Web & Database Security Lab

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Assignment-2   *Date: 16/09/2023*

Q.

Write a program in C language to get username and password. The password needs to be validated before getting stored. That is to apply some password creation policies.
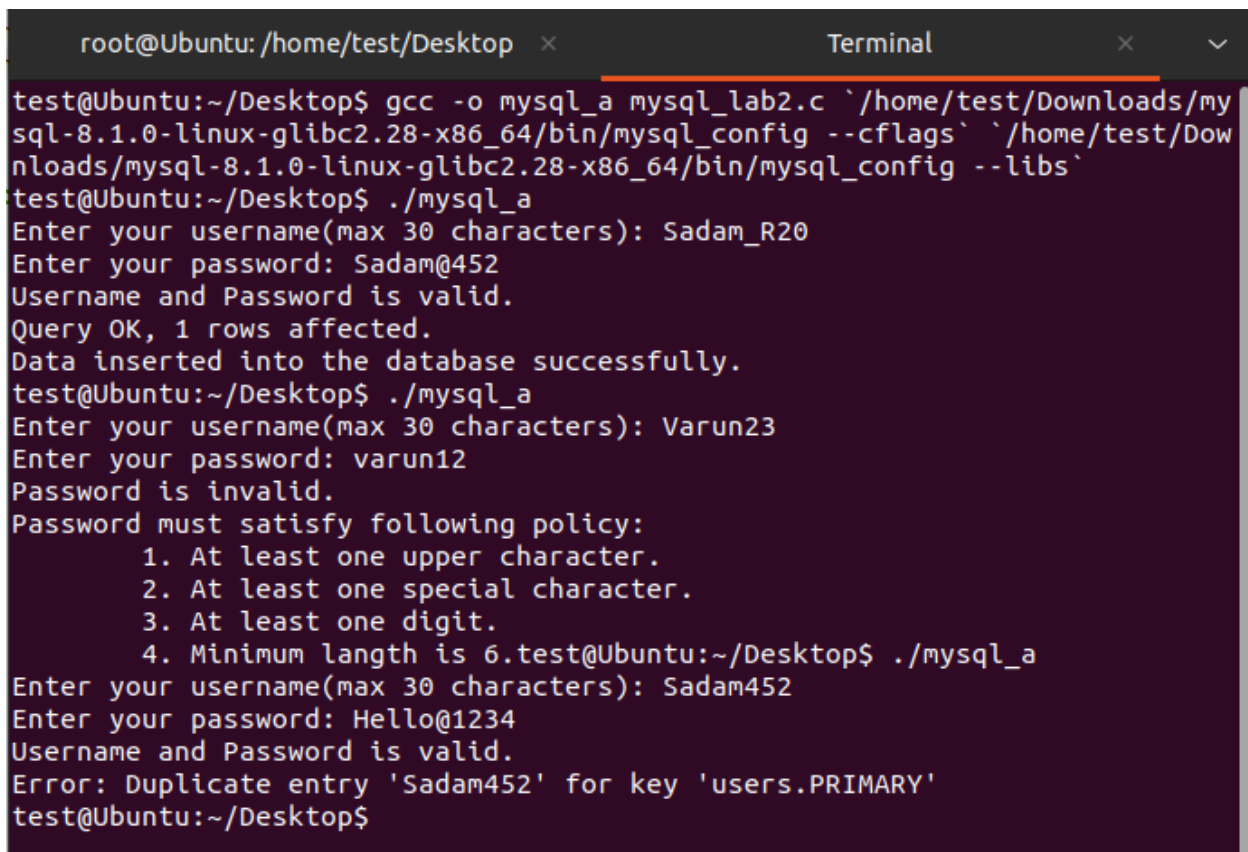
After that use some hashing algorithm for hashing the entered password in the program.

Store the username and message digest (after hashing password) in the database table. (For this establish connection with MYSQL database via code). Try to validate this.

Sol:

```
mysql> create table users(
    -> username VARCHAR(30) PRIMARY KEY,
    -> password VARCHAR(255) NOT NULL
    -> );
Query OK, 0 rows affected (0.21 sec)
```

First screenshot shows the command to create a table with two fields(username and password).

```
root@Ubuntu: /home/test/Desktop   ×          Terminal              ×       ∨

test@Ubuntu:~/Desktop$ gcc -o mysql_a mysql_lab2.c `/home/test/Downloads/my
sql-8.1.0-linux-glibc2.28-x86_64/bin/mysql_config --cflags` `/home/test/Dow
nloads/mysql-8.1.0-linux-glibc2.28-x86_64/bin/mysql_config --libs`
test@Ubuntu:~/Desktop$ ./mysql_a
Enter your username(max 30 characters): Sadam_R20
Enter your password: Sadam@452
Username and Password is valid.
Query OK, 1 rows affected.
Data inserted into the database successfully.
test@Ubuntu:~/Desktop$ ./mysql_a
Enter your username(max 30 characters): Varun23
Enter your password: varun12
Password is invalid.
Password must satisfy following policy:
        1. At least one upper character.
        2. At least one special character.
        3. At least one digit.
        4. Minimum langth is 6.test@Ubuntu:~/Desktop$ ./mysql_a
Enter your username(max 30 characters): Sadam452
Enter your password: Hello@1234
Username and Password is valid.
Error: Duplicate entry 'Sadam452' for key 'users.PRIMARY'
test@Ubuntu:~/Desktop$
```

Second screenshot shows the output of the c program. When we enter a password which follows the password policy, it is accepted, else it is rejected and an appropriate message is displayed. We can't add duplicate usernames as well.

```
mysql> select * from users;
+-----------+------------------------------------------------------------------+
| username  | password                                                         |
+-----------+------------------------------------------------------------------+
| Sadam_R20 | 4813494d137e1631bba301d5acab6e7bb7aa74ce1185d456565ef51d737677b2 |
| sadam452  | 4813494d137e1631bba301d5acab6e7bb7aa74ce1185d456565ef51d737677b2 |
+-----------+------------------------------------------------------------------+
2 rows in set (0.01 sec)

mysql>
```

Third screenshot shows the data stored in the "users" table after the two entries are inserted. Passwords are stored as hash values(using SHA-256).