Q1:

```
#include <iostream>
using namespace std;
int main() {
   int age;
   string  name;
   cout<<"enter the name :"<<endl;
   cin>>name;
   cout<<"enter the age :"<<endl;
   cin>>age;
   cout<<"hello" <<name <<"you are" <<age <<"years old";
   return 0;
}
```

```
enter the name :
uio
enter the age :
78
hellouioyou are78years old
```

Q2

```
int a,b;
   cout<<"enter 2 values:";
   cin>>a>>b;
   cout<<"sum of no.s is "<<a+b;
```

```
enter 2 values:5 6
sum of no.s is 11
```

Q3:

```
int a, b ;
   char opr;
   cout<<"enter 2 values:";
   cin>>a>>b;
   cout<<"enter operator:";
```

```
    cin>>opr;
    switch(opr){
        case'+':
        cout<<a+b;
        break;
        case'-':
        cout<<a-b;
        break;
        case'*':
        cout<<a*b;
        break;
        case'/':
        cout<<a/b;
        break;
        default:"no case";
    }

    return 0;
}

enter 2 values:7 9
enter operator:*
63
```

Q4:

```
float a,b ;
   cout<<"enter 2 values:";
   cin>>a>>b;
   float c=a/b;
   cout<<fixed<<setprecision(2)<<c;
```

```
enter 2 values:8 9
0.89
```

Q5:

```
#include <iostream>
#include<cmath>
using namespace std;
int main() {
   double p,r,n,t,ci,a;
   cout<<"enter the principle:";
   cin>>p;
   cout<<"enter the rate:";
   cin>>r;
   cout<<"enter the number of time :";
   cin>>n;
   cout<<"enter the time:";
   cin>>t;
   r=r/100;
   a=p*pow((1+r/n),(n*t));
   ci=a-p;
   cout<<"the amount:"<<a<<endl;
   cout<<"the compound intrest:"<<ci<<endl;
   return 0;
}
```

```
enter the principle:1000
```

enter the rate:5

enter the number of time :4

enter the time:60

the amount:19715.5

the compound intrest:18715.5

Q6:

```
#include <iostream>
#include<cmath>
using namespace std;
int main() {
   float l,b,a,p;
   cout<<"enter length:";
   cin>>l;
   cout<<"enter the breadth:";
   cin>>b;
   a=l*b;
   cout<<"area:"<<a<<endl;
   p=2*(l+b);
   cout<<"perimeter:"<<p<<endl;
   return 0;
}
```

enter length:5.3

enter the breadth:2

area:10.6

perimeter:14.6

Q7:

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

```
int main() {
  int a,b,c;
  cout<<"enter 2 values:";
  cin>>a>>b;
  c=a;
  a=b;
  b=c;
  cout<<a<<endl;
  cout<<b<<endl;
   return 0;
}
enter 2 values:5 6
6
5
#include <iostream>
#include<cmath>
using namespace std;
int main() {
  int a,b,c;
  cout<<"enter 2 values:";
  cin>>a>>b;
  a=a+b;
  b=a-b;
  a=a-b;
  cout<<a<<endl;
 cout<<b<<endl;
   return 0;
}
enter 2 values:5 6
6
5
```

Q8-

```
#include <iostream>
using namespace std;
int main() {
   int age;
   string  name;
   cout<<"enter the name:";
   getline(cin,name);
   cout<<"enter the age:";
   cin>>age;
   cout<<"hello"<<name<<"i have lived for "<<age;



   return 0;
}
```

```
enter the name:hui
enter the age:7
hellohuii have lived for 7
```

Q9

```
#include <iostream>
#include<iomanip>
using namespace std;
int main() {
   string  ch;
   int num;
   float numm;
   cout<<"enter the ch:";
```

```
    getline(cin,ch);
    cout<<"enter the num:";
    cin>>num;
    cout<<"enter the floating value:";
    cin>>numm;
    cout<<"+---------------+----------------+-------------+"<<endl;
    cout<<"| character    |  integer      |   flaoting  |"<<endl;
    cout<<"+---------------+----------------+-------------+"<<endl;
    cout<<setw(15)<<ch<<"|"<<setw(15)<<num<<"|"<<setw(15)<<fixed<<setprecision(2)<<numm<<"|"<<endl;
    cout<<"+---------------+----------------+-------------+"<<endl;




    return 0;
}


enter the ch:poi
enter the num:896
enter the floating value:21.3
+---------------+----------------+-------------+
| character    |  integer      |   flaoting  |
+---------------+----------------+-------------+
          poi|           896|         21.30|
+---------------+----------------+-------------+
Q10:#include <iostream>
using namespace std;
int main() {
    int a,b;
    cout<<"enter 2 values:";
    cin>>a>>b;
    if(b!=0 && a%b==0){
```

```
        cout<<b<<"  is multiple of"<<a<<endl;
    }else{
        cout<<b<<" is not multiple of"<<a<<endl;
    }
    return 0;
}
enter 2 values:8 4
4  is multiple of8


Q11#include <iostream>
using namespace std;
int countbits(int num){
    int count=0;
    while(num>0){
        if(num &1){
            count++;
        }
        num=num>>1;
    }
    return count;
}
int main() {
    int num;
    cout<<"enter the integer :";
    cin>>num;
    unsigned int unsignednum=static_cast<unsigned int>(num);
    int result=countbits(unsignednum);
    cout<<"noo of 1 bits:"<<result<<endl;
```

```
    return 0;
}
enter the integer :7
noo of 1 bits:3

Q12
#include <iostream>
#include <cmath>
using namespace std;

int main() {
    int a, b, c;

    cout << "Enter coefficients a, b, and c: ";
    cin >> a >> b >> c;

)
    if (a == 0) {
        if (b == 0) {
            cout << "No solution exists (invalid equation)." << endl;
        } else {
            int root = -c / b;
            cout << "Linear equation solution: x = " << root << endl;
        }
    } else {

        int D = b * b - 4 * a * c;

        if (D > 0) {

            int sqrtD = sqrt(D);  // sqrt(D) gives the square root
```

```
        if (sqrtD * sqrtD == D) {  // Check if sqrt(D) is an integer
            int root1 = (-b + sqrtD) / (2 * a);
            int root2 = (-b - sqrtD) / (2 * a);
            cout << "Two distinct real roots: x1 = " << root1 << ", x2 = " << root2 << endl;
        } else {
            cout << "Non-perfect square discriminant. Cannot calculate integer roots." << endl;
        }
    } else if (D == 0) {
        // One real and equal root
        int root = -b / (2 * a);
        cout << "One real root (equal roots): x = " << root << endl;
    } else {
        // Complex roots
        cout << "Complex roots: Cannot solve with integer calculations." << endl;
    }
  }

  return 0;
}
```

```
Enter coefficients a, b, and c: 1 -5 6
Two distinct real roots: x1 = 3, x2 = 2
```

Q13:

```
#include <iostream>
#include<cmath>
using namespace std;
int main() {
  int balance=5000;
  int pin=1234;
  int enteredpin;
```

```
int option;
int amount;
cout<<"enter the pin:";
cin>>enteredpin;
if(enteredpin != pin){
   cout<<"wrong pin.access denied";
   return 0;
}
do{
   cout<<"1.withdrwal";
   cout<<"2.deposit";
   cout<<"3.balance inquiry";
   cout<<"4.exit";
   cout<<"enter the option(1-4):";
   cin>>option;
   switch(option){
      case 1:
      cout<<"enter the amount to be withdrawn:";
      if(amount<=0){
         cout<<"it has to be grater than zero";
      }else if(amount >balance){
         cout<<"sorry the amount is not available";
      }else{
         balance-=amount;
         cout<<"the amount is withdrawn"<<balance<<endl;



      }
   }
   break;
      case 2:
```

```
            cout<<"enter the amount to deposit:";
            cin>>amount;
            if(amount<=0){
               cout<<"amount should be more than zero";
             }else if{
               balance+=amount;
               cout<<"deposit successfully.new balance:"<<balance<<endl;
            }
             break;
           case 3:
           cout<<"your current balance:"<<balance<<endl;
           break;
           case 4:
           cout<<"exit";
           default:
           cout<<"invalid option";


   }while(option!=4)
      }



   return 0;
}
```

Enter your PIN: 1234

ATM Menu:

1. Withdraw

2. Deposit

3. Balance Inquiry

4. Exit

Choose an option (1-4): 1

Enter amount to withdraw: 1000

Withdrawal successful. New balance: 4000

Q14

```
#include <iostream>
#include<cmath>
using namespace std;
int main() {
   int s1,s2,s3;
   cout<<"enter 3 values:";
   cin>>s1>>s2>>s3;
   if(s1==s2&&s2==s3&&s1==s3){
      cout<<"it is an equilateral triangle:";
   }else if(s1==s2||s2==s3||s1==s3){
      cout<<"it is an isosceles triangle";
   }else{
      cout<<"it is an scalene triangle";
   }
   return 0;
}
```

enter 3 values:65 45 65

it is an isosceles triangle

Q15

```
#include <iostream>
#include<cmath>
using namespace std;
int main() {
```

```
   int a ,b,c,d,e;
   cout<<"enter 4 values:";
   cin>>a>>b>>c>>d;
   e=(a^b)+(c&d);
   cout<<e<<endl;



   return 0;
}
enter 4 values:5 3 7 2
8
```

Q16:

```
#include <iostream>
using namespace std;
bool isoppositesigns(int a,int b){
   return (a^b)<0;
}
int main() {
   int x=-2,y=10;
   if(isoppositesigns(x,y)){
      cout<<"are of opposite signs"<<endl;
   }else{
      cout<<"are of same sign"<<endl;
   }

   return 0;
}
```

Output:

```
are of opposite signs
```

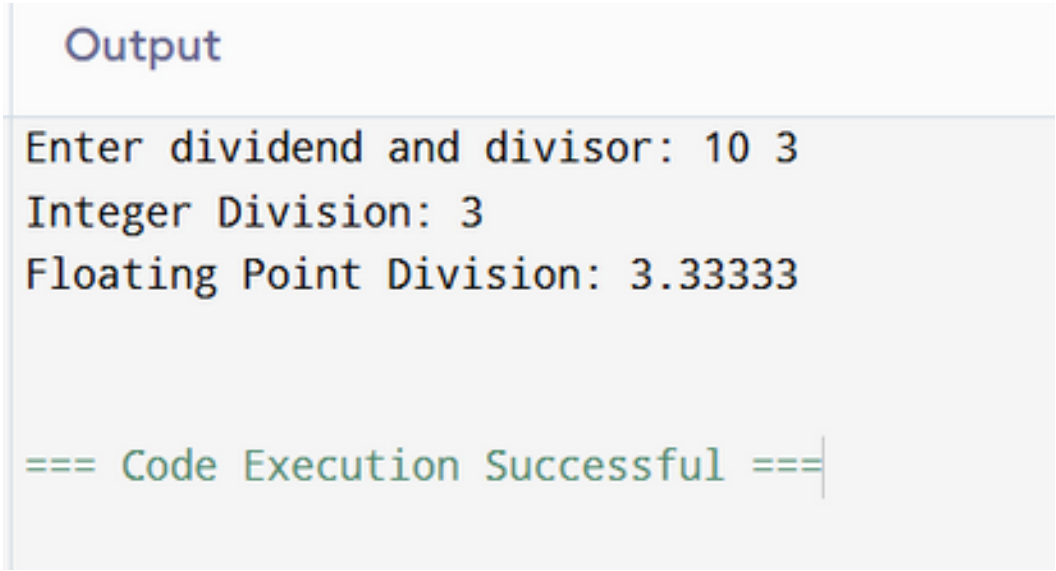
q17:

```
#include <iostream>
#include <cmath> // For abs()

using namespace std;



int manualIntegerDivision(int dividend, int divisor) {
    if (divisor == 0) {
        throw runtime_error("Division by zero is not allowed.");
    }

    bool isNegative = (dividend < 0) ^ (divisor < 0); // Check if result should be negative
    dividend = abs(dividend);
    divisor = abs(divisor);

    int quotient = 0;
    while (dividend >= divisor) {
        dividend -= divisor;
        quotient++;
    }

    return isNegative ? -quotient : quotient;
}



double manualFloatingPointDivision(int dividend, int divisor, int precision = 6) {
    if (divisor == 0) {
        throw runtime_error("Division by zero is not allowed.");
    }
```

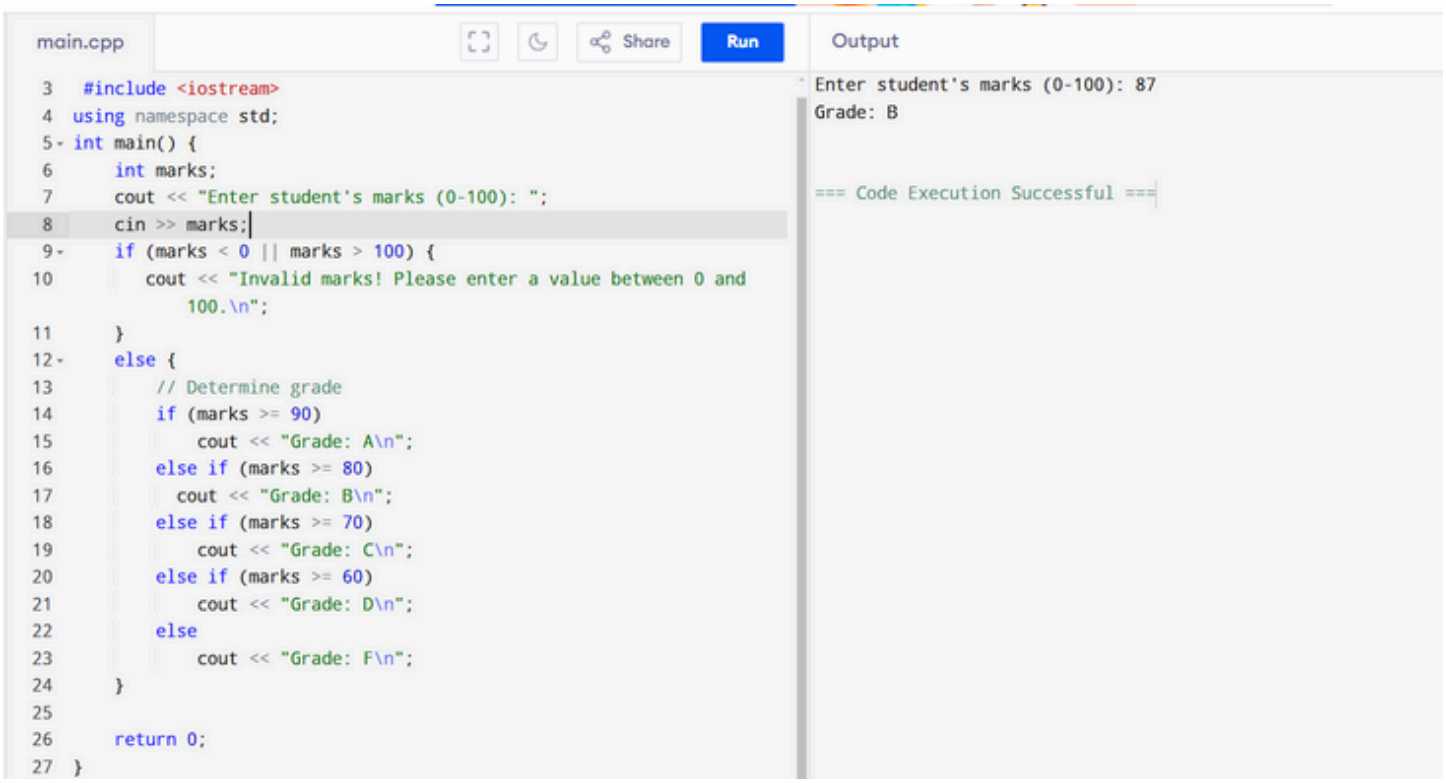
```
    bool isNegative = (dividend < 0) ^ (divisor < 0);
    dividend = abs(dividend);
    divisor = abs(divisor);

    int integerPart = manualIntegerDivision(dividend, divisor);
    int remainder = dividend - (integerPart * divisor);

    double result = integerPart;
    double fraction = 0.0;
    double factor = 0.1;



    for (int i = 0; i < precision; i++) {
        remainder *= 10;
        int fractionalDigit = manualIntegerDivision(remainder, divisor);
        fraction += fractionalDigit * factor;
        remainder -= fractionalDigit * divisor;
        factor /= 10;
    }

    result += fraction;
    return isNegative ? -result : result;
}

int main() {
    int num1, num2;
    cout << "Enter dividend and divisor: ";
    cin >> num1 >> num2;

    try {
        int intDiv = manualIntegerDivision(num1, num2);
```

```
        double floatDiv = manualFloatingPointDivision(num1, num2);

        cout << "Integer Division: " << intDiv << endl;
        cout << "Floating Point Division: " << floatDiv << endl;
    } catch (runtime_error &e) {
        cout << "Error: " << e.what() << endl;
    }

    return 0;
}
```

OUTPUT:



Q19:



Q20:

```
#include <iostream>
using namespace std;
int main(){
   int choice;
   double num1,num2,result;
   do{
      cout<<"1.add"<<endl;
      cout<<"2. sub"<<endl;
      cout<<"3.mult"<<endl;
      cout<<"4.div"<<endl;
      cout<<"5. exit"<<endl;
      cout<<"enter your choice:";
      cin>>choice;
      if(choice>=1 && choice<=4){
         cout<<"enter 2 numbers:"<<endl;
         cin>>num1>>num2;
   }
```

```
   switch(choice){
      case 1:
      result=num1+num2;
      cout<<"result is:"<<result<<endl;
      break;
      case 2:
      result=num1-num2;
      cout<<"result is:"<<result<<endl;
      break;
      case 3:
      result=num1*num2;
      cout<<"result is:"<<result<<endl;
      break;
      case 4:
      if(num2!=0){
         result=num1/num2;
      cout<<"result is:"<<result<<endl;
      }else{
         cout<<"division is not allowed"<<endl;
      }
      break;
      case 5:
      cout<<"exiting the program "<<endl;
      default:
      cout<<"invalid choice";
   }
 }while(choice!=5);


    return 0;
}
```

Output:

Output

```
1.add
2. sub
3.mult
4.div
5. exit
enter your choice:3
enter 2 numbers:
5 6
result is:30
1.add
2. sub
3.mult
4.div
5. exit
enter your choice:5
exiting the program
invalid choice

=== Code Execution Successful ===
```

Q21:

main.cpp

Share Run

```cpp
// Online C++ compiler to run C++ program online
 #include <iostream>
using namespace std;
int main() {
    int year;
    cout << "Enter a year: ";
    cin >> year;
    if (year % 4 == 0) {
        if (year % 100 == 0) {
            if (year % 400 == 0) {
               cout << year << " is a Leap Year.\n";
            } else {
                cout << year << " is NOT a Leap Year.\n";
            }
        } else {
          cout << year << " is a Leap Year.\n";
        }
    } else {
     cout << year << " is NOT a Leap Year.\n";
    }

    return 0;
}

```

Output

```
Enter a year: 2023
2023 is NOT a Leap Year.


=== Code Execution Successful ===
```

Q22:

main.cpp

Share Run

```cpp
// Online C++ compiler to run C++ program online
#include <iostream>
using namespace std;

int main() {
    int n;
    cout << "Enter the number of Fibonacci numbers to print: ";
    cin >> n;
    int first = 0, second = 1, next;
    cout << "Fibonacci Series: ";

    for (int i = 0; i < n; i++) {
        cout << first << " ";
        next = first + second;
        first = second;
        second = next;
    }

    cout << endl;
    return 0;
}

```

Output

```
Enter the number of Fibonacci numbers to print: 10
Fibonacci Series: 0 1 1 2 3 5 8 13 21 34


=== Code Execution Successful ===
```

Q23:

main.cpp

Share Run

```cpp
#include <iostream>
using namespace std;
int main() {
    int num, i = 2;
    bool isPrime = true;
    cout << "Enter a number: ";
    cin >> num;
    if (num <= 1) {
        isPrime = false;
    } else {
        while (i * i <= num) {  // Checking up to sqrt(num)
            if (num % i == 0) {
                isPrime = false;
                break;
            }
            i++;
        }
    }

    if (isPrime)
        cout << num << " is a prime number." << endl;
    else
        cout << num << " is not a prime number." << endl;

    return 0;
}
```

Output

```
Enter a number: 4
4 is not a prime number.


=== Code Execution Successful ===
```

Q24:

main.cpp

Share Run

```cpp

#include <iostream>
using namespace std;

int main() {
    int n;
    long long factorial = 1;
    cout << "Enter a number: ";
    cin >> n;

    int i = 1;
    do {
        factorial *= i;
        i++;
    } while (i <= n);


    cout << "Factorial of " << n << " is: " << factorial << endl;

    return 0;
}

```

Output

```
Enter a number: 5
Factorial of 5 is: 120


=== Code Execution Successful ===
```

Q26:

main.cpp

Share Run

```cpp
// Online C++ compiler to run C++ program online
#include <iostream>
using namespace std;
bool isPrime(int num) {
    if (num < 2) return false;
    for (int i = 2; i * i <= num; i++) {
        if (num % i == 0) return false;
    }
    return true;
}
int main() {
    int n, count = 0, num = 2;
    cout << "Enter the number of prime numbers to generate: ";
    cin >> n;
    while (count < n) {
        if (isPrime(num)) {
            cout << num << " ";
            count++;
        }
        num++;
    }
    cout << endl;
    return 0;
}
```

Output

```
Enter the number of prime numbers to generate: 6
2 3 5 7 11 13


=== Code Execution Successful ===
```

Q27:

main.cpp

Share Run

```cpp
#include <iostream>
#include <cmath>
using namespace std;
int main() {
    int start, end;
    cout << "Enter the start of the range: ";
    cin >> start;
    cout << "Enter the end of the range: ";
    cin >> end;
    cout << "Armstrong numbers between " << start << " and " << end
        << " are:\n";
    for (int num = start; num <= end; num++) {
        int sum = 0, temp = num, digits = 0;
        for (int tempNum = num; tempNum > 0; tempNum /= 10) {
            digits++;
        }
        for (int tempNum = num; tempNum > 0; tempNum /= 10) {
            int digit = tempNum % 10;
            sum += pow(digit, digits);
        }
        if (sum == num) {
            cout << num << " ";
        }
    }
    cout << endl;
    return 0;
```

Output

```
Enter the start of the range: 1
Enter the end of the range: 500
Armstrong numbers between 1 and 500 are:
1 2 3 4 5 6 7 8 9 153 370 371 407


=== Code Execution Successful ===
```

Q29:

main.cpp

Share Run

```cpp

#include <iostream>

int main() {
    int number = 51;

    while (number % 7 != 0) {
        number++;
    }

    std::cout << "The first number greater than 50 that is divisible
        by 7 is: " << number << std::endl;

    return 0;
}

```

Output

```
The first number greater than 50 that is divisible by 7 is: 56


=== Code Execution Successful ===
```

Q30:

main.cpp

Share Run

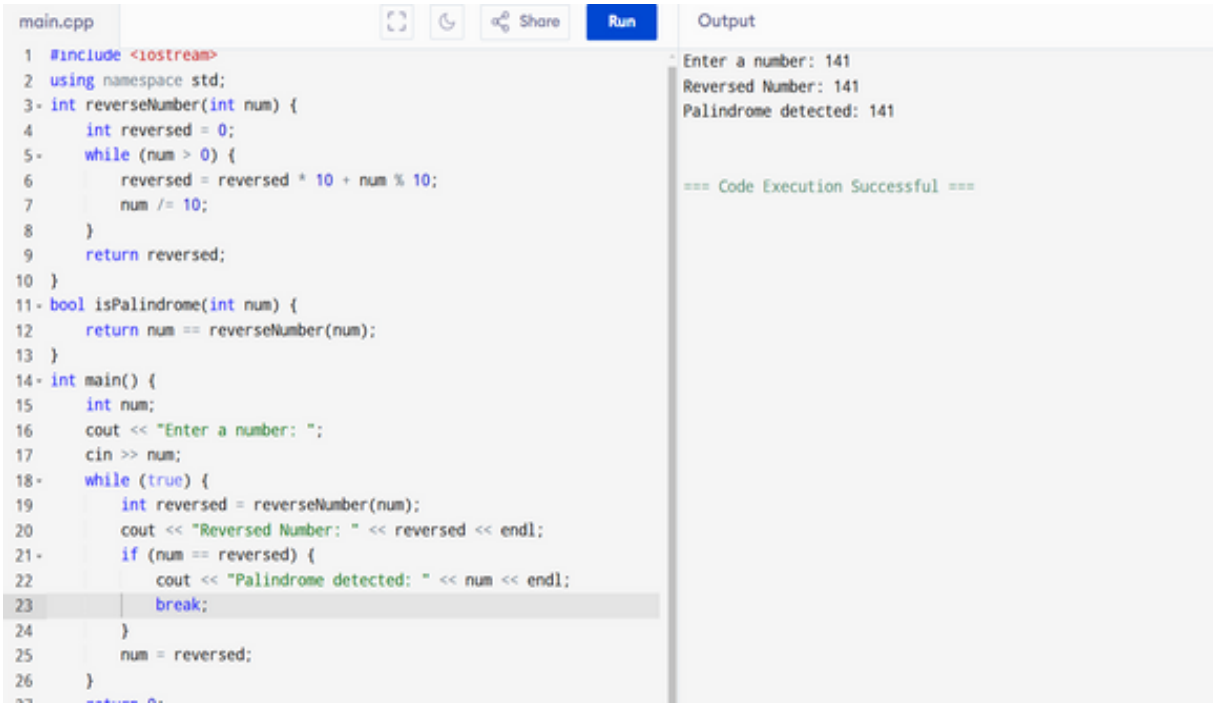
```cpp
// Online C++ compiler to run C++ program online
#include <iostream>
using namespace std;
int main() {
    int sum=0;
    for (int i=1;i<=500;i++){
        if(i%3==0 || i%7==0){
            continue;
        }if(sum +i>1000)
        break;

        cout<<i<<"  ";
        sum+=i;
    }
    cout<<"total sum"<<sum<<endl;

    return 0;
}
```

Output

Clear

```
1  2  4  5  8  10  11  13  16  17  19  20  22  23  25  26  29  31  32  34
   37  38  40  41  43  44  46  47  50  52  53  55  58  total sum952


=== Code Execution Successful ===
```

Q31:


main.cpp
Share
Run
Output
#include <iostream>
using namespace std;
int reverseNumber(int num) {
int reversed = 0;
while (num > 0) {
reversed = reversed * 10 + num % 10;
num /= 10;
}
return reversed;
}
bool isPalindrome(int num) {
return num == reverseNumber(num);
}
int main() {
int num;
cout << "Enter a number: ";
cin >> num;
while (true) {
int reversed = reverseNumber(num);
cout << "Reversed Number: " << reversed << endl;
if (num == reversed) {
cout << "Palindrome detected: " << num << endl;
break;
}
num = reversed;
}
Enter a number: 141
Reversed Number: 141
Palindrome detected: 141
=== Code Execution Successful ===

Q35:


main.cpp
Share
Run
Output
#include <iostream>
using namespace std;
int gcd(int a, int b) {
while (b != 0) {
int temp = b;
b = a % b;
a = temp;
}
return a;
}
int lcm(int a, int b) {
return (a * b) / gcd(a, b);
}
int main() {
int num1, num2;
cout << "Enter two numbers: ";
cin >> num1 >> num2;
cout << "GCD of " << num1 << " and " << num2 << " is: " << gcd
(num1, num2) << endl;
cout << "LCM of " << num1 << " and " << num2 << " is: " << lcm
(num1, num2) << endl;
return 0;
}
Enter two numbers: 12 18
GCD of 12 and 18 is: 6
LCM of 12 and 18 is: 36
=== Code Execution Successful ===

Q32

```
#include <iostream>
#include <limits.h>
using namespace std;

int findSecondLargest(int arr[], int size) {
    if (size < 2) {
        cout << "Array should have at least two elements.\n";
        return -1;
    }

    int first = INT_MIN, second = INT_MIN;

    for (int i = 0; i < size; i++) {
        if (arr[i] > first) {
            second = first;
            first = arr[i];
        } else if (arr[i] > second && arr[i] != first) {
            second = arr[i];
        }
    }

    return (second == INT_MIN) ? -1 : second;
}

int main() {
    int size;
    cout << "Enter the number of elements: ";
    cin >> size;
    int arr[size];
```

```
    cout << "Enter the elements: ";
    for (int i = 0; i < size; i++) {
        cin >> arr[i];
    }

    int secondLargest = findSecondLargest(arr, size);
    if (secondLargest != -1)
        cout << "Second largest element: " << secondLargest << endl;
    else
        cout << "No second largest element found.\n";

    return 0;
}
```

Output:

```
Enter the number of elements: 5
Enter the elements: 10 20 5 30 25
```

Q33

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

bool canBeRepresentedExactly(double num) {
    int exponent;
    double mantissa = frexp(num, &exponent);

    while (mantissa != floor(mantissa)) {
        mantissa *= 2;
        exponent--;
    }
```

```
    return exponent >= -52; // IEEE 754 double precision has 52-bit mantissa
}

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

    if (canBeRepresentedExactly(num)) {
        cout << num << " can be represented exactly in binary.\n";
    } else {
        cout << num << " cannot be represented exactly in binary.\n";
    }

    return 0;
}
```

Output:

```
Enter a floating-point number: 0.5
0.5 can be represented exactly in binary.
```

Q34:

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

int main() {
    int rows, cols;
    cout << "Enter the number of rows and columns: ";
    cin >> rows >> cols;

    int arr[rows][cols];
```

```
    cout << "Enter the elements of the matrix:\n";
    for (int i = 0; i < rows; i++)
        for (int j = 0; j < cols; j++)
            cin >> arr[i][j];

    cout << "Formatted 2D Array:\n";
    for (int i = 0; i < rows; i++) {
        for (int j = 0; j < cols; j++)
            cout << setw(5) << arr[i][j] << " "; // Ensuring proper alignment
        cout << endl;
    }

    return 0;
}
```

Output:

```
Enter the number of rows and columns: 3 3
Enter the elements of the matrix:
1 22 333
4444 55 6
7 888 9999

Formatted 2D Array:
    1   22  333
 4444   55    6
    7  888 9999
```

Q18

```
#include <iostream>

using namespace std;

// Function to perform circular left shift
```

```
unsigned int circularLeftShift(unsigned int num, int shift, int bitSize = 8) {
    shift %= bitSize; // Ensure shift is within range
    return ((num << shift) | (num >> (bitSize - shift))) & ((1 << bitSize) - 1);
}

// Function to perform circular right shift
unsigned int circularRightShift(unsigned int num, int shift, int bitSize = 8) {
    shift %= bitSize; // Ensure shift is within range
    return ((num >> shift) | (num << (bitSize - shift))) & ((1 << bitSize) - 1);
}

int main() {
    unsigned int num;
    int shift, bitSize = 8; // Default bit size set to 8 bits

    // Get user input
    cout << "Enter an integer: ";
    cin >> num;
    cout << "Enter shift value: ";
    cin >> shift;

    // Perform circular shifts
    unsigned int leftShifted = circularLeftShift(num, shift, bitSize);
    unsigned int rightShifted = circularRightShift(num, shift, bitSize);

    // Display results
    cout << "Original Number (8-bit): " << (num & ((1 << bitSize) - 1)) << endl;
    cout << "After Circular Left Shift: " << leftShifted << endl;
    cout << "After Circular Right Shift: " << rightShifted << endl;

    return 0;
}
```

Output:

Enter an integer: 25

Enter shift value: 2

Original Number (8-bit): 25

After Circular Left Shift: 100

After Circular Right Shift: 6

Q25:

```
#include <iostream>

#include <limits>

#include <string>

#include <sstream>


using namespace std;


int main() {

    int sum = 0, count = 0, maxNum = numeric_limits<int>::min(), minNum =
numeric_limits<int>::max();

    string input;


    cout << "Enter integers (type 'exit' to finish):\n";


    while (true) {

        cout << "> ";

        getline(cin, input);


        if (input == "exit") {

            break;

        }


        stringstream ss(input);

        int number;

        if (ss >> number && ss.eof()) { // Ensure valid integer input
```

```
            sum += number;
            count++;
            if (number > maxNum) maxNum = number;
            if (number < minNum) minNum = number;
        } else {
            cout << "Invalid input. Please enter an integer or 'exit' to quit.\n";
        }
    }

    if (count > 0) {
        cout << "\nSummary:\n";
        cout << "Sum: " << sum << "\n";
        cout << "Count: " << count << "\n";
        cout << "Maximum: " << maxNum << "\n";
        cout << "Minimum: " << minNum << "\n";
    } else {
        cout << "No valid integers were entered.\n";
    }

    return 0;
}
```

Output:

```
Enter integers (type 'exit' to finish):
> 10
> 5
> 20
> -3
> hello
Invalid input. Please enter an integer or 'exit' to quit.
> 7
> exit
```

Summary:

Sum: 39

Count: 4

Maximum: 20

Minimum: -3

Q28:

```
#include <iostream>
#include <cstdlib>
#include <ctime>

using namespace std;

int main() {
    srand(time(0)); // Seed random number generator
    int secretNumber = rand() % 100 + 1; // Generate random number between 1 and 100
    int attempts = 5;
    int guess;

    cout << "Welcome to the Number Guessing Game!" << endl;
    cout << "You have " << attempts << " attempts to guess the number between 1 and 100." << endl;

    while (attempts > 0) {
        cout << "Enter your guess: ";
        cin >> guess;

        if (guess < secretNumber) {
            cout << "Too low! Try again." << endl;
        } else if (guess > secretNumber) {
            cout << "Too high! Try again." << endl;
        } else {
            cout << "Congratulations! You guessed the number." << endl;
```

```
            return 0;
        }

        attempts--;
        cout << "Attempts remaining: " << attempts << endl;
    }

    cout << "Game over! The secret number was " << secretNumber << "." << endl;
    return 0;
}
```

Output:

```
Welcome to the Number Guessing Game!
You have 5 attempts to guess the number between 1 and 100.
Enter your guess: 50
Too high! Try again.
Attempts remaining: 4
Enter your guess: 25
Too low! Try again.
Attempts remaining: 3
Enter your guess: 37
Too high! Try again.
Attempts remaining: 2
Enter your guess: 31
Too low! Try again.
Attempts remaining: 1
Enter your guess: 34
Congratulations! You guessed the number.
```