QUE 1. Write a program to check whether a number is prime or not.

ANS:-

```
#include <iostream>

using namespace std;

bool isPrime(int number) {
    // Check for numbers less than 2
    if (number < 2) {
        return false;
    }

    // Check for factors from 2 to the square root of the number
    for (int i = 2; i * i <= number; ++i) {
        if (number % i == 0) {
            return false; // Not a prime number
        }
    }
    return true; // It is a prime number
}

int main() {
    int number;

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

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

    return 0;
}
```

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QUE 2. Write a program to generate first N prime numbers. Accept N from user.

ANS:-

```
#include <iostream>

using namespace std;

// Function to check if a number is prime
bool isPrime(int number) {
    if (number < 2) {
        return false; // Numbers less than 2 are not prime
    }
    for (int i = 2; i * i <= number; ++i) {
        if (number % i == 0) {
            return false; // Not a prime number
        }
    }
    return true; // It is a prime number
}

int main() {
    int N;

    cout << "Enter the number of prime numbers to generate: ";
    cin >> N;

    if (N <= 0) {
        cout << "Please enter a positive integer." << endl;
        return 1;
    }

    int count = 0; // Count of prime numbers found
    int number = 2; // Starting number to check for primality

    cout << "First " << N << " prime numbers are: " << endl;

    while (count < N) {
        if (isPrime(number)) {
            cout << number << " ";
            count++;
        }
        number++;
    }

    cout << endl; // New line after printing the prime numbers
    return 0;
}
```

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QUE 3. Write a program to generate following pyramid
A
AB
ABC
..... A.............Z

ANS:-

```
#include <iostream>

using namespace std;

int main() {
    const int height = 26; // Number of letters from A to Z

    // Loop through each row
    for (int i = 1; i <= height; ++i) {
        // Loop to print characters from 'A' to the i-th letter
        for (char j = 'A'; j < 'A' + i; ++j) {
            cout << j;
        }
        cout << endl; // Move to the next line after each row
    }

    return 0;
}
```

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QUE 4. Write a menu driven program to perform mathematical operations on two numbers.
1. Add
2. Sub
3. Mul
4. Div
5. Exit
accept the menu option and numbers form user.

ANS:-

```
#include <iostream>

using namespace std;

void showMenu() {
    cout << "Menu:\n";
    cout << "1. Add\n";
    cout << "2. Subtract\n";
    cout << "3. Multiply\n";
    cout << "4. Divide\n";
    cout << "5. Exit\n";
}

int main() {
    int option;
    double num1, num2;
    while (true) {
        showMenu();
        cout << "Enter your choice: ";
        cin >> option;

        // Check if the user wants to exit
        if (option == 5) {
            cout << "Exiting the program." << endl;
            break;
        }

        // Accepting two numbers for the operations
        cout << "Enter the first number : ";
        cin >> num1 ;
        cout << "Enter the second number :";
        cin >> num2;

        switch (option) {
            case 1:
                cout << "Result: " << num1 + num2 << endl;
                break;
            case 2:
                cout << "Result: " << num1 - num2 << endl;
                break;
            case 3:
                cout << "Result: " << num1 * num2 << endl;
                break;
            case 4:
                // Handle division by zero
                if (num2 != 0) {
                    cout << "Result: " << num1 / num2 << endl;
                } else {
                    cout << "Error: Division by zero is not allowed." <<
endl;
                }
                break;
            default:
                cout << "Invalid option. Please try again." << endl;
        }

        cout << endl; // New line for better readability
    }

    return 0;
}
```

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QUE 5. Generate following pyramid , accept the level from the user as input

```
1
1 2
1 2 3
..... 1...............N
```

where N is the level accepted as input

ANS:-

```
#include <iostream>

using namespace std;

int main() {
    int N;

    cout << "Enter the number of levels: ";
    cin >> N;

    // Loop through each level
    for (int i = 1; i <= N; ++i) {
        // Loop to print numbers from 1 to i
        for (int j = 1; j <= i; ++j) {
            cout << j << " ";
        }
        cout << endl; // Move to the next line after each level
    }

    return 0;
}
```

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```