LAB 1

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1.Write a C Program to authenticate a user using username and password. Have a list of 5 usernames and passwords in an array. If the entered username and password matches with the username / password combination in the array, then print as “Authentication Successful” else print “Authentication failed, try again”. The user is permitted to enter the wrong password only 3 times. If the user exceeds the limit, then print “Limit exceeded. Try later”.

```c
#include<stdio.h>
#include<string.h>
#include<stdlib.h>

 int main(){
    const char *  user_names[]={"user1","user2","user3","user4","user5"};
    const char * pass_words[] = {"1234","abcd","6666","117711","aswd"};
    char userN_in[10];
    char pswd_in[10];
    int i,count=0;

    while(count<3){
        if(count>0){
            printf("wrong credentials try again, Attempt :%d",count);
        }
        printf("\nEnter the username : ");
        scanf("%s",userN_in);
        printf("\nEnter the password : ");
        scanf("%s",pswd_in);
        for(i=0;i<5;i++){
            if((strcmp(user_names[i],userN_in)==0)&&(strcmp(pass_words[i],pswd
_in)==0)){
                printf("\n LogIn Successfull");
                exit(0);
            }

        } count++;
    }
    if(count==3){
        printf("You have reached max attempts, try agian later");
    }
```

```
}
```

OUTPUT

```
Enter the username : user1

Enter the password : 1234

 LogIn Successfull
PS D:\PROGRAMMING>
```

```
Enter the username : user1

Enter the password : abcd
wrong credentials try again, Attempt :1
Enter the username : user2

Enter the password : 1111
wrong credentials try again, Attempt :2
Enter the username : user2

Enter the password : wsad
You have reached max attempts, try agian later
PS D:\PROGRAMMING>
```

2.Write a C program to create a password strength meter. A password is said to be strong if it is at least 8 characters long and contains at least one lowercase character, one uppercase character, one special character (!@#$%^&*()) and one digit. The program should obtain a password string from the user and compute the password strength (in percentage) based on the 5 criteria listed above for strong passwords.

```c
#include <stdio.h>
#include <string.h>
int main()
{
    char password[50];
    int passwd_strength = 20;
    printf("Enter the password : ");
    scanf("%s", password);
```

```
    printf("%s", password);
    int g= 0, g_n = 0, g_l = 0, g_u = 0, g_S = 0;
    char numeriacals[] = "1234567890";
    char lowercase[] = "abcdefghijklmnopqrstuvwxyz";
    char uppercase[] = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
    char special[] = "!@#$%^&*()";

    if (strlen(password) >= 8)
    {
        g = g + 1;
    }
    for (int i = 0; i < strlen(password); i++)
    {
        if (strchr(numeriacals, password[i]) && g_n == 0)
        {
            g_n = g_n + 1;
            continue;
        }
        if (strchr(lowercase, password[i]) && g_l == 0)
        {
            g_l = g_l + 1;
            continue;
        }
        if (strchr(uppercase, password[i]) && g_u == 0)
        {
            g_u = g_u + 1;
            continue;
        }
        if (strchr(special, password[i]) && g_S == 0)
        {
            g_S = g_S + 1;
            continue;
        }
    }
    printf("Password strength is %d ", passwd_strength * (g + g_l + g_n + g_S
+ g_u));
}
```

OUTPUT

```
Enter the password : Rahul4223$
Rahul4223$Password strength is 100
PS D:\PROGRAMMING>
```

3. Write a C program to generate strong passwords of a length specified by the user.

```c
#include<stdio.h>
#include<time.h>
#include<stdlib.h>

int main(){
    char
list[]="12345678!@#$%^&*()ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz
";
    int n;
    printf("\n Enter the length of password :");
    scanf("%d",&n);
    if(n>=8)
    {
    srand(time(NULL));
    for(int i=0;i<n;i++){
        printf("%c",list[rand() % (sizeof list - 1)]);
    }
    }
    else
    {
        printf("password length not acceptable,it should be atleast 8");
    }

}
```

OUTPUT

```
 Enter the length of password :9
yISQJ@%Kq
PS D:\PROGRAMMING>
```