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SECTION: B

QUESTION 01: USER AUTHENTICATION SYSTEM USING ARRAY OF STRINGS

Write a C program to simulate a simple Sign-In / Sign-Up system using arrays of strings. The program should initially store 3 predefined user accounts (each having an email and a password) and should allow expansion up to 5 users in total.

Requirements:

Store all email IDs and passwords in two separate 2D character arrays.

```
char emails[5][50];
```

```
char passwords[5][50];
```

Initialize the program with the following 3 predefined accounts:

Emails: ghufuran@gmail.com, aina@gmail.com, Saif@gmail.com

Password: Hello12345, Onepieceisreal, xyz987654321

The program should display a menu to the user:

```
===== Welcome to the Login System =====
```

1. Sign In

2. Sign Up

Enter your choice:

Sign In:

Ask the user to enter their email and password.

If they match any existing stored credentials, display:

Sign in successful!

Otherwise, display:

Invalid email or password.

Sign Up:

If there are already 5 users, display:

User limit reached. Cannot register more users.

Otherwise:

Ask the user to enter a new email and password.

Validate the following:

The email must not already exist in the stored list.

The password must:

Be at least 8 characters long.

Contain both letters and numbers.

If both conditions are met:

Add the new email and password to the arrays.

Display:

Account created successfully! Please sign in now.

Otherwise, show the appropriate error message such as:

"Email already exists!"

"Password must be at least 8 characters long and alphanumeric!"

Your Code should cover all aspects detailed before.

Output screenshots should showcase these cases:

The program should allow a user to sign in successfully using:

Any of the predefined credentials, or

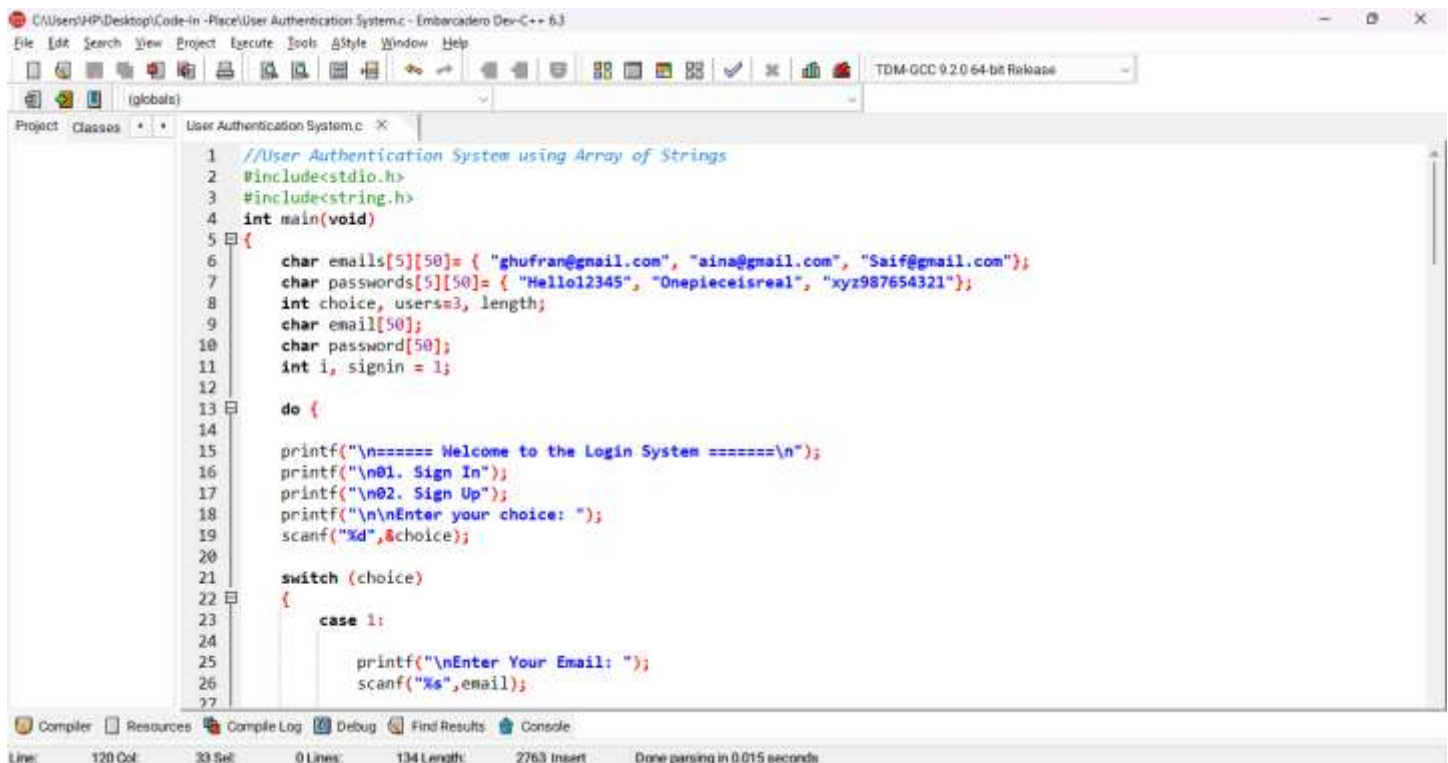
A newly created account after a successful sign-up.

It should also demonstrate cases where:

A sign-in fails because of incorrect credentials.

A sign-up fails because the email already exists or the password is invalid.

SOURCE CODE:



```
1 //User Authentication System using Array of Strings
2 #include<stdio.h>
3 #include<string.h>
4 int main(void)
5 {
6     char emails[5][50]= { "ghufran@gmail.com", "aina@gmail.com", "Saif@gmail.com"};
7     char passwords[5][50]= { "Hello12345", "Onepieceisreal", "xyz987654321"};
8     int choice, users=3, length;
9     char email[50];
10    char password[50];
11    int i, signin = 1;
12
13    do {
14
15        printf("\n===== Welcome to the Login System =====\n");
16        printf("\n01. Sign In");
17        printf("\n02. Sign Up");
18        printf("\n\nEnter your choice: ");
19        scanf("%d",&choice);
20
21        switch (choice)
22        {
23            case 1:
24
25                printf("\nEnter Your Email: ");
26                scanf("%s",email);
27
```

Compiler Resources Compile Log Debug Find Results Console

Line: 120 Col: 33 Sel: 0 Lines: 134 Length: 2763 Insert Done parsing in 0.015 seconds

C:\Users\HP\Desktop\Code-in-Place\User Authentication System.c - Embarcadero Dev-C++ 6.3

File Edit Search View Project Execute Tools Style Window Help

(globals)

User Authentication System.c

```
25 printf("\nEnter Your Email: ");
26 scanf("%s",email);
27
28 for ( i=0 ; i<users ; i++)
29 {
30     if ( strcmp( emails[i], email) == 0 )
31     {
32         printf("\nEnter Password: ");
33         scanf("%s",password);
34
35         if ( strcmp ( passwords[i], password) == 0 )
36         {
37             printf("\nSign In Successful\n");
38             signin = 0;
39             break;
40         }
41         else
42         {
43             printf("\nInvalid Password\n");
44             signin = 0;
45             break;
46         }
47     }
48 }
49
50 if ( i == users)
51 {
```

Compiler Resources Compile Log Debug Find Results Console

Line: 120 Col: 33 Sel: 0 Lines: 134 Length: 2763 Insert Done parsing in 0.015 seconds

C:\Users\HP\Desktop\Code-in-Place\User Authentication System.c - Embarcadero Dev-C++ 6.3

File Edit Search View Project Execute Tools Style Window Help

(globals)

User Authentication System.c

```
49
50     if ( i == users)
51     {
52         printf("\nInvalid Email\n");
53         signin=0;
54     }
55
56     break;
57
58
59     case 2:
60
61         if ( users >= 5)
62         {
63             printf("\nUser Limit Reached, cannot register more users.\n");
64             signin = 0;
65             break;
66         }
67
68         printf("\nEnter Your Email: ");
69         scanf("%s",email);
70
71         for ( i=0 ; i<users ; i++)
72         {
73             if ( strcmp ( emails[i],email) == 0 )
74             {
75                 printf("\nEmail already exists\n");
```

Compiler Resources Compile Log Debug Find Results Console

Line: 55 Col: 13 Sel: 0 Lines: 135 Length: 2780 Insert Done parsing in 0.032 seconds

C:\Users\HP\Desktop\Code-In-Place\User Authentication System.c - Embarcadero Dev-C++ 6.3

File Edit Search View Project Execute Tools Style Window Help

(globals)

User Authentication System.c

```
70
71     for ( i=0 ; i<users ; i++)
72     {
73         if ( strcmp ( emails[i],email ) == 0)
74         {
75             printf("\nEmail already exists\n");
76             signin = 0;
77             break;
78         }
79     }
80
81     if ( i != users) break;
82
83     printf("\nEnter Your Password: ");
84     scanf("%s",password);
85
86     if ( strlen ( password ) < 8 )
87     {
88         printf("\nInvalid Password, Password should consist of atleast 8 characters\n");
89         signin = 0;
90         break;
91     }
92
93     int digit=0;
94     int alphabet=0;
95
96     for ( i=0 ; i<strlen(password) ; i++)
```

Compiler Resources Compile Log Debug Find Results Console

Line: 55 Col: 13 Sel: 0 Lines: 135 Length: 2780 Insert Done parsing in 0.032 seconds

C:\Users\HP\Desktop\Code-In-Place\User Authentication System.c - Embarcadero Dev-C++ 6.3

File Edit Search View Project Execute Tools Style Window Help

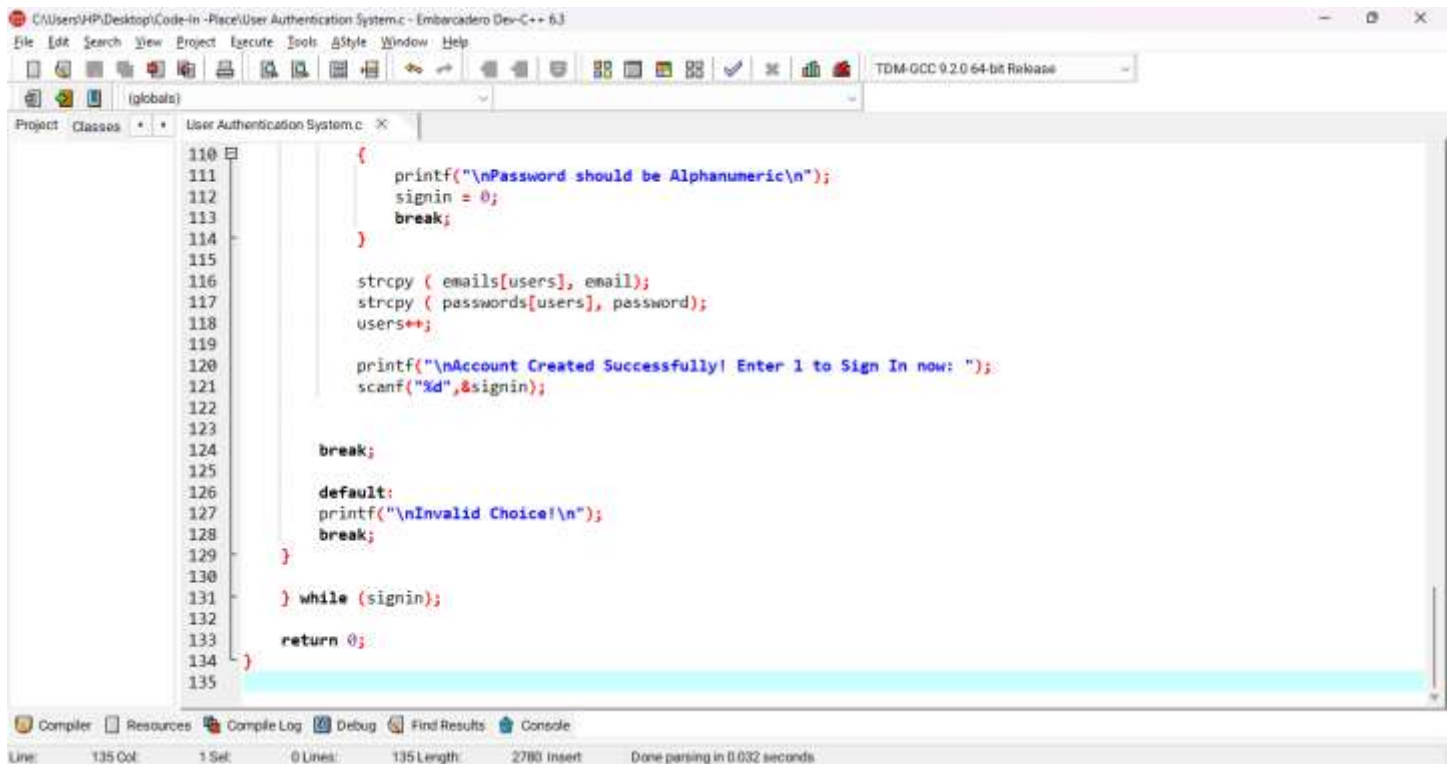
(globals)

User Authentication System.c

```
91     }
92
93     int digit=0;
94     int alphabet=0;
95
96     for ( i=0 ; i<strlen(password) ; i++)
97     {
98         if ( (password[i] >= 'A' && password[i] <= 'Z') || (password[i] >= 'a' && password[i] <= 'z') )
99         {
100             alphabet=1;
101         }
102
103         if ( password[i] >= '0' && password[i] <= '9')
104         {
105             digit = 1;
106         }
107     }
108
109     if ( digit!=1 || alphabet!=1 )
110     {
111         printf("\nPassword should be Alphanumeric\n");
112         signin = 0;
113         break;
114     }
115
116     strcpy ( emails[users], email);
117     strcpy ( passwords[users], password);
```

Compiler Resources Compile Log Debug Find Results Console

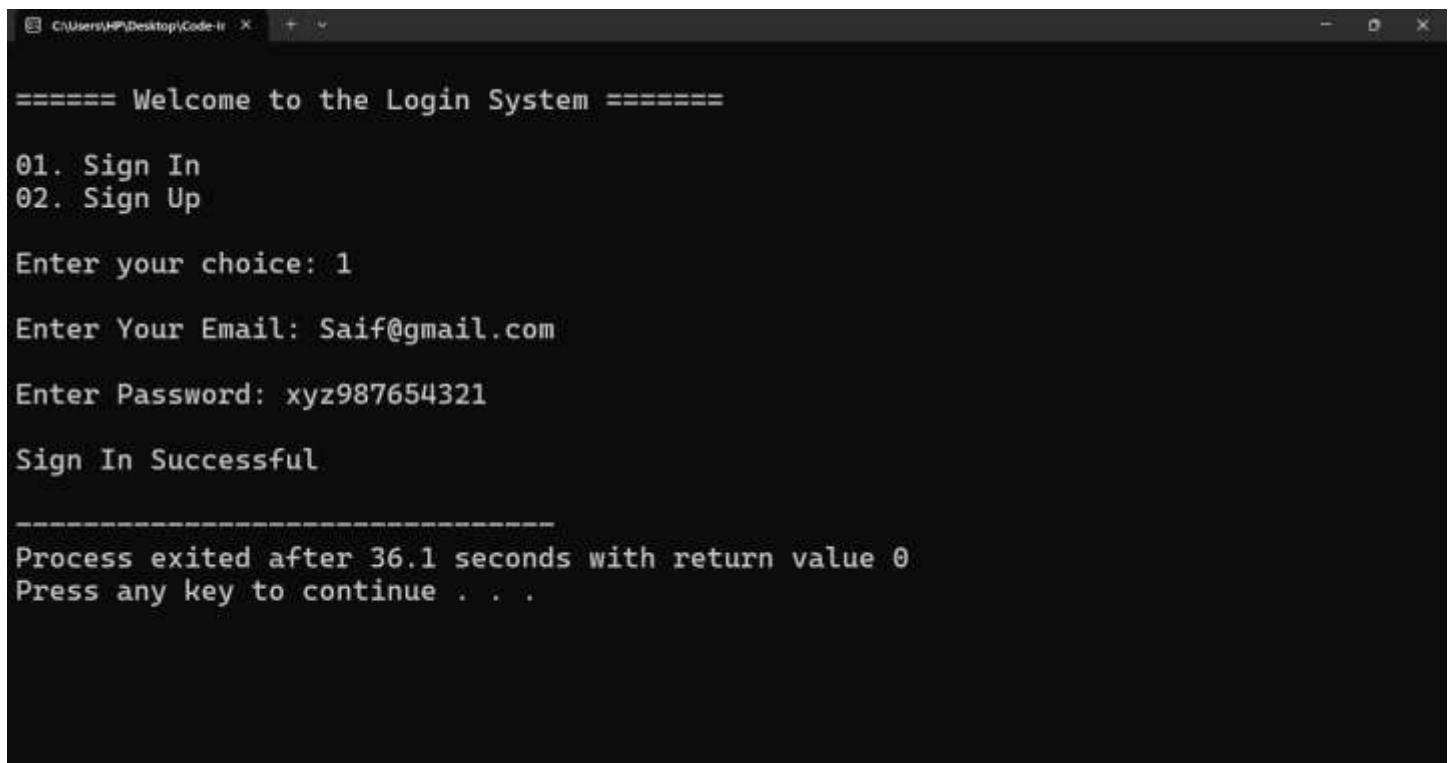
Line: 112 Col: 28 Sel: 0 Lines: 135 Length: 2780 Insert Done parsing in 0.032 seconds



The screenshot shows the Embarcadero Dev-C++ IDE with the file 'User Authentication System.c' open. The code is a C program for a user authentication system. It includes a menu with two options: '01. Sign In' and '02. Sign Up'. The user enters '1' to choose the 'Sign In' option. They then enter their email as 'Saif@gmail.com' and their password as 'xyz987654321'. The program checks if the password is alphanumeric and if the email and password are stored in arrays. If the password is not alphanumeric, it prompts the user to enter a valid one. If the email or password is not found in the arrays, it prompts the user to enter a valid choice. If the password is found and the email is found, it prints 'Sign In Successful'. The program then prints 'Process exited after 36.1 seconds with return value 0' and 'Press any key to continue . . .'. The status bar at the bottom shows 'Line: 135 Col: 1 Sel: 0 Lines: 135 Length: 2780 Insert Done parsing in 0.032 seconds'.

```
110 {
111     printf("\nPassword should be Alphanumeric\n");
112     signin = 0;
113     break;
114 }
115
116 strcpy ( emails[users], email);
117 strcpy ( passwords[users], password);
118 users++;
119
120 printf("\nAccount Created Successfully! Enter 1 to Sign In now: ");
121 scanf("%d",&signin);
122
123
124 break;
125
126 default:
127     printf("\nInvalid Choice!\n");
128     break;
129 }
130
131 } while (signin);
132
133 return 0;
134 }
135
```

OUTPUT:



The screenshot shows the terminal output of the program. It starts with a welcome message 'Welcome to the Login System'. The user is prompted to enter their choice, and they enter '1'. They are then prompted to enter their email, and they enter 'Saif@gmail.com'. They are then prompted to enter their password, and they enter 'xyz987654321'. The program then prints 'Sign In Successful'. Finally, it prints 'Process exited after 36.1 seconds with return value 0' and 'Press any key to continue . . .'. The status bar at the bottom shows 'Line: 135 Col: 1 Sel: 0 Lines: 135 Length: 2780 Insert Done parsing in 0.032 seconds'.

```
===== Welcome to the Login System =====
01. Sign In
02. Sign Up
Enter your choice: 1
Enter Your Email: Saif@gmail.com
Enter Password: xyz987654321
Sign In Successful
-----
Process exited after 36.1 seconds with return value 0
Press any key to continue . . .
```

```
C:\Users\HP\Desktop\Code-It X + -
===== Welcome to the Login System =====
01. Sign In
02. Sign Up
Enter your choice: 2
Enter Your Email: samarareefa@gmail.com
Enter Your Password: areefa123
Account Created Successfully! Enter 1 to Sign In now: 1
===== Welcome to the Login System =====
01. Sign In
02. Sign Up
Enter your choice: 1
Enter Your Email: samarareefa@gmail.com
Enter Password: areefa123
Sign In Successful
-----
Process exited after 36.27 seconds with return value 0
Press any key to continue . . .
```

```
C:\Users\HP\Desktop\Code-It X + -
===== Welcome to the Login System =====
01. Sign In
02. Sign Up
Enter your choice: 1
Enter Your Email: ghufra@gmail.com
Enter Password: super123
Invalid Password
-----
Process exited after 19.89 seconds with return value 0
Press any key to continue . . . |
```

```
C:\Users\HP\Desktop\Code-It > X + v

===== Welcome to the Login System =====

01. Sign In
02. Sign Up

Enter your choice: 1

Enter Your Email: fariha@gmail.com

Invalid Email

-----
Process exited after 10.97 seconds with return value 0
Press any key to continue . . . |
```

```
C:\Users\HP\Desktop\Code-It > X + v

===== Welcome to the Login System =====

01. Sign In
02. Sign Up

Enter your choice: 2

Enter Your Email: areefa@gmail.com

Enter Your Password: areefa

Invalid Password, Password should consist of atleast 8 characters

-----
Process exited after 14 seconds with return value 0
Press any key to continue . . . |
```

```
C:\Users\HP\Desktop\Code-It >
===== Welcome to the Login System =====

01. Sign In
02. Sign Up

Enter your choice: 2

Enter Your Email: aina@gmail.com

Email already exists

-----
Process exited after 12.41 seconds with return value 0
Press any key to continue . . . |
```