

C++

Assignment – 4

Name – Kishan R Vaghamashi

Student ID – 202312014

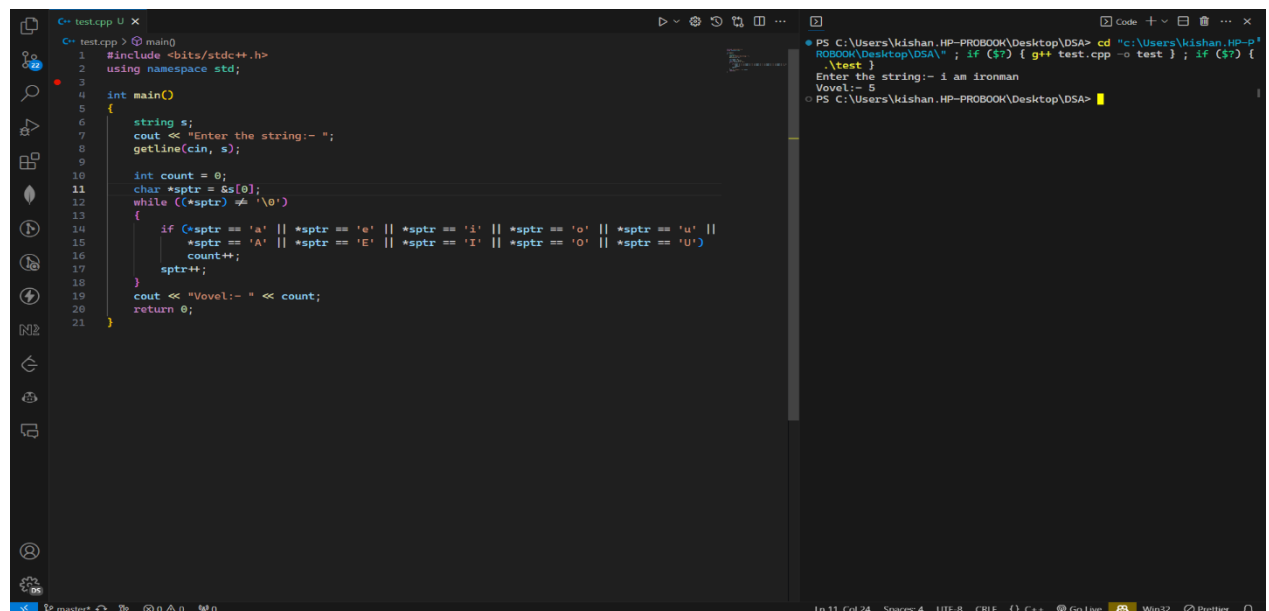
1)

```
#include <bits/stdc++.h>
using namespace std;

int main()
{
    string s;
    cout << "Enter the string:- ";
    getline(cin, s);

    int count = 0;
    char *sptr = &s[0];
    while ((*sptr) != '\0')
    {
        if (*sptr == 'a' || *sptr == 'e' || *sptr == 'i' || *sptr == 'o' ||
*sptr == 'u' ||
        *sptr == 'A' || *sptr == 'E' || *sptr == 'I' || *sptr == 'O' ||
*sptr == 'U')
            count++;
        sptr++;
    }
    cout << "Vowel:- " << count;
    return 0;
}
```

Output:



The screenshot shows a C++ IDE with the code from the previous block. The output window on the right displays the following text:

```
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "c:\Users\kishan.HP-PROBOOK\Desktop\DSA\" ; if ($?) { g++ test.cpp -o test } ; if ($?) { .\test }
Enter the string:- i am ironman
Vowel:- 5
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>
```

2)

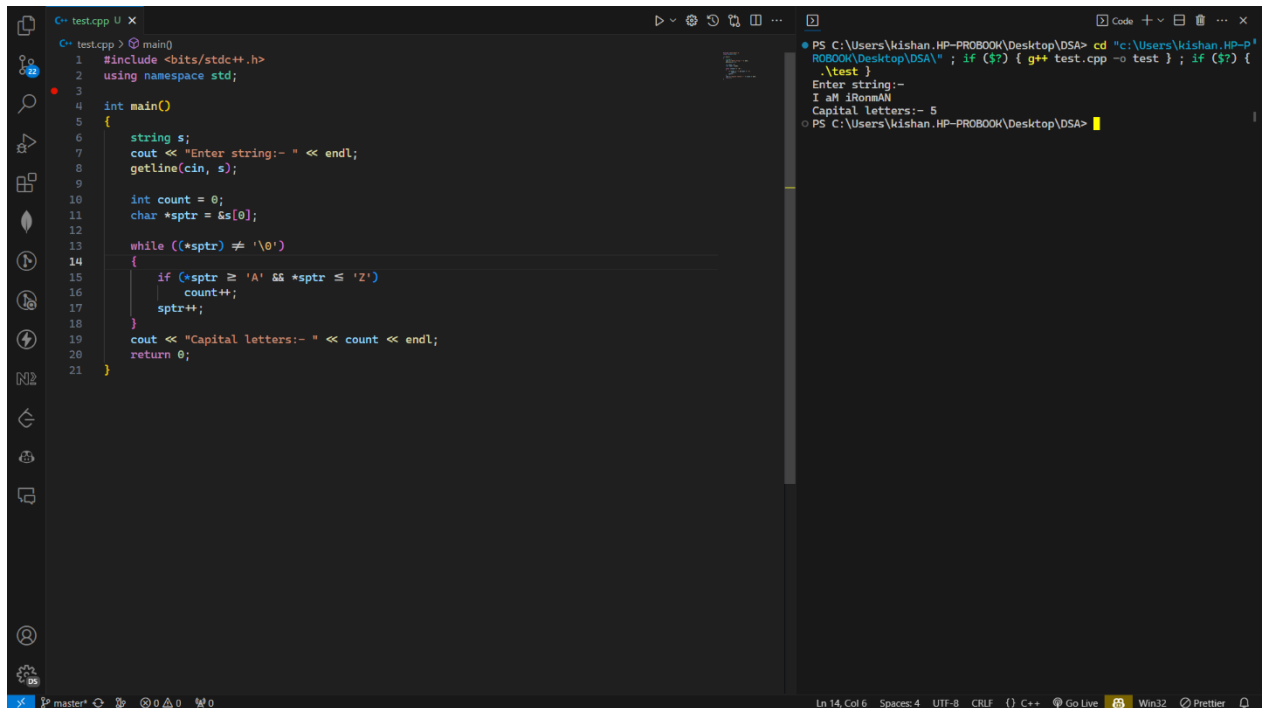
```
#include <bits/stdc++.h>
using namespace std;

int main()
{
    string s;
    cout << "Enter string:- " << endl;
    getline(cin, s);

    int count = 0;
    char *sptr = &s[0];

    while ((*sptr) != '\0')
    {
        if (*sptr >= 'A' && *sptr <= 'Z')
            count++;
        sptr++;
    }
    cout << "Capital letters:- " << count << endl;
    return 0;
}
```

Output:



The screenshot shows a C++ IDE with a dark theme. The left pane displays the source code, which is identical to the code block above. The right pane shows the output of the program. The output text is: "Enter string:-", "I aM iRonmAN", and "Capital letters:- 5". The IDE interface includes a file explorer on the left, a terminal at the bottom, and a status bar at the very bottom showing "Ln 14, Col 6" and other details.

```
C++ test.cpp U X
C++ test.cpp > main()
1 #include <bits/stdc++.h>
2 using namespace std;
3
4 int main()
5 {
6     string s;
7     cout << "Enter string:- " << endl;
8     getline(cin, s);
9
10    int count = 0;
11    char *sptr = &s[0];
12
13    while ((*sptr) != '\0')
14    {
15        if (*sptr >= 'A' && *sptr <= 'Z')
16            count++;
17        sptr++;
18    }
19    cout << "Capital letters:- " << count << endl;
20    return 0;
21 }
```

```
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "C:\Users\kishan.HP-PROBOOK\Desktop\DSA\" ; if ($?) { g++ test.cpp -o test } ; if ($?) { .\test }
Enter string:-
I aM iRonmAN
Capital letters:- 5
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>
```

Ln 14, Col 6 Spaces: 4 UTF-8 CRLF {} C++ Go Live Win32 Prettier

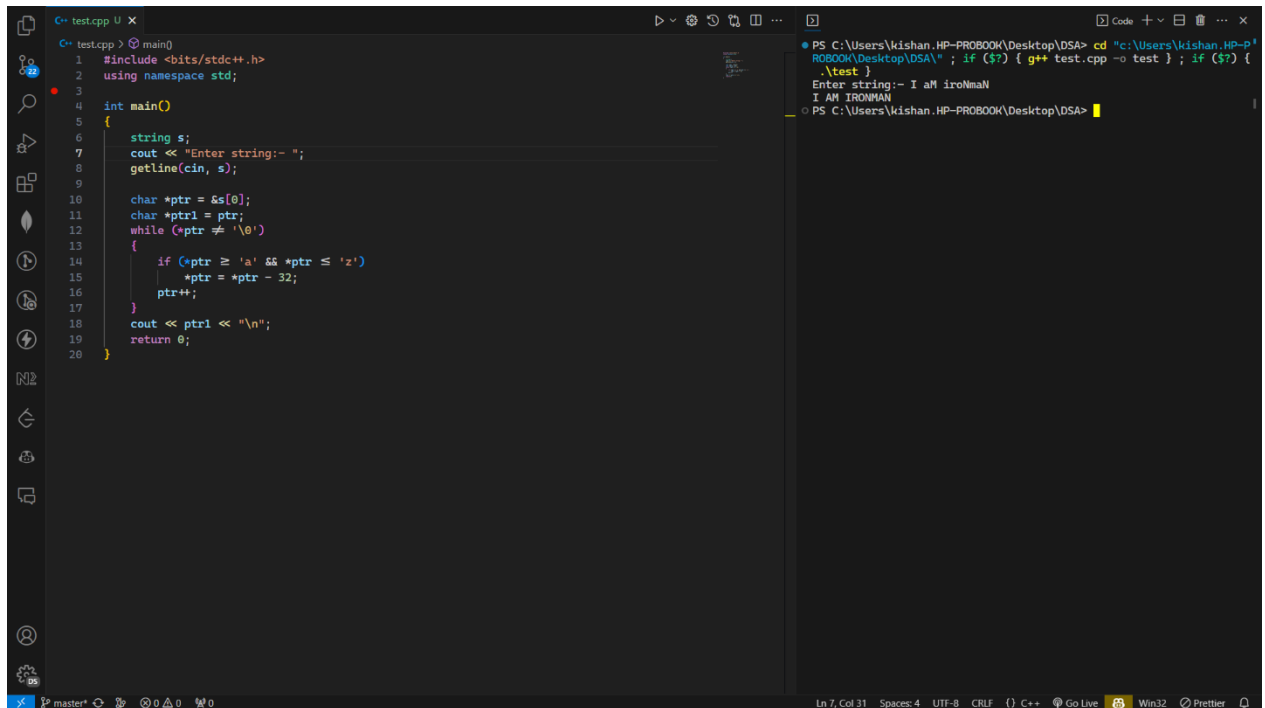
3)

```
#include <bits/stdc++.h>
using namespace std;
typedef long long ll;

int main()
{
    string s;
    cout << "Enter string:- ";
    getline(cin, s);

    char *ptr = &s[0];
    char *ptr1 = ptr;
    while (*ptr != '\0')
    {
        if (*ptr >= 'a' && *ptr <= 'z')
            *ptr = *ptr - 32;
        ptr++;
    }
    cout << ptr1 << "\n";
    return 0;
}
```

Output:



The screenshot shows a C++ IDE with the following content:

```
C++ test.cpp | main()
1 #include <bits/stdc++.h>
2 using namespace std;
3
4 int main()
5 {
6     string s;
7     cout << "Enter string:- ";
8     getline(cin, s);
9
10    char *ptr = &s[0];
11    char *ptr1 = ptr;
12    while (*ptr != '\0')
13    {
14        if (*ptr >= 'a' && *ptr <= 'z')
15            *ptr = *ptr - 32;
16        ptr++;
17    }
18    cout << ptr1 << "\n";
19    return 0;
20 }
```

Terminal output:

```
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "C:\Users\kishan.HP-PROBOOK\Desktop\DSA\" ; if ($?) { g++ test.cpp -o test } ; if ($?) { .\test }
Enter string:- I aM iroNmaN
I AM IRONMAN
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>
```

IDE status bar: Ln 7, Col 31 Spaces: 4 UTF-8 CRLF {} C++ Go Live Win32 Prettier

4)

```
#include <bits/stdc++.h>
using namespace std;
typedef long long ll;

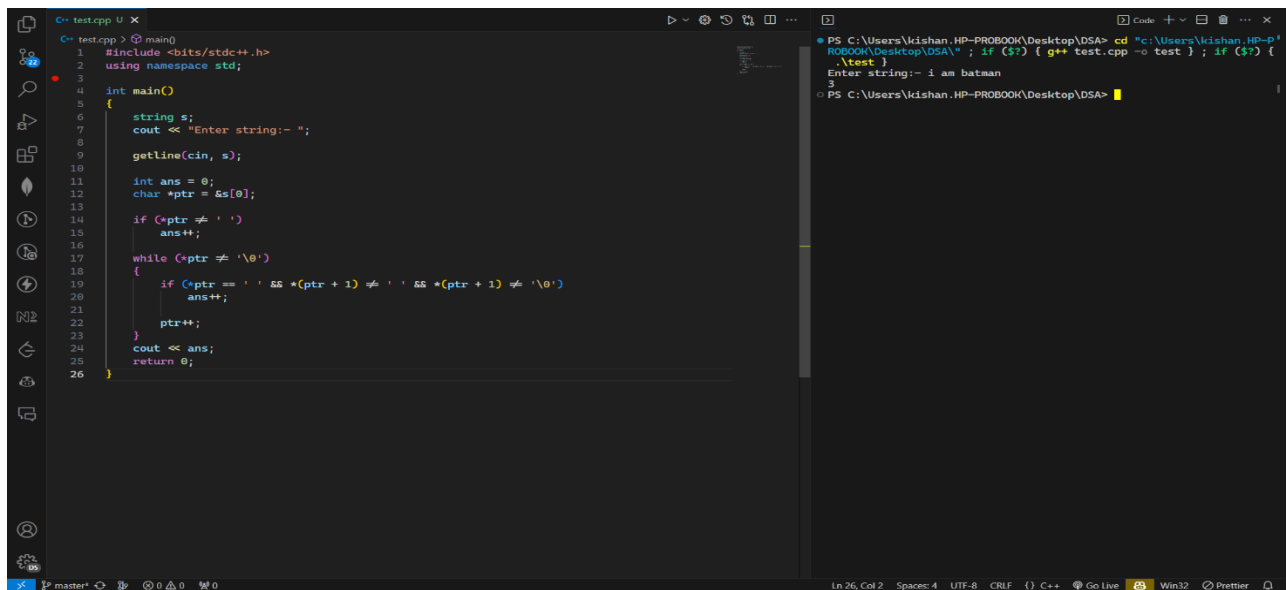
int main()
{
    string s;
    cout << "Enter string:- ";
    getline(cin, s);
    int ans = 0;
    char *ptr = &s[0];

    if (*ptr != ' ')
        ans++;

    while (*ptr != '\0')
    {
        if (*ptr == ' ' && *(ptr + 1) != ' ' && *(ptr + 1) != '\0')
            ans++;

        ptr++;
    }
    cout << ans;
    return 0;
}
```

Output:



The screenshot shows a C++ IDE with the code from the previous block on the left and the execution output on the right. The output shows the prompt "Enter string:- ", the input "i am batman", and the final output "3".

```
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "c:\Users\kishan.HP-PROBOOK\Desktop\DSA\" ; if ($?) { g++ test.cpp -o test } ; if ($?) { .\test }
Enter string:- i am batman
3
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>
```

5)

```
#include <bits/stdc++.h>
using namespace std;
typedef long long ll;

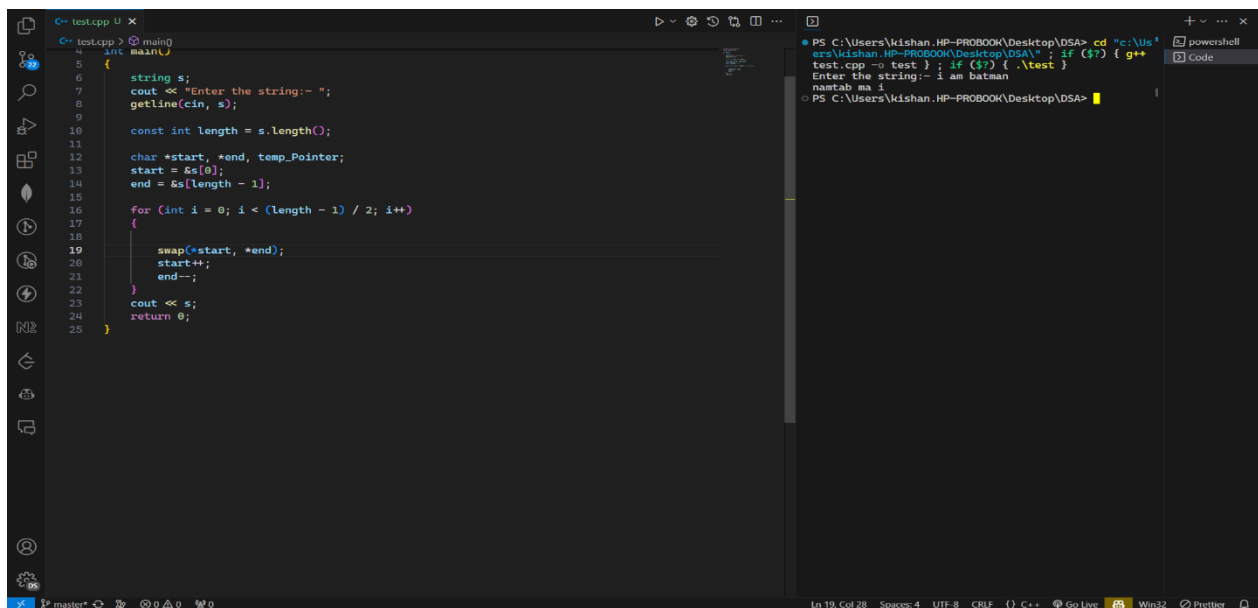
int main()
{
    string s;
    cout << "Enter the string:- ";
    getline(cin, s);

    const int length = s.length();

    char *start, *end, temp_Pointer;
    start = &s[0];
    end = &s[length - 1];

    for (int i = 0; i < (length - 1) / 2; i++)
    {
        swap(*start, *end);
        start++;
        end--;
    }
    cout << s;
    return 0;
}
```

Output:



The screenshot shows a C++ IDE with a dark theme. The left pane displays the source code for 'testapp.cpp', which is identical to the code block above. The right pane shows the output of the program. The prompt 'Enter the string:- ' is followed by the input 'namtab ma i'. The output then shows 'namtab ma i' on the next line, indicating that the string has been reversed. The status bar at the bottom indicates 'Ln 19, Col 28', 'Spaces: 4', 'UTF-8', 'CRLF', and 'C++'.

```
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "C:\Us
ers\kishan.HP-PROBOOK\Desktop\DSA" ; if ($?) { g++
test.cpp -o test } ; if ($?) { .\test }
Enter the string:- i am batman
namtab ma i
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>
```

6)

```
#include <bits/stdc++.h>
using namespace std;
typedef long long ll;

int main()
{
    string s;
    getline(cin, s);
    int l = s.size();

    char *start = &s[0];
    char *end = &s[l - 1];

    while (start <= end)
    {
        swap(*start, *end);
        start++;
        end--;
    }

    start = &s[0];
    char *first = NULL;
    char *last = NULL;
    while (*start != '\0')
    {
        if (*start != ' ')
        {
            if (first == NULL)
            {
                first = start;
            }
            last = start;
        }
        else
        {
            if (first != NULL && last != NULL)
            {
                reverse(first, last + 1);
                first = NULL;
                last = NULL;
            }
        }
        start++;
    }
}
```

```

    }

    cout << s;
    return 0;
}

```

Output:

The screenshot shows the Visual Studio Code interface. The editor displays a C++ file named `test.cpp` with the following code:

```

1 #include <bits/stdc++.h>
2 using namespace std;
3
4 void reverseWords()
5 {
6     string s;
7     getline(cin, s);
8     int l = s.size();
9
10    char *start = &s[0];
11    char *end = &s[l - 1];
12
13    while (start <= end)
14    {
15        swap(*start, *end);
16        start++;
17        end--;
18    }
19
20    start = &s[0];
21    char *first = NULL;
22    char *last = NULL;
23    while (*start != '\0')
24    {
25        if (*start != ' ')
26        {
27            if (first == NULL)
28            {
29                first = start;
30            }
31            last = start;
32        }
33        else
34        {
35            if (first != NULL && last != NULL)
36            {
37                reverse(first, last + 1);
38                first = NULL;
39                last = NULL;
40            }
41        }
42        start++;
43    }
44    if (first != NULL && last != NULL)
45    {
46        reverse(first, last + 1);
47    }
48 }

```

The output window on the right shows the command prompt results:

```

PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "C:\Users\kishan.HP-PROBOOK\Desktop\DSA\" ; if ($?) { g++ test.cpp -o test }; if ($?) {
.\test
i am bat man
man bat am i
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>

```

7)

```

#include <iostream>
#include <string>
using namespace std;
int main()
{
    string str = "my name is kishan and i am angular developer.";
    string result;
    int i = 0;
    int n = str.size();
    int one = 0, two = 0, three = 0;
    while (i < n)
    {
        while (i < n && str[i] == ' ')
            i++;
        if (i >= n)
            break;
    }
}

```



```

    int j = i + 1;
    while (j < n && str[j] != ' ')
        j++;
    string sub = str.substr(i, j - i);
    if (sub.size() == 1)
        one++;
    else if (sub.size() == 2)
        two++;
    else if (sub.size() == 3)
        three++;
    if (result.size() == 0)
        result = sub;
    else
        result = sub + " " + result;
    i = j + 1;
}

cout << "one letter word    :- " << one << endl;
cout << "two letter word    :- " << two << endl;
cout << "three letter word  :- " << three << endl;
}

```

Output:

The screenshot shows the Visual Studio Code editor with a C++ file named `test.cpp` open. The code is the same as shown in the previous block. The output window on the right displays the results of running the program:

```

PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "c:\Users\kishan.HP-PROBOOK\Desktop\DSA" ; if ($?) { g++ test.cpp -o test ; if ($?) { .\test } }
one letter word    :- 1
two letter word    :- 3
three letter word  :- 1
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>

```

The status bar at the bottom indicates the file is on line 34, column 2, using UTF-8 encoding, CRLF line endings, and the C++ language.

8)

```
#include <bits/stdc++.h>
using namespace std;

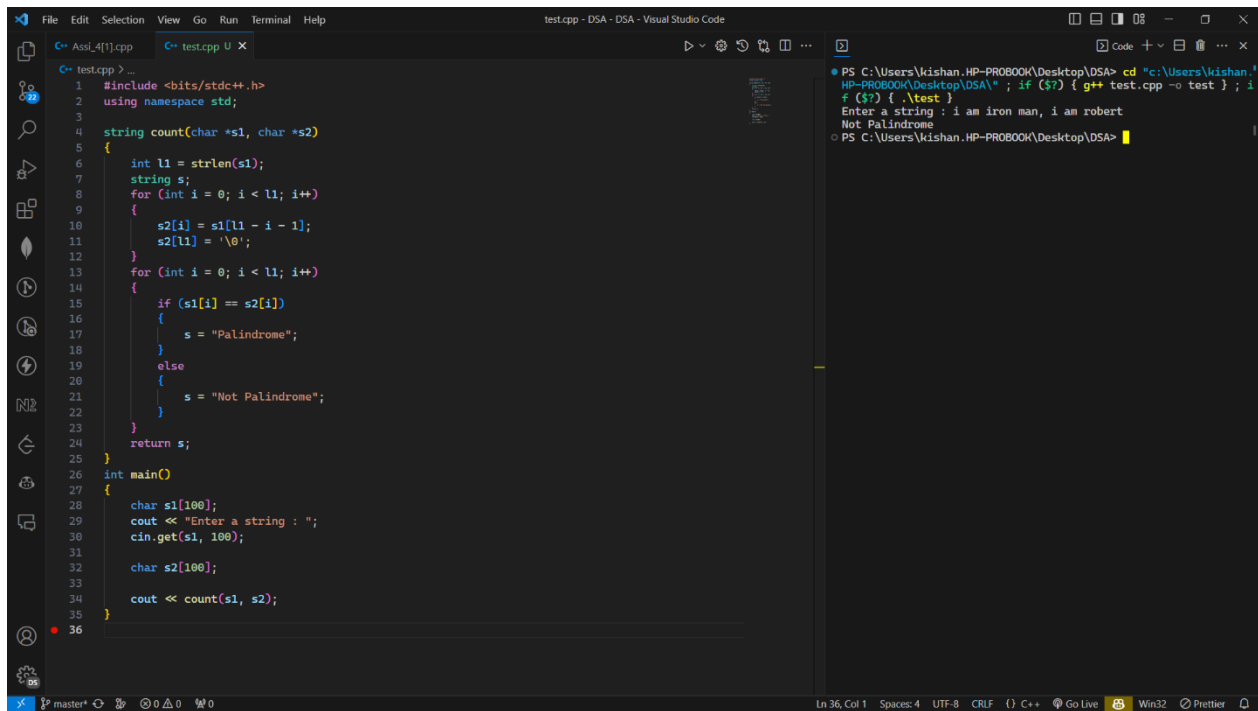
string count(char *s1, char *s2)
{
    int l1 = strlen(s1);
    string s;
    for (int i = 0; i < l1; i++)
    {
        s2[i] = s1[l1 - i - 1];
        s2[l1] = '\0';
    }
    for (int i = 0; i < l1; i++)
    {
        if (s1[i] == s2[i])
        {
            s = "Palindrome";
        }
        else
        {
            s = "Not Palindrome";
        }
    }
    return s;
}

int main()
{
    char s1[100];
    cout << "Enter a string : ";
    cin.get(s1, 100);

    char s2[100];

    cout << count(s1, s2);
}
```

Output:



The screenshot shows the Visual Studio Code editor with a C++ file named `test.cpp`. The code defines a `count` function that checks if a string is a palindrome by comparing characters from both ends. The `main` function prompts the user to enter a string and then calls the `count` function. The output window on the right shows the execution results, including the command prompt path, the execution of `g++ test.cpp -o test`, the input string "i am iron man, i am robert", and the output "Not Palindrome".

```
#include <bits/stdc++.h>
using namespace std;

string count(char *s1, char *s2)
{
    int l1 = strlen(s1);
    string s;
    for (int i = 0; i < l1; i++)
    {
        s2[i] = s1[l1 - i - 1];
        s2[l1] = '\0';
    }
    for (int i = 0; i < l1; i++)
    {
        if (s1[i] == s2[i])
        {
            s = "Palindrome";
        }
        else
        {
            s = "Not Palindrome";
        }
    }
    return s;
}

int main()
{
    char s1[100];
    cout << "Enter a string : ";
    cin.get(s1, 100);

    char s2[100];
    cout << count(s1, s2);
}
```

PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "C:\Users\kishan.HP-PROBOOK\Desktop\DSA" ; if (\$?) { g++ test.cpp -o test } ; if (\$?) { .\test }
Enter a string : i am iron man, i am robert
Not Palindrome
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>

9)

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

int main()
{
    char *s1 = new char[50];
    cout << "Enter first string: ";
    cin.getline(s1, 50);
    char *s2 = new char[50];
    cout << "Enter second string: ";
    cin.getline(s2, 50);
    int n1 = strlen(s1);
    int n2 = strlen(s2);
    int cnt = 0;
    bool flag = false;
    for (int i = 0; i < n1; i++)
    {
        int ind = i;
        int j = 0;
        while ((s1[ind++] == s2[j++]) && j < n2)
```

```

    {
        cnt++;
    }
    if (ind - i == n2)
    {
        flag = true;
        break;
    }
}
if (flag)
{
    cout << "String is present" << endl;
}
else
{
    cout << "String is not present" << endl;
}
}

```

Output:

The screenshot shows the Visual Studio Code interface with a C++ file named `test.cpp` open. The code in the editor matches the code block above. The output window on the right shows the execution results:

```

PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "C:\Users\kishan.HP-PROBOOK\Desktop\DSA" & if ($?) { g++ test.cpp -o test }; i
Enter first string: i am kisha
Enter second string: kis
String is present
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>

```

The status bar at the bottom indicates the file is at line 24, column 10, using UTF-8 encoding with CRLF line endings.

10)

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

int main()
{
    char input[50];
    cout << "Enter a string: ";
    cin.get(input, 50);
    char *p = input;
    int size;
    cout << "Enter length of substring : ";
    cin >> size;
    int len = (strlen(input) / size);

    char ca[50][50]{};
    int k{0};
    for (size_t i{}; i < len; i++)
    {
        for (size_t j{}; j < size; j++)
        {
            if (*p == ' ')
            {
                p++;
            }
            if (*p != '\\0')
            {
                ca[i][j] = *p;
                p++;
            }
            else
            {
                ca[i][j] = ' ';
            }
        }
    }
    for (size_t i{}; i < len; i++)
    {
        for (size_t j{}; j < size; j++)
        {
            cout << ca[i][j];
        }
    }
}
```

```

        cout << endl;
    }
}

```

Output:

The screenshot shows the Visual Studio Code editor with a C++ file named `test.cpp` open. The code is as follows:

```

1 #include <iostream>
2 #include <cstring>
3 using namespace std;
4
5 int main()
6 {
7     char input[50];
8     cout << "Enter a string: ";
9     cin.get(input, 50);
10    char *p = input;
11    int size;
12    cout << "Enter length of substring : ";
13    cin >> size;
14    int len = (strlen(input) / size);
15
16    char ca[50][50];
17    int k[0];
18    for (size_t i{}; i < len; i++)
19    {
20        for (size_t j{}; j < size; j++)
21        {
22            if (*p == ' ')
23            {
24                p++;
25            }
26            if (*p != '\0')
27            {
28                ca[i][j] = *p;
29                p++;
30            }
31            else
32            {
33                ca[i][j] = ' ';
34            }
35        }
36    }
37    for (size_t i{}; i < len; i++)
38    {
39        for (size_t j{}; j < size; j++)
40        {

```

The output window on the right shows the following text:

```

PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "C:\Users\kishan.HP-PROBOOK\Desktop\DSA" ; if ($?) { g++ test.cpp -o test } ; if ($?) { .\test }
Enter a string: i am iron man
Enter length of substring : 3
iam
iro
nma
n
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>

```

11)

```
#include <iostream>
```

```
#include <cstring>
using namespace std;
int main()
{
    char input1[50], input2[50];
    cout << "enter the first string: ";
    cin.getline(input1, 50);
    cout << endl;
    cout << "enter the sub string to be found: ";
    cin.getline(input2, 50);
    cout << endl;
    int len1 = strlen(input1);
    int len2 = strlen(input2);

    char *x = input1;
    char *y = input2;

    int cnt1 = 0, cnt2 = 0;
    for (int i = 0; i < len1; i++)
    {
        if (input1[i] != ' ')
        {
            input1[cnt1] = input1[i];
            cnt1++;
        }
    }
    input1[cnt1] = '\0';

    for (int i = 0; i < len2; i++)
    {
        if (input2[i] != ' ')
        {
            input2[cnt2] = input2[i];
            cnt2++;
        }
    }
    input2[cnt2] = '\0';
    len1 = cnt1;
    len2 = cnt2;

    int j = 0;
    for (int i = 0; i < len1; i++)
    {
```

```

        if (*x == *y)
        {
            y++;
            j++;
        }
        x++;
    }

    if (j == len2)
    {
        cout << "Substring Is Present";
    }
    else
    {
        cout << "Substring Is Not Present";
    }
    return 0;
}

```

Output:

The screenshot shows the Visual Studio Code editor with a C++ file named `test.cpp` open. The code implements a function to check if a substring is present in a string. The terminal output shows the program's execution:

```

PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA> cd "c:\Users\kishan.HP-PROBOOK\Desktop\DSA" ; if ($?) { g++ test.cpp -o test }; i
f ($?) { .test }
enter the first string: i am vengeance
enter the sub string to be found: eh
Substring Is Not Present
PS C:\Users\kishan.HP-PROBOOK\Desktop\DSA>

```

The code in the editor is as follows:

```

1 #include <iostream>
2 #include <cstring>
3 using namespace std;
4 int main()
5 {
6     char input1[50], input2[50];
7     cout << "enter the first string: ";
8     cin.getline(input1, 50);
9     cout << endl;
10    cout << "enter the sub string to be found: ";
11    cin.getline(input2, 50);
12    cout << endl;
13    int len1 = strlen(input1);
14    int len2 = strlen(input2);
15
16    char *x = input1;
17    char *y = input2;
18
19    int cnt1 = 0, cnt2 = 0;
20    for (int i = 0; i < len1; i++)
21    {
22        if (input1[i] != ' ')
23        {
24            input1[cnt1] = input1[i];
25            cnt1++;
26        }
27    }
28    input1[cnt1] = '\0';
29
30    for (int i = 0; i < len2; i++)
31    {
32        if (input2[i] != ' ')
33        {
34            input2[cnt2] = input2[i];
35            cnt2++;
36        }
37    }
38    input2[cnt2] = '\0';
39
40

```