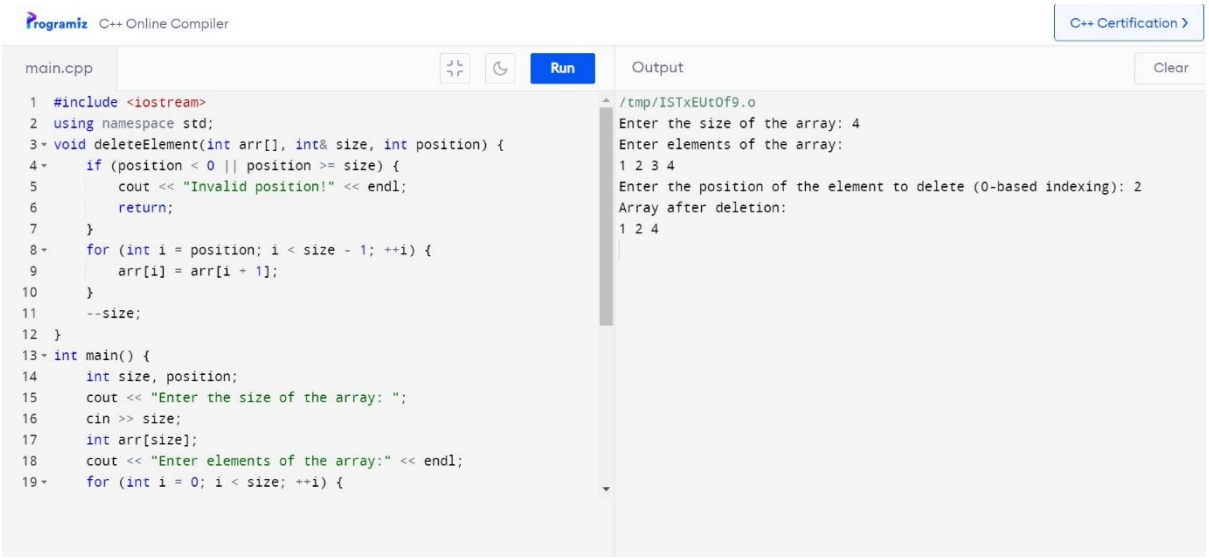
MODEL EXAM

27/02/24

DSA0179-C++ PROGRAMMING

1)DELETE AN ELEMENT IN ARRAY:



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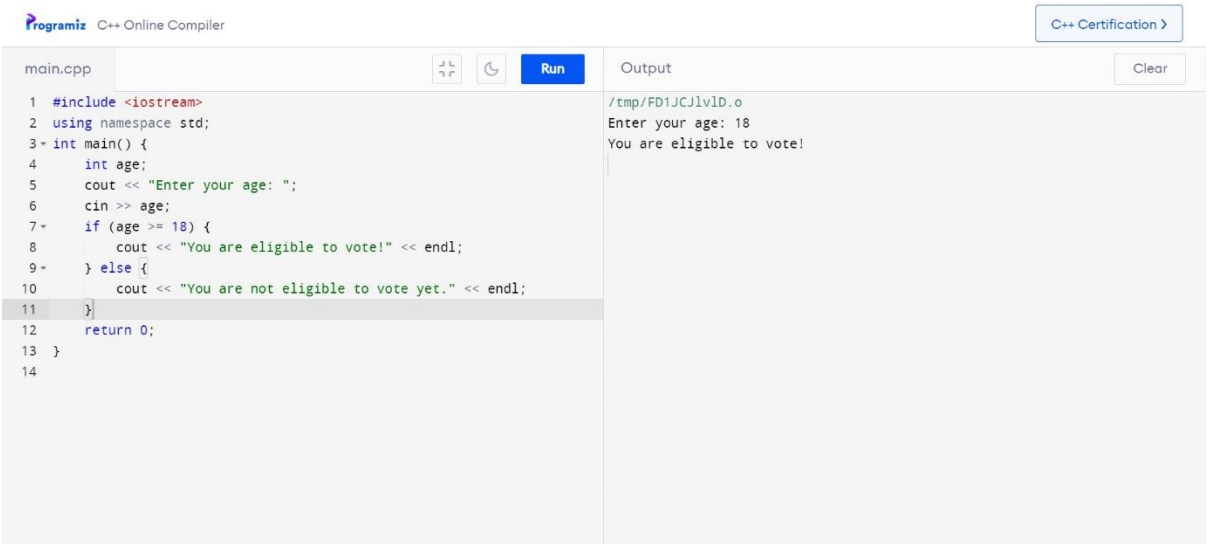
main.cpp — Run — Output — Clear

```
#include <iostream>
using namespace std;
void deleteElement(int arr[], int& size, int position) {
    if (position < 0 || position >= size) {
        cout << "Invalid position!" << endl;
        return;
    }
    for (int i = position; i < size - 1; ++i) {
        arr[i] = arr[i + 1];
    }
    --size;
}
int main() {
    int size, position;
    cout << "Enter the size of the array: ";
    cin >> size;
    int arr[size];
    cout << "Enter elements of the array:" << endl;
    for (int i = 0; i < size; ++i) {
```

```
/tmp/ISTxEUtOf9.o
Enter the size of the array: 4
Enter elements of the array:
1 2 3 4
Enter the position of the element to delete (0-based indexing): 2
Array after deletion:
1 2 4
```

2)ELIGIBLE FOR VOTE:



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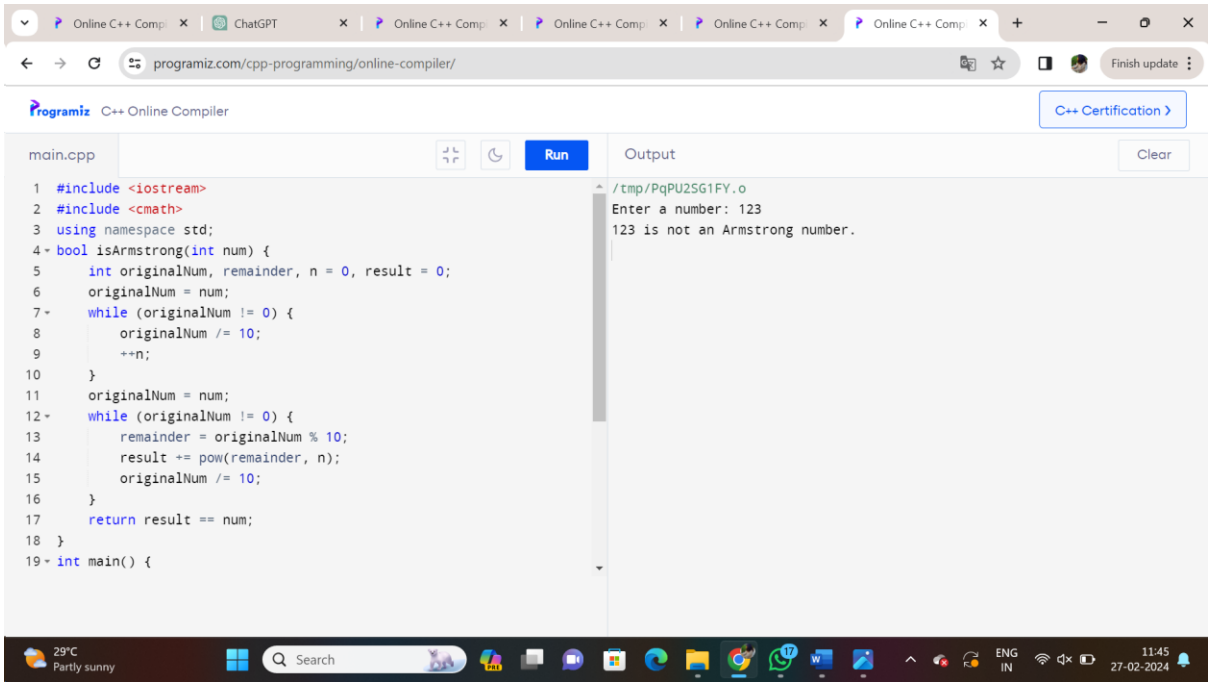
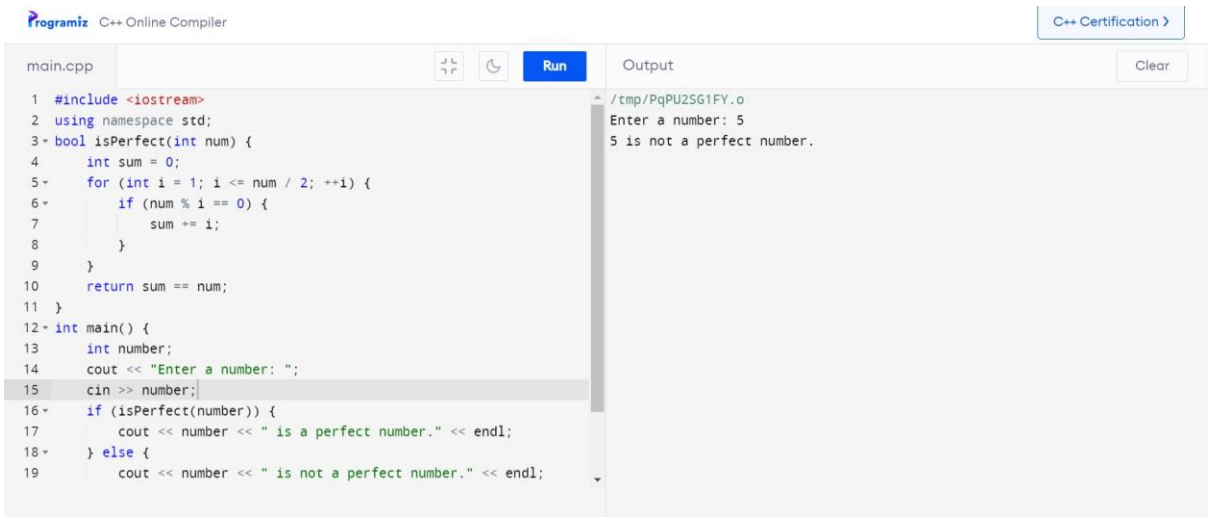
main.cpp — Run — Output — Clear

```
#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 yet." << endl;
    }
    return 0;
}
```

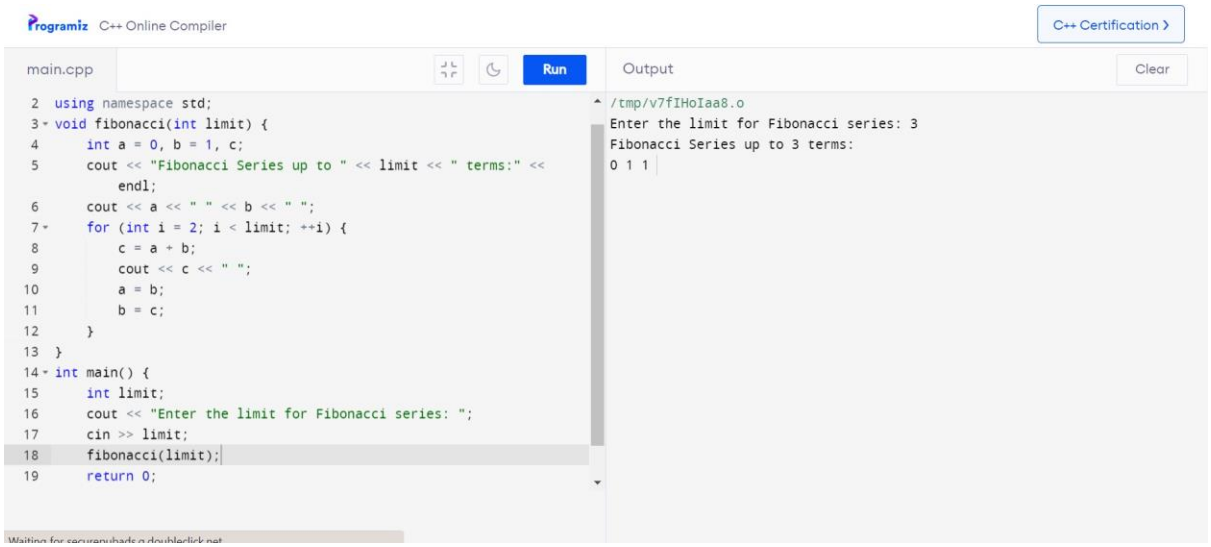
```
/tmp/FD1JCJlvlD.o
Enter your age: 18
You are eligible to vote!
```

3)PERFECT NUMBER & ARMSTRONG NUMBER:

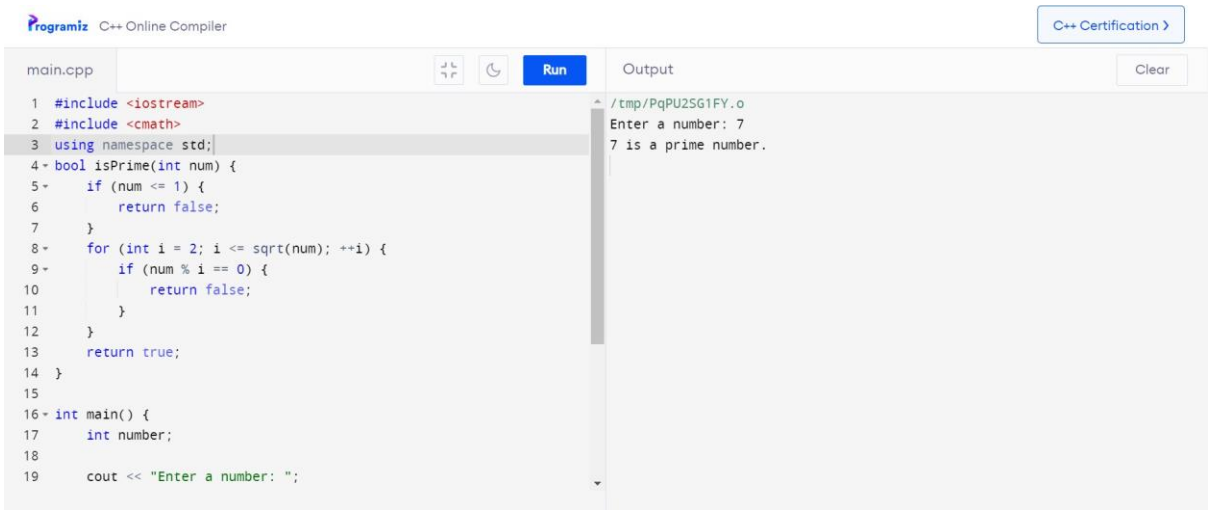




4) FIBONACCI SERIES:



6)PRIME OR NOT



7)SUM OF DIAGONALS IN MATRIX:

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main.cpp

Run

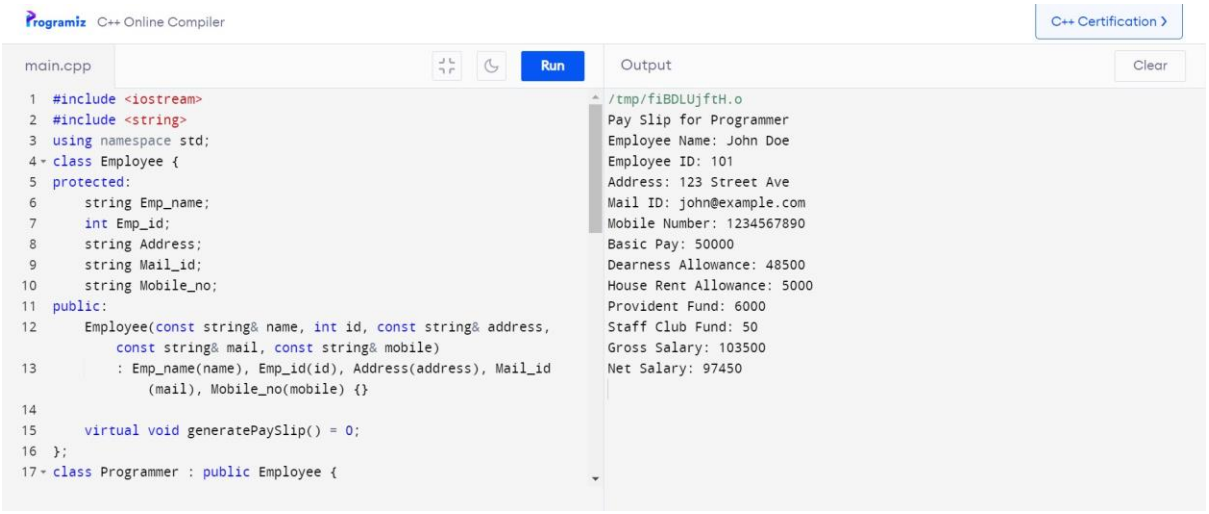
Output

Clear

```cpp
#include <iostream>
using namespace std;
const int MAX_SIZE = 100;
void sumOfDiagonals(int matrix[][MAX_SIZE], int n) {
    int primaryDiagonalSum = 0, secondaryDiagonalSum = 0;
    for (int i = 0; i < n; ++i) {
        primaryDiagonalSum += matrix[i][i];
        secondaryDiagonalSum += matrix[i][n - i - 1];
    }
    cout << "Sum of primary diagonal: " << primaryDiagonalSum
        << endl;
    cout << "Sum of secondary diagonal: " <<
        secondaryDiagonalSum << endl;
}
int main() {
    int n;
    int matrix[MAX_SIZE][MAX_SIZE];
    cout << "Enter the size of the square matrix: ";
    cin >> n;
```

```
/tmp/oOykb7Q6AZ.o
Enter the size of the square matrix: 2
Enter the elements of the matrix:
1 2
2 4
Sum of primary diagonal: 5
Sum of secondary diagonal: 4
```

8) EMPLOYEE PROBLEM-USING CLASS:



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main.cpp

Run

Output

Clear

```cpp
#include <iostream>
#include <string>
using namespace std;
class Employee {
protected:
    string Emp_name;
    int Emp_id;
    string Address;
    string Mail_id;
    string Mobile_no;
public:
    Employee(const string& name, int id, const string& address,
        const string& mail, const string& mobile)
        : Emp_name(name), Emp_id(id), Address(address), Mail_id
            (mail), Mobile_no(mobile) {}

    virtual void generatePaySlip() = 0;
};
class Programmer : public Employee {
```

```
/tmp/fiBDLUjftH.o
Pay Slip for Programmer
Employee Name: John Doe
Employee ID: 101
Address: 123 Street Ave
Mail ID: john@example.com
Mobile Number: 1234567890
Basic Pay: 50000
Dearness Allowance: 48500
House Rent Allowance: 5000
Provident Fund: 6000
Staff Club Fund: 50
Gross Salary: 103500
Net Salary: 97450
```