

## EXPERIMENT 5

Write a shell script and C program to perform the following string operations:

- a) To extract a substring from a given string.

>Shell Script:

```
GNU nano 6.2 string.sh
str="Welcome to Miet."
echo "Total characters in string: ${#str}"

echo "Extracting list of 10 characters of string"
substr="${str:0:10}"
echo "$substr"

echo "Extracting from specific character onwards"
substr="${str:11}"
echo "$substr"

echo "Extracting characters between given range"
substr="${str:11:6}"
echo "$substr"

echo "Extracting characters by give range in negative"
substr="${str:-1}"
echo "$substr"
```

>C-program:

```
GNU nano 6.2 string.c
#include<stdio.h>
int main()
{
    char str[50]="Welcome to Miet.";
    printf("Total characters in string: 16");
    printf("\n\n");
    // characters extraction
    printf("Extracting list of 10 characters of string:-");{
    for (int i = 0; i<=10; i++) {
        if (str[i] != ' ') {
            printf("%c", str[i]);
        }
    }
    printf("\n\n");
    printf("Extracting from specific character onwards:-");{
    for (int i = 0; i<=15; i++) {
        if (str[i] != ' ') {
            printf("%c", str[i]);
        }
    }
    printf("\n\n");
    printf("Extracting characters bt giving range in negative:-");{
    for (int i = -1; i<=16; i++) {
        if (str[i] != ' ') {
            printf("%c", str[i]);
        }
    }
    }
    printf("\n\n");
    return 0;
}
```

➤ **Output using time command for both c program and shell script.**

```
khushi@khushi-VirtualBox:~$ nano string.sh
khushi@khushi-VirtualBox:~$ time ./a.out
Total characters in string: 16

Extracting list of 10 characters of string:-Welcometo

Extracting from specific character onwards:-WelcometoMiet.

Extracting characters bt giving range in negative:-ϕWelcometoMiet.

real    0m0.002s
user    0m0.002s
sys     0m0.001s
khushi@khushi-VirtualBox:~$ nano string.c
khushi@khushi-VirtualBox:~$ gcc string.c
khushi@khushi-VirtualBox:~$ time ./a.out
Total characters in string: 16

Extracting list of 10 characters of string:-Welcometo

Extracting from specific character onwards:-WelcometoMiet.

Extracting characters bt giving range in negative:-ϕWelcometoMiet.

real    0m0.004s
user    0m0.003s
sys     0m0.000s
khushi@khushi-VirtualBox:~$
```

**b) To find the length of a given string.**

**>Shell Script:**

```
GNU nano 6.2                               strlen.sh
str="Welcome to Miet"
echo "The total no of char in the string are: ${#str}"
```

**>C- Program:**

```
GNU nano 6.2                               strlen.c
#include <stdio.h>
#include <string.h>

int main() {
    char str[1000];

    printf("Enter the string: ");
    scanf("%s", str);

    int length;

    length = strlen(str);

    printf("The length of the string is %d ", length);
    printf("\n\n");

    return 0;
}
```

>Output Using time command for both c program and shell script.

```
khushi@khushi-VirtualBox: ~  
khushi@khushi-VirtualBox:~$ nano strlen.sh  
khushi@khushi-VirtualBox:~$ chmod +x strlen.sh  
khushi@khushi-VirtualBox:~$ time ./strlen.sh  
The total no of char in the string are: 15  
  
real    0m0.004s  
user    0m0.003s  
sys     0m0.000s  
khushi@khushi-VirtualBox:~$ nano strlen.c  
khushi@khushi-VirtualBox:~$ gcc strlen.c  
khushi@khushi-VirtualBox:~$ time ./a.out  
Enter the string: Khushi  
The length of the string is 6  
  
real    0m8.780s  
user    0m0.003s  
sys     0m0.000s  
khushi@khushi-VirtualBox:~$
```

