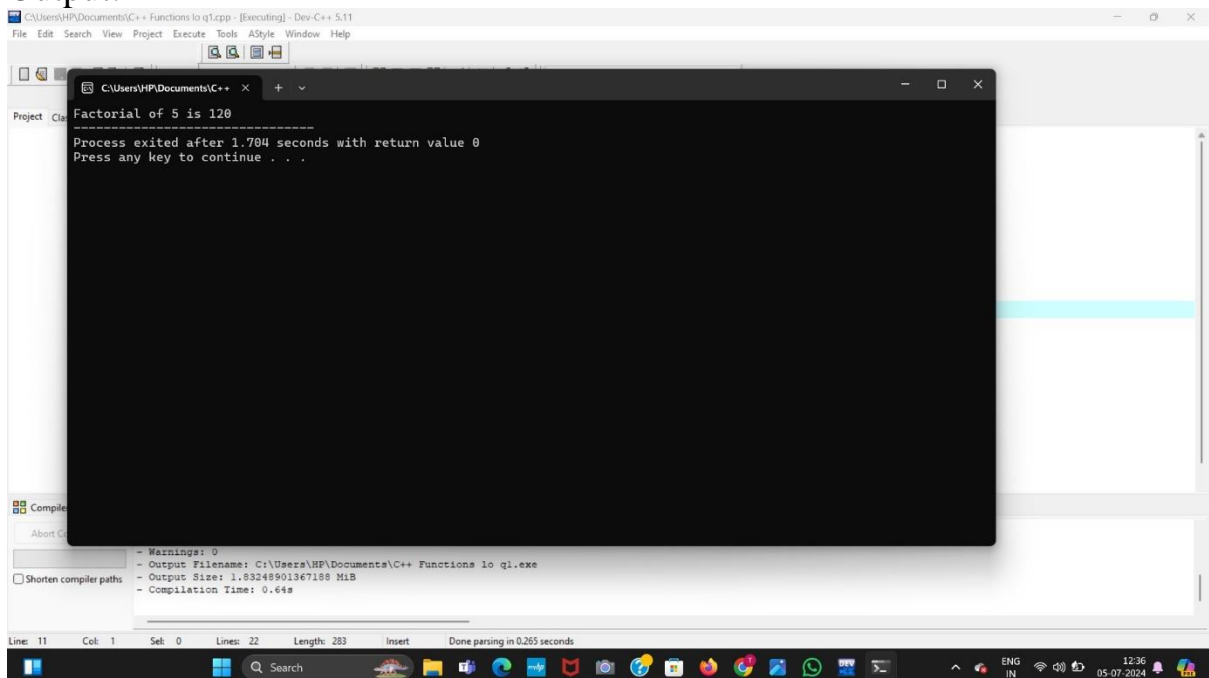


FUNCTIONS

1. Find factorial using function

```
#include<iostream>
using namespace std;
void factorial(int n, int *f)
{
    int i;
    for(i = n; i >= 1; i--)
        *f = (*f) * i;
}
int main()
{
    int num = 5, fact = 1;
    factorial(num, &fact);
    cout << "Factorial of " <<
        num << " is " <<
        fact;
    return 0;
}
```

Output:

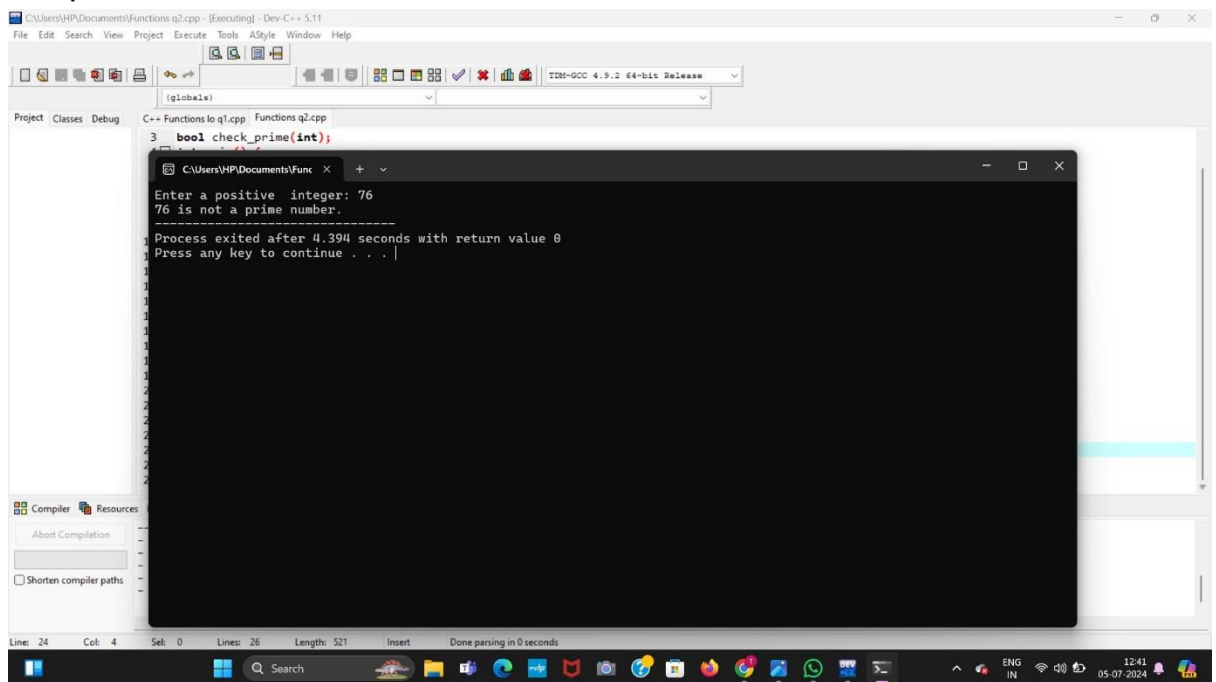


The screenshot shows the Dev-C++ IDE with a C++ program that calculates the factorial of 5. The program is titled 'C:\Users\HP\Documents\C++ Functions to q1.cpp - [Executing] - Dev-C++ 5.11'. The output window displays 'Factorial of 5 is 120' followed by 'Process exited after 1.704 seconds with return value 0' and 'Press any key to continue . . .'. The status bar at the bottom indicates 'Line: 11 Col: 1 Sel: 0 Lines: 22 Length: 283 Insert Done parsing in 0.265 seconds'. The Windows taskbar at the bottom shows the date and time as '05-07-2024 12:36'.

2. Find prime number using function

```
#include <iostream>
using namespace std;
bool check_prime(int);
int main() {
    int n;
    cout << "Enter a positive integer: ";
    cin >> n;
    if (check_prime(n))
        cout << n << " is a prime number.";
    else
        cout << n << " is not a prime number.";
    return 0;
}
bool check_prime(int n) {
    bool is_prime = true;
    if (n == 0 || n == 1) {
        is_prime = false;
    }
    for (int i = 2; i <= n / 2; ++i) {
        if (n % i == 0) {
            is_prime = false;
            break;
        }
    }
    return is_prime;
}
```

Output:



```
C:\Users\HP\Documents\Functions q2.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug C++ Functions lo q1.cpp Functions q2.cpp
3 bool check_prime(int);
Enter a positive integer: 76
76 is not a prime number.
-----
Process exited after 4.394 seconds with return value 0
Press any key to continue . . . |
Compiler Resources
Abort Compilation
Shorten compiler paths
Line: 24 Col: 4 Sel: 0 Lines: 26 Length: 521 Insert Done parsing in 0 seconds
ENG IN 12:41 05-07-2024
```

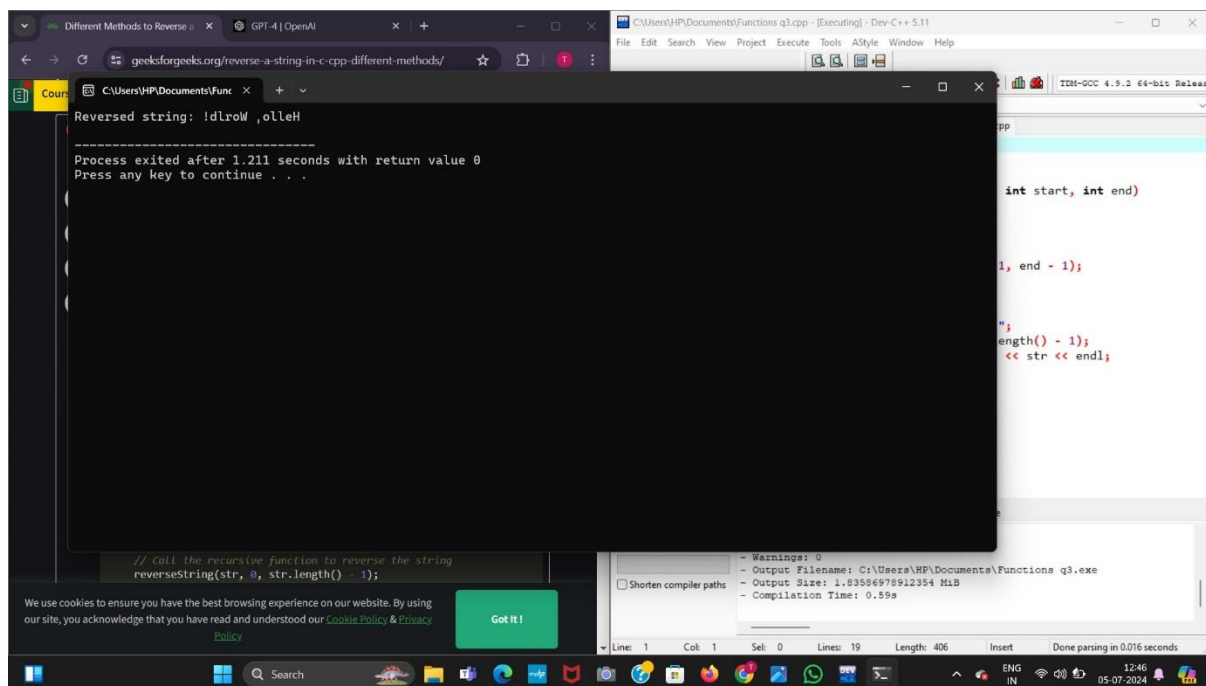
3. Find the reverse of a string using function

```
#include <iostream>
#include <string>
using namespace std;
void reverseString(string& str, int start, int end)
{
    if (start >= end)
        return;
    swap(str[start], str[end]);
    reverseString(str, start + 1, end - 1);
}

int main(){
    string str = "Hello, World!";
    reverseString(str, 0, str.length() - 1);
    cout << "Reversed string: " << str << endl;

    return 0;
}
```

Output:



4. Find minimum and maximum element in an array using function

```
#include <iostream>
using namespace std;
int findMin(int arr[], int size) {
    int min = arr[0];
    for (int i = 1; i < size; i++) {
        if (arr[i] < min) {
            min = arr[i];
        }
    }
    return min;
}
int findMax(int arr[], int size) {
    int max = arr[0];
    for (int i = 1; i < size; i++) {
        if (arr[i] > max) {
            max = arr[i];
        }
    }
    return max;
}
int main() {
    int size;
    cout << "Enter the size of the array: ";
    cin >> size;
```

```

int arr[size];
cout << "Enter the elements of the array: ";
for (int i = 0; i < size; i++) {
    cin >> arr[i];
}
int min = findMin(arr, size);
int max = findMax(arr, size);
cout << "The minimum element is: " << min << endl;
cout << "The maximum element is: " << max << endl;
return 0;
}

```

Output:

The screenshot shows a Windows desktop with a Dev-C++ IDE open. The IDE window displays a C++ program that finds the minimum and maximum elements of an array. The program is named 'Functions q4.cpp' and is located at 'C:\Users\HP\Documents\Functions q4.cpp'. The output window shows the following text:

```

Enter the size of the array: 4563
Enter the elements of the array: 1,2,3,4
The minimum element is: -1837315833
The maximum element is: 2147483647
-----
Process exited after 16.32 seconds with return value 0
Press any key to continue . . .

```

The IDE window also shows the source code of the program, which includes the following code:

```

// Function to find the minimum element of an array
int findMin(int arr[], int size) {
    int min = arr[0];
    for (int i = 1; i < size; i++) {
        if (arr[i] < min) {
            min = arr[i];
        }
    }
    return min;
}

// Function to find the maximum element of an array
int findMax(int arr[], int size) {
    int max = arr[0];
    for (int i = 1; i < size; i++) {
        if (arr[i] > max) {
            max = arr[i];
        }
    }
    return max;
}

int main() {
    int size;
    cout << "Enter the size of the array: ";
    cin >> size;
    int arr[size];
    cout << "Enter the elements of the array: ";
    for (int i = 0; i < size; i++) {
        cin >> arr[i];
    }
    int min = findMin(arr, size);
    int max = findMax(arr, size);
    cout << "The minimum element is: " << min << endl;
    cout << "The maximum element is: " << max << endl;
    return 0;
}

```

5.Function to count the no of elements in a string

```

#include <iostream>
#include <string>
using namespace std;
int countCharacters(const string &str) {
    return str.length();
}
int main() {
    string inputString;
    cout << "Enter a string: ";
    getline(cin, inputString);
    int count = countCharacters(inputString);
}

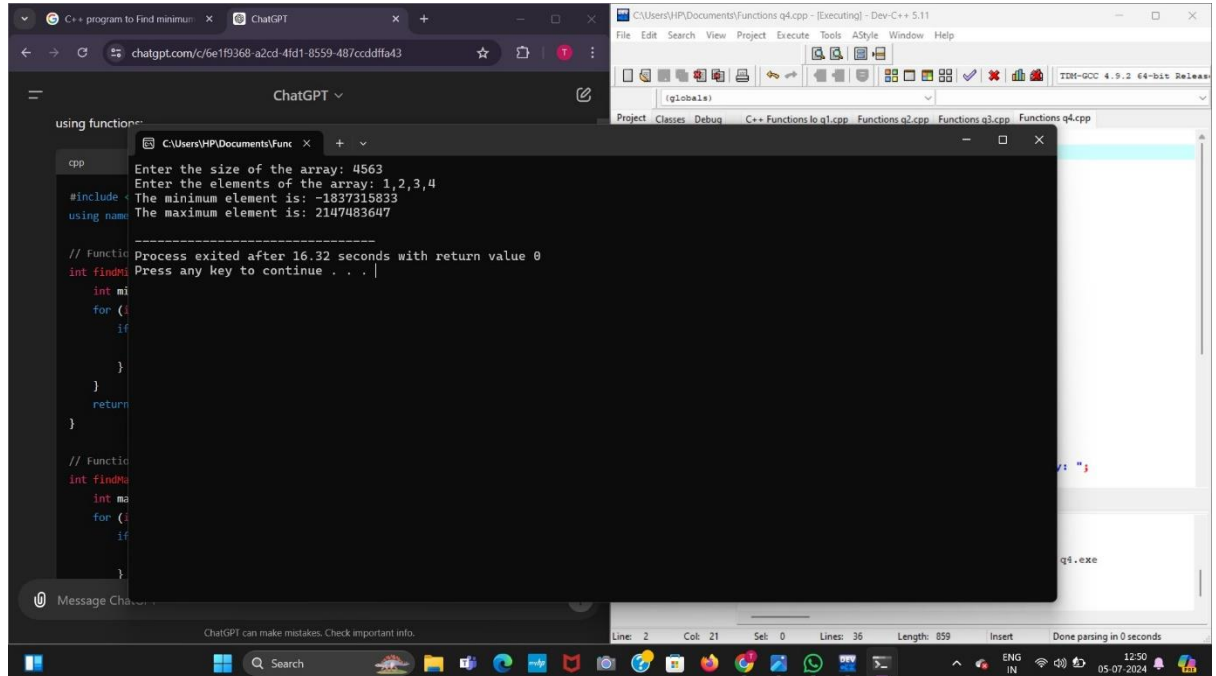
```

```
cout << "The number of characters in the string is: " << count << endl;
```

```
return 0;
```

```
}
```

Output:



```
using namespace std;

// Function to find the minimum element of an array
int findMin(int arr, int n) {
    int min = arr[0];
    for (int i = 1; i < n; i++) {
        if (arr[i] < min) {
            min = arr[i];
        }
    }
    return min;
}

// Function to find the maximum element of an array
int findMax(int arr, int n) {
    int max = arr[0];
    for (int i = 1; i < n; i++) {
        if (arr[i] > max) {
            max = arr[i];
        }
    }
    return max;
}

int main() {
    int n;
    cout << "Enter the size of the array: ";
    cin >> n;
    int arr[n];
    cout << "Enter the elements of the array: ";
    for (int i = 0; i < n; i++) {
        cin >> arr[i];
    }
    int min = findMin(arr, n);
    int max = findMax(arr, n);
    cout << "The minimum element is: " << min << endl;
    cout << "The maximum element is: " << max << endl;
    return 0;
}
```

6. Find GCD of two number using function

```
#include <iostream>
```

```
using namespace std;
```

```
bool check_prime(int);
```

```
int main() {
```

```
    int n;
```

```
    cout << "Enter a positive integer: ";
```

```
    cin >> n;
```

```
    if (check_prime(n))
```

```
        cout << n << " is a prime number.";
```

```
    else
```

```
        cout << n << " is not a prime number.";
```

```
    return 0;
```

```
}
```

```
bool check_prime(int n) {
```

```
    bool is_prime = true;
```

```
    if (n == 0 || n == 1) {
```

```
        is_prime = false;
```

```
    }
```

```
    for (int i = 2; i <= n / 2; ++i) {
```

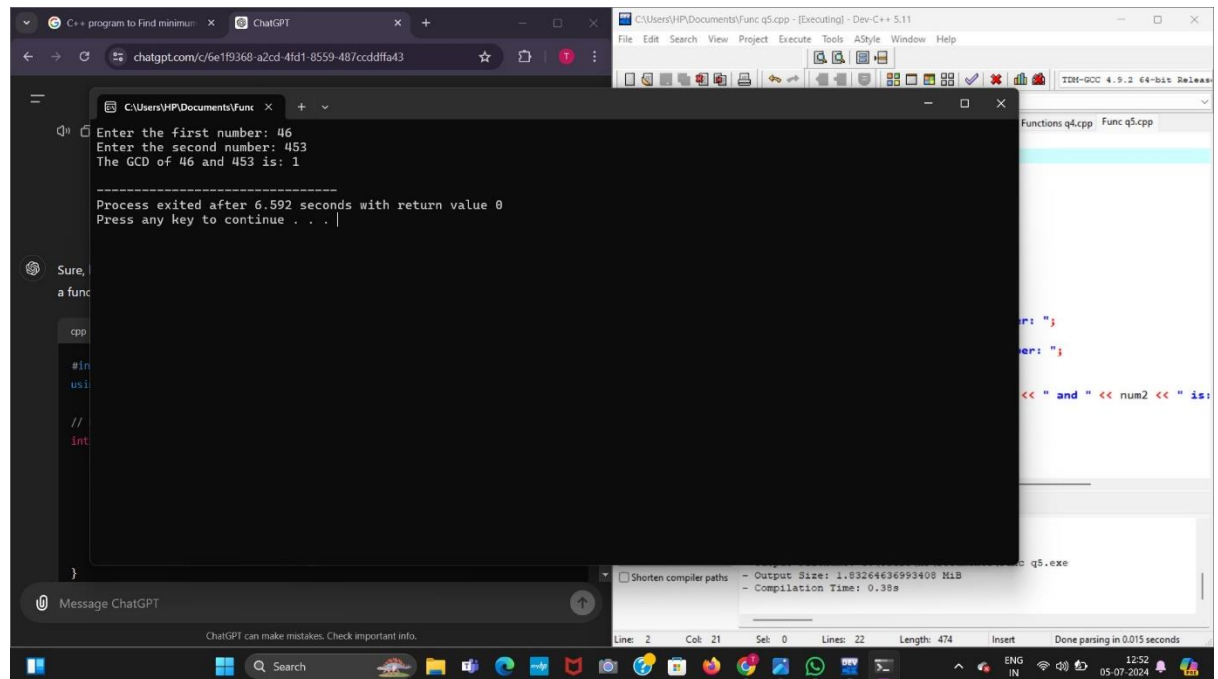
```
        if (n % i == 0) {
```

```

        is_prime = false;
        break;
    }
}
return is_prime;
}

```

Output:



7. Convert Celsius and Fahrenheit using function

```

#include <iostream>
using namespace std;
double celsiusToFahrenheit(double celsius) {
    return (celsius * 9/5) + 32;
}
double fahrenheitToCelsius(double fahrenheit) {
    return (fahrenheit - 32) * 5/9;
}
int main() {
    double temperature;
    int choice;
    cout << "Temperature Conversion Menu:" << endl;
    cout << "1. Convert Celsius to Fahrenheit" << endl;
    cout << "2. Convert Fahrenheit to Celsius" << endl;
    cout << "Enter your choice (1 or 2): ";
    cin >> choice;
    if (choice == 1) {
        cout << "Enter temperature in Celsius: ";
    }
}

```

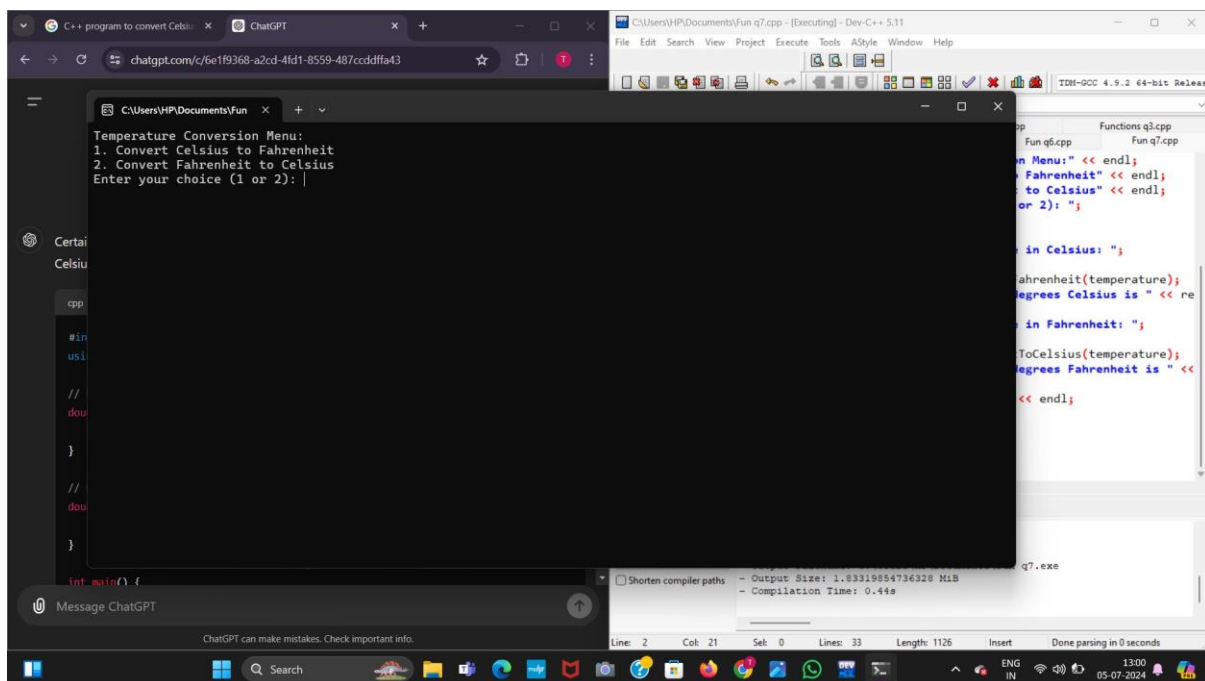
```

    cin >> temperature;
    double result = celsiusToFahrenheit(temperature);
    cout << temperature << " degrees Celsius is " << result << " degrees
Fahrenheit." << endl;
} else if (choice == 2) {
    cout << "Enter temperature in Fahrenheit: ";
    cin >> temperature;
    double result = fahrenheitToCelsius(temperature);
    cout << temperature << " degrees Fahrenheit is " << result << " degrees
Celsius." << endl;
} else {
    cout << "Invalid choice!" << endl;
}

return 0;
}

```

Output:



8. Find the area of a circle using function

```

#include <iostream>
#include <cmath>
using namespace std;
double calculateArea(double radius) {
    const double PI = 3.14159265358979323846;
    return PI * radius * radius;
}

```



```
}
```

```
int main() {  
    double radius;  
    cout << "Enter the radius of the circle: ";  
    cin >> radius;  
    double area = calculateArea(radius);  
    cout << "The area of the circle with radius " << radius << " is: " << area << endl;  
  
    return 0;  
}
```

Output:

The screenshot shows a Windows desktop environment. In the foreground, a black command prompt window displays the output of a C++ program. The text in the command prompt is: "Enter the radius of the circle: 567", "The area of the circle with radius 567 is: 1.00999e+006", "-----", "Process exited after 6.384 seconds with return value 0", and "Press any key to continue . . .". In the background, a code editor window is open, showing the source code of the program. The code is a C++ program that calculates the area of a circle. It includes the necessary headers, uses the std namespace, and defines a function calculateArea. The main function prompts the user for the radius, reads it, calls calculateArea, and prints the result. The code editor also shows a list of files on the right and a status bar at the bottom.

```
Enter the radius of the circle: 567  
The area of the circle with radius 567 is: 1.00999e+006  
-----  
Process exited after 6.384 seconds with return value 0  
Press any key to continue . . .
```

```
12  cin >> radius;  
13  double area = calculateArea(radius);  
14  cout << "The area of the circle with radius " << radius  
15  
16  
17  return 0;  
18  }
```

9. Check whether the string is palindrome or not

```
#include <iostream>  
#include <string>  
#include <algorithm>  
using namespace std;  
bool isPalindrome(const string &str) {  
    int left = 0;  
    int right = str.length() - 1;  
  
    while (left < right) {  
        if (str[left] != str[right]) {  
            return false;  
        }  
        left++;  
    }  
}
```

```

        right--;
    }
    return true;
}

int main() {
    string inputString;
    cout << "Enter a string: ";
    getline(cin, inputString);
    if (isPalindrome(inputString)) {
        cout << "The string \"<\" << inputString << \"<\" is a palindrome.\" << endl;
    } else {
        cout << "The string \"<\" << inputString << \"<\" is not a palindrome.\" << endl;
    }

    return 0;
}

```

Output:

The screenshot displays a Windows desktop environment. In the foreground, a black command prompt window shows the execution of a C++ program. The user has entered the string "bjnmihcvghj", and the program has outputted "The string \"bjnmihcvghj\" is not a palindrome." followed by a message indicating the process exited after 14.42 seconds with a return value of 0, and a prompt to press any key to continue. In the background, a code editor window is visible, showing the same C++ code as provided in the previous blocks. To the right, a WhatsApp chat window is partially visible, showing a conversation with a contact named "Nikitha, Sara...". The taskbar at the bottom shows various application icons and the system clock indicating 13:28 on 05-07-2024.