;
}
```

//Write a c++ program to print square of numbers in the given format :
1
1 4
1 4 9

```
#include <iostream>
using namespace std;
```

```
int main() {
    // Outer loop for each row
    for (int i = 1; i <= 3; i++) {
        // Inner loop for printing squares of numbers in each row
        for (int j = 1; j <= i; j++) {
            cout << j * j << " ";
        }
        cout << endl; // Move to the next line after each row
    }
    return 0;
}
```

//Write a c++ program to print cube of numbers in the given format :
1
1 8
1 8 27

```
#include <iostream>
using namespace std;

int main() {
    // Outer loop for each row
    for (int i = 1; i <= 3; i++) {
        // Inner loop for printing cubes of numbers in each row
        for (int j = 1; j <= i; j++) {
            cout << j * j * j << " ";  // Printing the cube of j
        }
        cout << endl;  // Move to the next line after each row
    }
    return 0;
}
```

Regular expressions:
Type1:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("abc");//for matching
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
```

}

```
/tmp/fF2mmAZseZ.o
abc
Matched
ABC
Not Matched
XYZ
Not Matched
qrs
Not Matched
```

Type 2:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("abc.");//for matching
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
}
```

```
abc
Not Matched
abcd
Matched
abce
Matched
acbd
Not Matched
```

Type 3:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("abc*");//for matching
```

```
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
}
```

```
abc
Matched
abcccc
Matched
abccccccccc
Matched
abcd
Not Matched
abd
Not Matched
```

Type 4:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("abc",regex_constants::icase);//for matching
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
}
```

```
abc
Matched
ABC
Matched
XYZ
Not Matched
xyz
Not Matched
pqrst
Not Matched
```

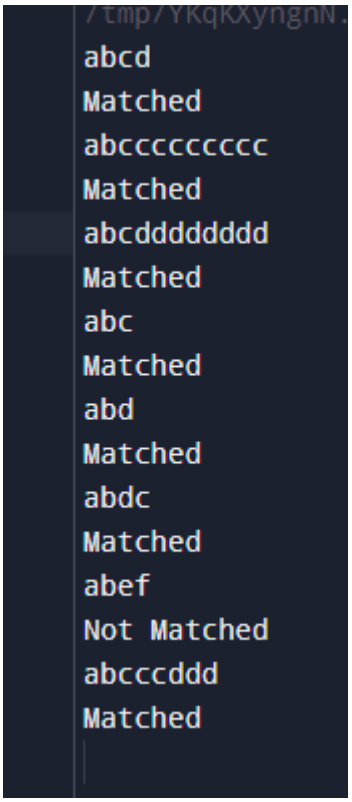
Type 5:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("abc?");//for matching
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
}
```

```
abc
Matched
ab
Matched
a
Not Matched
abccccccc
Not Matched
abd
Not Matched
abcd
Not Matched
```

Type 6:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("ab[cd]*");//for matching
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
}
```




Type 7:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("ab[^cd]*");//for matching
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
```

}

```
abcd
Not Matched
abef
Matched
abij
Matched
abyz
Matched
```

Type 8:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("ab[cd]{3}");//for matching
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
}
```

```
abcde
Not Matched
abccd
Matched
abcdd
Matched
abddd
Matched
abccc
Matched
abcdb
Not Matched
```

Type 9:

```
#include<iostream>
#include<regex>
using namespace std;
int main(){
string str;
while(true){
cin>>str;
regex a("ab[cd]{3,5}");//for matching
bool match = regex_match(str,a);
cout<<(match? "Matched":"Not Matched")<<endl;
}
}
```