

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

- To extract a substring from a given string.
- To find the length of a given string.

Compare the running time of above shell script and C program using the time command.

```
aditya@ubuntu:~$ ./a.out
Input a string
Aditya Vardhan Sharma
Enter the position and length of substring
1
6
Required substring is "Aditya"
aditya@ubuntu:~$
```

```
1 #include <stdio.h>
2
3 int main()
4 {
5     char string[1000], sub[1000];
6     int position, length, c = 0;
7
8     printf("Input a string\n");
9     gets(string);
10
11     printf("Enter the position and length of substring\n");
12     scanf("%d%d", &position, &length);
13
14     while (c < length) {
15         sub[c] = string[position+c-1];
16         c++;
17     }
18     sub[c] = '\0';
19
20     printf("Required substring is \"%s\"\n", sub); // '\"' to print "
21
22     return 0;
23 }
```

```
aditya@ubuntu:~$ time ./file13.sh
Enter The Sting
Aditya Vardhan Sharma
Extraction From Start to end
ditya Vardhan Sharma
Extraction from 3rd Charecter till 10th
a Vardhan
Extraction from 3rd till end
tya Vardhan Sharma
```

```
real    0m10.579s
user    0m0.000s
sys     0m0.003s
aditya@ubuntu:~$
```

```
aditya@ubuntu:~$ ./a.out
Enter The String: Aditya Vardhan Sharma
Total number of characters in a string: 19
```

```
1 #include <stdio.h>
2 #include <string.h>
3
4 int main()
5 {
6     char string[] = "Aditya Vardhan Sharma";
7     int count = 0;
8     for(int i = 0; i < strlen(string); i++) {
9         if(string[i] != ' ')
10             count++;
11     }
12     printf("Enter The String: %s ", string);
13     printf("\nTotal number of characters in a string: %d", count);
14     return 0;
15 }
```

```
aditya@ubuntu:~$ time ./file12.sh
Enter The String: Aditya Vardhan Sharma
the total number of charecters in the string are: 21
```

```
real    0m0.002s
user    0m0.002s
sys     0m0.000s
```

```
aditya@ubuntu:~$
```