

UNIVERSITY OF ENGINEERING AND TECHNOLOGY, TAXILA



SOFTWARE ENGINEERING

ASSIGNMENT-4

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COURSE: PF

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QUESTION-NO_1

PROGRAM

```
#include<iostream>

#include<string.h>

using namespace std;

int main()
{
    char strng[90];
    int countw=1,len_strng, i;

    cout<<"ENTER THE STRING--> ";
    gets(strng);

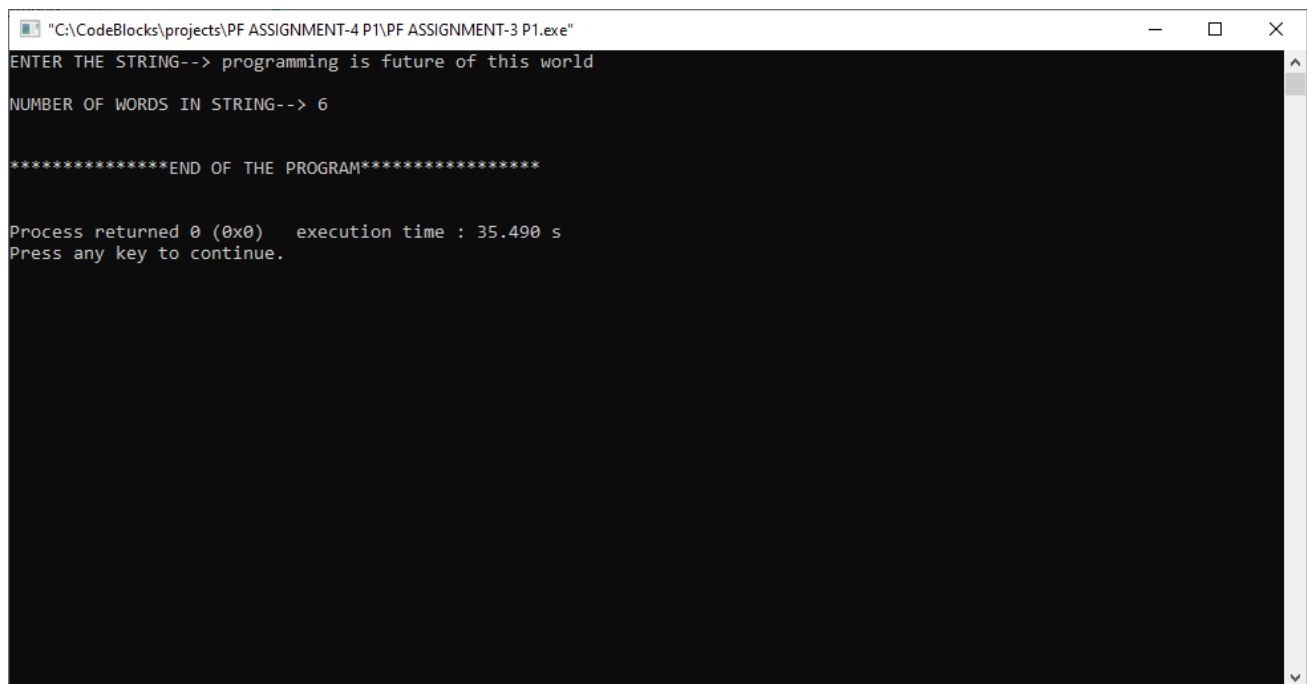
    len_strng=strlen(strng);

    for(i=0; i<len_strng; i++)
    {
        if(strng[i]==' ')
        {
            countw++;
        }
    }

    cout<<"\nNUMBER OF WORDS IN STRING--> "<<countw<<"\n";
    cout<<"\n\n*****END OF THE PROGRAM*****\n\n";

    return 0;
}
```

CODE OUTPUT



```
"C:\CodeBlocks\projects\PF ASSIGNMENT-4 P1\PF ASSIGNMENT-3 P1.exe"
ENTER THE STRING--> programming is future of this world
NUMBER OF WORDS IN STRING--> 6

*****END OF THE PROGRAM*****

Process returned 0 (0x0)   execution time : 35.490 s
Press any key to continue.
```

EXPLANATION

Firstly we have declared header files and then in the main function :

- 1- Firstly we declared data type for our string named `strng` which is character type data type
- 2- And then in brackets I have mentioned maximum limit of characters which is 90
- 3- We also declared integer type variables one named `count` that was initialized with one because if we have only one word in our string then program will not encounter any space than it will not count a word, so that's why we initialized it with 1 so that if there is only one word which doesn't have space, it will count it. and other two named as `len_string` and `i`.
- 4- In next line program ask user to enter any string
- 5- Then we used a function `gets` to get string from user
- 6- In next line word "`strlen`" counts number of characters from our string named `strng`
- 7- In next line we used for loop in which we initialized `i` from zero which means it will start from zeroth place. it will keep checking the places one by one until it finds a space
- 8- By finding space it means that one word is ended.
- 9- And in next line increment operator shows that program has got one word and start counting next.
- 10- Similarly it will keep checking and where it finds a space character it will count 1 word there.
- 11- In last line we printed the number of words using `cout` statement.

QUESTION-NO 2

PROGRAM

```
#include<iostream>

using namespace std;
```

```
int main()
{

    char strng[70];
    int length_s, i;

    cout<<"\nENTER A STRING PLEASE--->> ";
    cin.getline(strng, 70);
    for(length_s = 0; strng[length_s] != '\0'; length_s++);

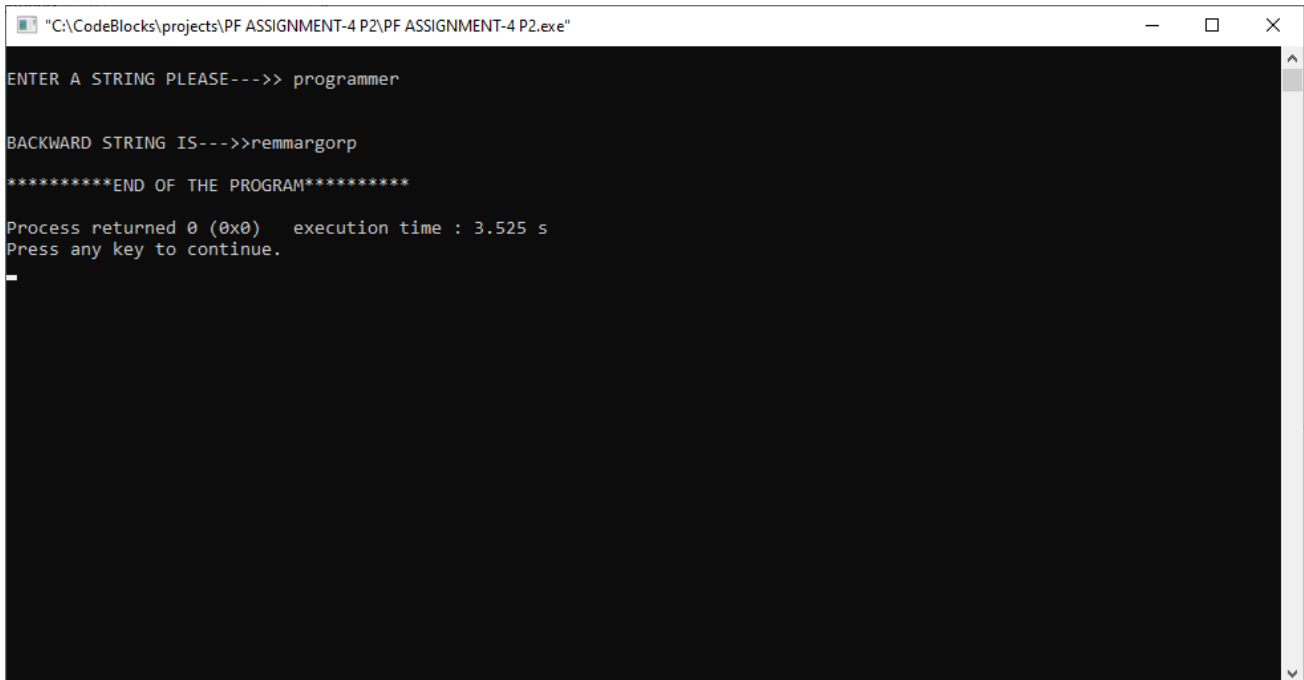
    cout<<"\n\nBACKWARD STRING IS--->>";

    for(i = length_s - 1; i >= 0; i--)
    {
        cout << strng[i];

    }

    cout<<endl<<endl<<"*****END OF THE PROGRAM*****"<<endl;
    return 0;
}
```

PROGRAM OUTPUT



```
"C:\CodeBlocks\projects\PF ASSIGNMENT-4 P2\PF ASSIGNMENT-4 P2.exe"

ENTER A STRING PLEASE--->> programmer

BACKWARD STRING IS--->>remmargorp

*****END OF THE PROGRAM*****

Process returned 0 (0x0)   execution time : 3.525 s
Press any key to continue.
_
```

EXPLANATION

FIRSTLY AFTER ADDING HEADER FILES THAN IN THE MAIN FUNCTION:

- 1- We made a string named strng having data type of character
- 2- We set the character limits to 70 inside the curly brackets
- 3- We initialized two integer type variables named length_s and i
- 4- In next line program ask user to enter a string
- 5- In next line we used cin.getline function to get string from user within limit of 70
- 6- I used for loops, first for loop is used to calculate the length of string entered by user
- 7- In 2nd for loop program start printing the string from last-1 index to greater or equal to zero index.

QUESTION-NO_3

PROGRAM

```
#include <iostream>

using namespace std;

int main() {

    char charac;

    cout << "USER ENTER THE CHARACTER---->";
```

```
cin >> charac;
```

```
if((charac >= 'a' && charac <= 'z') || (charac >= 'A' && charac <= 'Z')) {
```

```
    cout << endl << charac << " is an ALPHABET.";
```

```
}    else if(charac >= '0' && charac <= '9') {
```

```
    cout << endl << charac << " is a DIGIT.";
```

```
}    else {
```

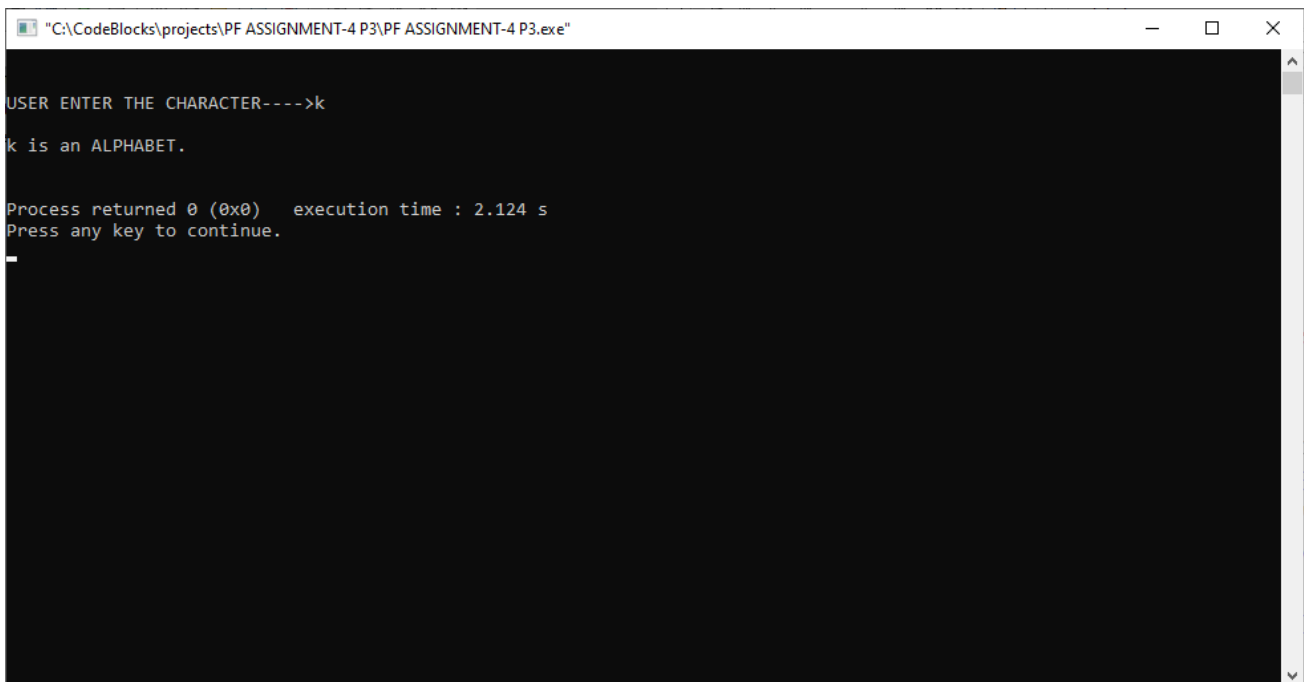
```
    cout << endl << charac << " is a SPECIAL CHARACTER.";
```

```
}
```

```
return 0;
```

```
}
```

PROGRAM OUTPUT



```
"C:\CodeBlocks\projects\PF ASSIGNMENT-4 P3\PF ASSIGNMENT-4 P3.exe"

USER ENTER THE CHARACTER---->k
k is an ALPHABET.

Process returned 0 (0x0)   execution time : 2.124 s
Press any key to continue.
```

```
"C:\CodeBlocks\projects\PF ASSIGNMENT-4 P3\PF ASSIGNMENT-4 P3.exe"

USER ENTER THE CHARACTER--->1
1 is a DIGIT.

Process returned 0 (0x0)   execution time : 3.092 s
Press any key to continue.
```

```
"C:\CodeBlocks\projects\PF ASSIGNMENT-4 P3\PF ASSIGNMENT-4 P3.exe"

USER ENTER THE CHARACTER--->@
@ is a SPECIAL CHARACTER.

Process returned 0 (0x0)   execution time : 3.897 s
Press any key to continue.
```

EXPLANATION

FIRSTLY W ADDED HEADER FILE AND THEN IN OUR MAIN FUNCTION:

- 1- We asked user to input any character he want to check
- 2- We made a charact type variable named "charac"to store character entered by user
- 3- Next whole program works on conditional statements
- 4- In first line we use if function to determine wether character is an alphabet or not .for this we used or condition for upper case and lowercase alphabets
- 5- If any of these 2 condition satisfy which means character is alphabet.
- 6- In next line it will show an output that our character is alphabet

- 7- If our character is not an alphabet then we have next else if condition to check rather it is digit ,if it satisfies both conditions that character should be greater than or equal to 0 and less than or equal to 9 ,then our character will be digit
- 8- And in next line it will show output that our character is digit and program terminates
- 9- But if else if condition is not satisfied which means that our character is neither a alphabet nor a digit than it is clearly a special character
- 10- In next line it will display an output that our character is a special character

QUESTION-NO_4

PROGRAM

```
#include<iostream>

using namespace std;

int main( )
{
    char strng_1[110], strng_2[110];

    cout<<"\n\nENTER YOUR FIRST STRING---> ";
    cin.getline(strng_1, 110);

    cout<<"\n\nENTER YOUR SUB-STRING--> ";
    cin.getline(strng_2, 110);

    int length = 0;

    for(length = 0; strng_2[length] != '\0'; length++);

    int i, j;

    for(i = 0, j = 0; strng_1[i] != '\0' && strng_2[j] != '\0'; i++)
    {
        if(strng_1[i] == strng_2[j])
        {
```



```

        j++;
    }
    else
    {
        j = 0;
    }
}

if(j == length)
    cout<<"\n\nPOSITION OF SUBSTRING IS--->"<< i - j +1<<endl<<endl;
else
    cout<<"\n\nNO SUBSTRING FOUND!!!!!!!!!!\n\n";

return 0;
}

```

PROGRAM OUTPUT

```

"C:\CodeBlocks\projects\PF ASSIGNMENT4 P4\PF ASSIGNMENT4 P4.exe"

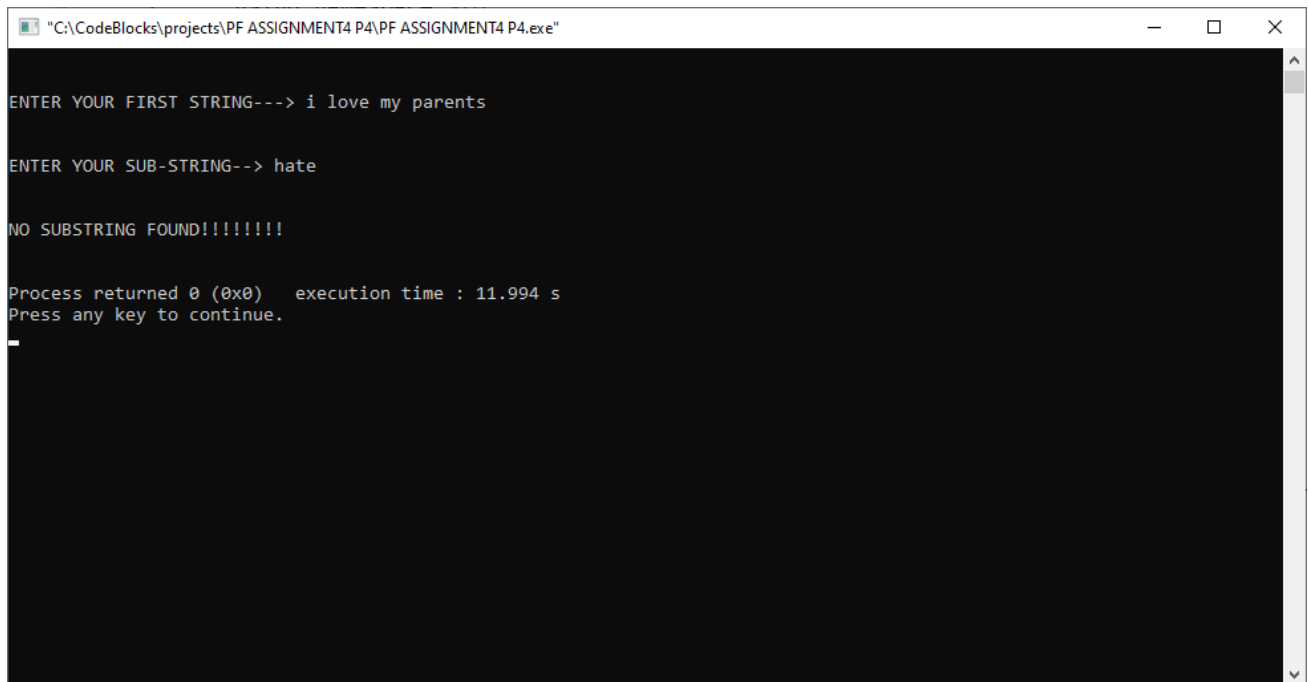
ENTER YOUR FIRST STRING---> i love my parents

ENTER YOUR SUB-STRING--> my

POSITION OF SUBSTRING IS--->8

Process returned 0 (0x0)   execution time : 15.804 s
Press any key to continue.
-

```



```
"C:\CodeBlocks\projects\PF ASSIGNMENT4 P4\PF ASSIGNMENT4 P4.exe"

ENTER YOUR FIRST STRING---> i love my parents

ENTER YOUR SUB-STRING--> hate

NO SUBSTRING FOUND!!!!!!

Process returned 0 (0x0)   execution time : 11.994 s
Press any key to continue.
_
```

EXPLANATION

FIRSTLY WE ADDED HEADER FILES AND THAN IN OUR MAIN FUNCTION:

- 1- We defined two strings having data types of char and character limit of 110
- 2- First program asks user to input string using getline function and store the string in strng1
- 3- In next line program asks the user to enter substring to find and store it into strng2
- 4- Next there is defined an integer type variable length that is first initialized with 0 and it holds length of second string
- 5- in next phase we used for loops for finding length of second string
- 6- in first for loop it holds mian string
- 7- and second for loops hold our substring entered by the user
- 8- in next step if condition is used to determine if main string and substring match than there will be increment counter in substring
- 9- other wise there will be no increment in j and it will be zero
- 10- outside this for loop there is another if condition if j is equal to length which means that substring is found
- 11- and it will display that substring is found at index number of main string minus subtrstring and plus 1 position
- 12- else it means that sub string is not found