Warm-up Exercise 4:

1. Write a C++ code for a program that checks if the input number is odd or even.
   - #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;
     }

2. Write a C++ code for a program that checks if an input number is prime or not.
   - #include <iostream>

     using namespace std;

     bool isprime(int n) {
         if (n <= 1) return false;
         for (int i = 2; i * i <= n; i++) {
             if (n % i == 0) return false;
         }
         return true;
     }
     int main() {
         int num;
         cout << "Enter a number: ";
         cin >> num;
         if (isprime(num)) {
             cout << num << " is prime" << endl;
         } else {
             cout << num << " is not prime" << endl;
         }

         return 0;
     }

3. Write a C++ code for a program that calculates the factorial of an input number.
   - #include <iostream>

     using namespace std;

     long long fact(int n) {
         long long fact = 1;
         for (int i = 2; i <= n; i++) fact *= i;
         return fact;
     }
     int main() {
         int num;
         cout << "Enter a number: ";
         cin >> num;
         if (num < 0) {
             cout << "Factorial of " << num << " doesn't exist" << endl;

```
    } else {
        cout << "Factorial of " << num << " = " << fact(num) << endl;
    }

    return 0;
}
```

4. Write a C++ program that continues to ask the user to enter any number other than 10 until the user enters the number 10. Then tell the user “Yes! You entered 10!” and exit the program.
   - ```
     #include <iostream>

     using namespace std;

     int main() {
         int num = -1;
         while (num != 10) {
             cout << "Enter a number other than 10: ";
             cin >> num;
         }
         cout << "Yes! You entered 10" << endl;

         return 0;
     }
     ```

5. Write a C++ program that calculates a random number 1 through 100. The program then asks the user to guess the number. If the user guesses too high or too low then the program should output "too high" or "too low" accordingly. The program must let the user continue to guess until the user correctly guesses the number.
   - ```
     #include <iostream>
     #include <cstdlib>
     #include <time.h>

     using namespace std;

     int main() {
         srand(time(0)); // set time as seed
         int randnum = rand() % 100 + 1;
         int num;
         cout << "Guess the number (1-100): ";
         cin >> num;
         while (num != randnum) {
             if (num > randnum) cout << "Too high, guess again (1-100): ";
             else cout << "Too low, guess again (1-100): ";
             cin >> num;

         }
         cout << "Correct, the number is " << randnum << endl;

         return 0;
     }
     ```