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SECTION : 23

GROUP : “B”

SEMESTER : 1st Semester

UID : 20BCS2279

PRACTICAL : 6.1

TOPIC :

Sonali joined a social networking site to stay in touch with her friends. The signup page required her to input a name and a password. However, the password must be strong. The website considers a password to be strong if it satisfies the following criteria:

(i) Its length is at least 6.
(ii) It contains at least one digit.
(iii) It contains at least one lowercase English character.
(iv) It contains at least one uppercase English character.
(v) It contains at least one special character. The special characters are : !@#$%^&*()-+

She typed a random string of length n in the password field but wasn’t sure if it was strong. Given the string she typed, can you find the minimum number of characters she must add to make her password strong?

AIM :

Learn how to perform string operations in C.

FLOWCHART / ALGORITHM :

(i) Start the program.
(ii) Declaration of string of length 50.
(iii) Declaration of variables in integer datatype.
(iv) Print the message and accept the input of string from the user.
(v) Calculate the length of string by using the function strlen().
(vi) for loop is used to iterate the length of string.
(vii) Check the condition using if statement whether the condition of password is satisfied or not.
(viii) Check the condition using if else statement to count the length of password and print the message according to it.
(ix) End the program by returning an integer.

PROGRAM CODE :

```
//creating a header file for standard input output functions

#include<stdio.h>

//creating a header file for memory allocation, process control, conversions and others.

#include <stdlib.h>
```

```
//creating a header file for manipulating arrays of characters.
#include <string.h>
//creating a header file for testing and mapping characters.
#include <ctype.h>
//function which returns integer value
int main()
{
//declaration of string with length of 50
char str[50];
//declaration of variables in integer datatype
int i, l, d=0, lc=0, uc=0,s=0, count=0;
//print the message
printf("Enter string : \n");
//accept the input of string from the user
scanf("%[^\n]s",str);
//calculates the length of string
l=strlen(str);
//loop to iterate the length of string
for(i=0;i<l;i++)
{
```

```
//check the condition using if statement whether the condition of password is satisfied or not

if(!isdigit(str[i]))

d+=1;

if(!islower(str[i]))

lc+=1;

if(!isupper(str[i]))

uc+=1;

if(!(str[i]=='!' || str[i]=='@' || str[i]=='#' || str[i]=='$' || str[i]=='%' || str[i]=='^' || str[i]=='&' || str[i]=='*' || str[i]=='(' || str[i]==')' || str[i]=='-' || str[i]=='+'))

s+=1;

}

//check the condition using if else statement to count the length of password and print the message according to it

if(d==l)

count+=1;

if(lc==l)

count+=1;

if(uc==l)

count+=1;

if(s==l)
```

```
count+=1;
if(count>6-l)
printf("Password is strong with %d number of characters", l);
else
printf("Number of characters needs to be added are: %d",6-l);
//return an integer
return 0;
}
```

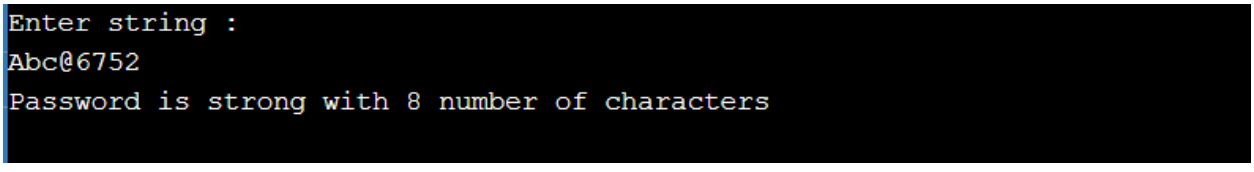
ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION :

No Error.

PROGRAM'S EXPLAINATION(In Brief) :

In this program we have to check that the entered password fullfill the given condition or not and calculate the minimum number of characters added to make the password strong.

OUTPUT :



PRACTICAL : 6.2

TOPIC :

A string of length N contains (N*(N+1)) / 2 substrings. Write a program to input string and print its multiple sub-string.

AIM :

Learn how to perform string operations using C.

FLOWCHART / ALGORITHM :

(i) Start the program.
(ii) Declaration of variables in integer datatype.
(iii) Declaration of string with length 20.
(iv) Print the message and accept the input of string from the user.
(v) Calculate the length of string using the function strlen().
(vi) for loop is used to iterate the length of string and multiple substrings.
(vii) Print the multiple substrings.
(viii) End the program by returning an integer.

PROGRAM CODE :

//creating a header file for standard input output functions.

```
#include <stdio.h>
//creating a header file for manipulating arrays of characters.
#include <string.h>
//functions which return integer type value
int main()
{
//declaration of variables in integer datatype
int l,i,j,k;
//declaration of string with length of 20
char str[20];
//print the message
printf("Enter string : \n");
//accept the input from the user
scanf("%[^\n]%*c", str);
//calculate the length of string
l=strlen(str);
//loop to iterate the length of string
for( i=1; i<=l; i++)
{
//loop to iterate the length of multiple sub strings
for(j=0,k=0;k!=l; j++)
```

```
{
for(k=j; k<(j+i); k++)
{
//print the multiple substring
printf("%c", str[k]);
}
//print the message
printf(",");
}
}
//return an integer value
return 0;
}
```

ERRROS ENCOUNTERED DURING PROGRAM'S EXECUTION :

No Error.

PROGRAM'S EXPLAINATION(In Brief**) :**

In this program we have to take the input of a string from the user and print the multiple sub strings.

OUTPUT :

```
Enter string :
Apple
A,p,p,l,e,Ap,pp,pl,le,App,ppl,ple,Appl,pple,Apple,
```

PRACTICAL : 6.3

TOPIC :

You store name of your friends in string array. You are given task to print the name of your friend whose name start with particular character and after you find first name in the list you have stop searching and print name you search in the list.

AIM :

Learn how to perform string operations using C.

FLOWCHART / ALGORITHM :

(i) Start the program.
(ii) Declaration of string of length 30 and 15.
(iii) Declaration of variables in character datatype.
(iv) Declaration of variables in integer datatype.
(v) Print the message and accept the input of number of names from the user.
(vi) For loop is used to input the name.

(vii) Accept the input of names from the user and print it.
(viii) Check the condition using if else whether the found character is equal to first character of name or not and print the message.
(ix) End the program by returning an integer value.

PROGRAM'S CODE :

```
//creating a heard file for standard input output functions
#include <stdio.h>
//function which returns integer value
int main()
{
//declaration of string of length 30 and 15
char name[30][15];
//declaration of variables in character datatype
char ch;
//declaration of variables in integer datatype
int i, n, found=0;
//print the message
printf("Enter how many names you want to enter:");
//accept the input from the user
scanf("%d", &n);
```

```
//print the message
   printf("Enter names of %d friends:", n);
//loop iterates to input the name
for (i=0; i<n; i++)
//accept the input of name from the user
scanf("%s", name[i]);
//print the message
printf("Names are: ");
//loop to print the names
for (i=0; i<n; i++)
//print the message
printf("%s\n", name[i]);
//print the message
printf("\nEnter first character of Name to be Searched: ");
//accept the input from the user
scanf(" %c", &ch);
//loop to iterate the characters to be find
for(i=0; i<n; i++)
{
```
//check the conditions using if else statement whether the first character of name and character to be find is same or not and print the message according to it.

```
if(name[i][0]==ch)
{
found=1;
break;
}
}
if(found!=0)
printf("Name with first character %c is: %s",ch,name[i]);
else
printf("Name not found in array of given names");
return 0;
}
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION :

No Errors.

PROGRAM'S EXPLAINATION (In Brief) :

In this program we have to input the name of friends and search the letter that any name is start with that particular letter or not and print the message according to it.

OUTPUT :

```
Enter how many names you want to enter:4
Enter names of 4 friends:Akash
Ayush
Aman
Yuvraj
Names are: Akash
Ayush
Aman
Yuvraj

Enter first character of Name to be Searched: A
Name with first character A is: Akash
```