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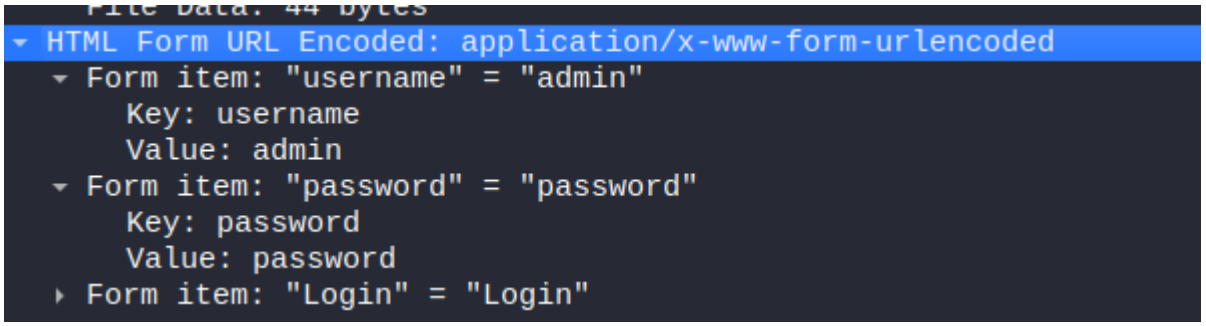
# Cryptographic Failures

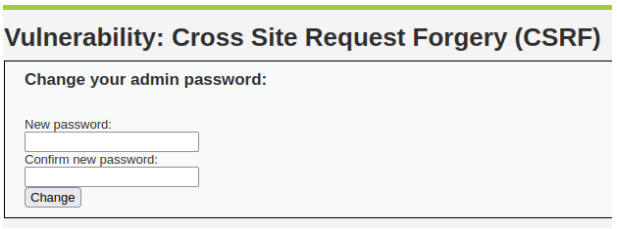
1. **Transmitting Sensitive Data Without Encryption:**
    - First, open Wireshark to sniff the data, then search for any HTTP request; there you should look for the username and password.

| No. | Time | Source | Destination | Protoco | Length | Info |
|---|---|---|---|---|---|---|
| 4 | 0.000703869 | 20.20.20.8 | 20.20.20.6 | HTTP | 664 | POST /dvwa/login.php HTTP/1.1 (application/x-www-form-urlencoded) |
| 6 | 0.011892463 | 20.20.20.6 | 20.20.20.8 | HTTP | 458 | HTTP/1.1 302 Found |
| 8 | 0.016579529 | 20.20.20.8 | 20.20.20.6 | HTTP | 523 | GET /dvwa/index.php HTTP/1.1 |
| 11 | 0.026020163 | 20.20.20.6 | 20.20.20.8 | HTTP | 653 | HTTP/1.1 200 OK (text/html) |

    - After finding the HTTP request, search for the username and password, and since DVWA is weak, there might be no encryption of sensitive data, so the data was in clear.

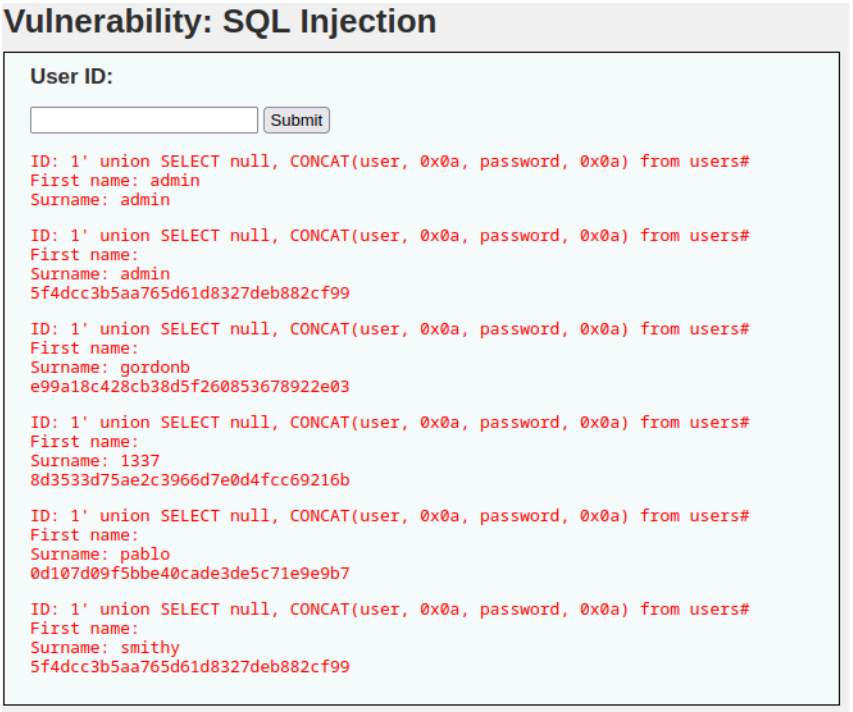



2. **Weak or Outdated Algorithms**
    - View the source code to find the algorithm used to hash the passwords.




```php
<?php

    if (isset($_GET['Change'])) {

        // Turn requests into variables
        $pass_new = $_GET['password_new'];
        $pass_conf = $_GET['password_conf'];


        if (($pass_new == $pass_conf)){
            $pass_new = mysql_real_escape_string($pass_new);
            $pass_new = md5($pass_new);

            $insert="UPDATE `users` SET password = '$pass_new' WHERE user = 'admin';";
            $result=mysql_query($insert) or die('<pre>' . mysql_error() . '</pre>' );

            echo "<pre> Password Changed </pre>";
            mysql_close();
        }

        else{
            echo "<pre> Passwords did not match. </pre>";
        }

    }
?>
```

- Notice that the passwords are hashed using md5. After doing SQL Injection, you should see the database that contains the users and their hashed passwords.




- Take the hashed password, and find a tool to convert it to clear text.