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Experiment : 6

1.) Write a shell script and C Program to perform the following string operations:
To Extract a substring from a given string.

• Shell Script

```
str="Welcome to Miet."
lecho "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 giving 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 Operating System Lab";

        // character extraction
    printf("Extracting the substring from index 0 up to index 10:-");{
        for (int i = 0; i<=10; i++) {
                if (str[i] != ' ') {

                        printf("%c", str[i]);
                }
        }
        }
        printf("\n\n");
        printf("Extracting the substring from index -3 up to index 4:-");{
        for (int i = -3; i<=4; i++) {
                if (str[i] != ' ') {
                        printf("%c", str[i]);
                }
        }
        }
        printf("\n\n");
         printf("Extracting the substring from index 10 up to index 20:-");{
        for (int i = 10; i<=20; i++){
                if (str[i] != ' ') {
                        printf("%c", str[i]);
                }
        }
        }
         printf("\n\n");
        return 0;
}
```

- Output using time command for both C program and shell script.

```
suresh@suresh-QEMU-Virtual-Machine:~$ chmod +x str.sh
suresh@suresh-QEMU-Virtual-Machine:~$ time ./str.sh
./str.sh: line 2: lecho: command not found
Extracting list of 10 characters of string
Welcome to
Extracting from specific character onwards
Miet.
Extracting characters between given range
Miet.
Extracting characters by giving range in negative
Welcome to Miet.

real    0m0.010s
user    0m0.005s
sys     0m0.006s
suresh@suresh-QEMU-Virtual-Machine:~$ gcc string.c
suresh@suresh-QEMU-Virtual-Machine:~$ time ./a.out
Extracting the substring from index 0 up to index 10:-Welcometo

Extracting the substring from index -3 up to index 4:-◆Welco

Extracting the substring from index 10 up to index 20:-Operating

real    0m0.002s
user    0m0.000s
sys     0m0.002s
suresh@suresh-QEMU-Virtual-Machine:~$ |
```

2.) To find the length of a given String.

- Shell Script

```
suresh@suresh-QEMU-Virtual-Machine: ~

str="Welcome to Miet."
echo "The total no. of characters in string: ${#str}"
```
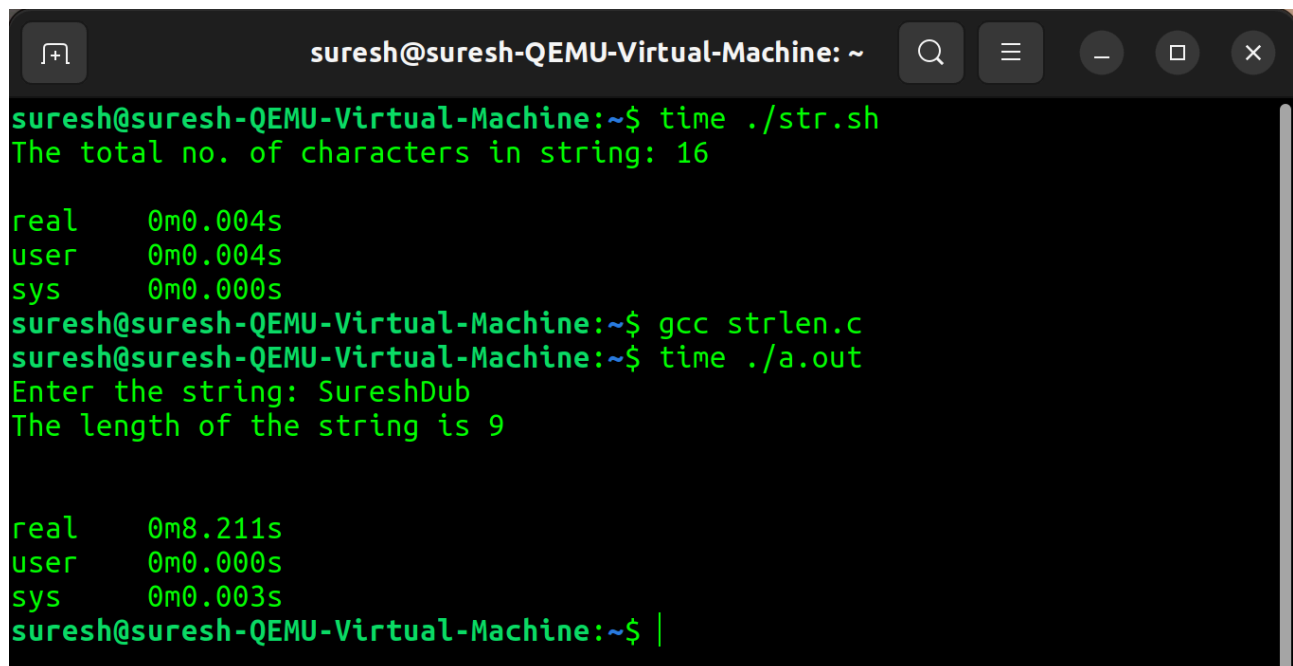
- C Program

```
suresh@suresh-QEMU-Virtual-Machine: ~

GNU nano 6.2                          strlen.c
#include <stdio.h>
#include <string. h>
int main()
{
char str [1000];

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

```
suresh@suresh-QEMU-Virtual-Machine:~$ time ./str.sh
The total no. of characters in string: 16

real    0m0.004s
user    0m0.004s
sys     0m0.000s
suresh@suresh-QEMU-Virtual-Machine:~$ gcc strlen.c
suresh@suresh-QEMU-Virtual-Machine:~$ time ./a.out
Enter the string: SureshDub
The length of the string is 9


real    0m8.211s
user    0m0.000s
sys     0m0.003s
suresh@suresh-QEMU-Virtual-Machine:~$
```