

BABU BANARASI DAS UNIVERSITY LUCKNOW

SCHOOL OF COMPUTER APPLICATION

COURSE- BCA-CS&F

SEMESTER -3rd



SUBMITTED TO

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SUBMITTED BY -

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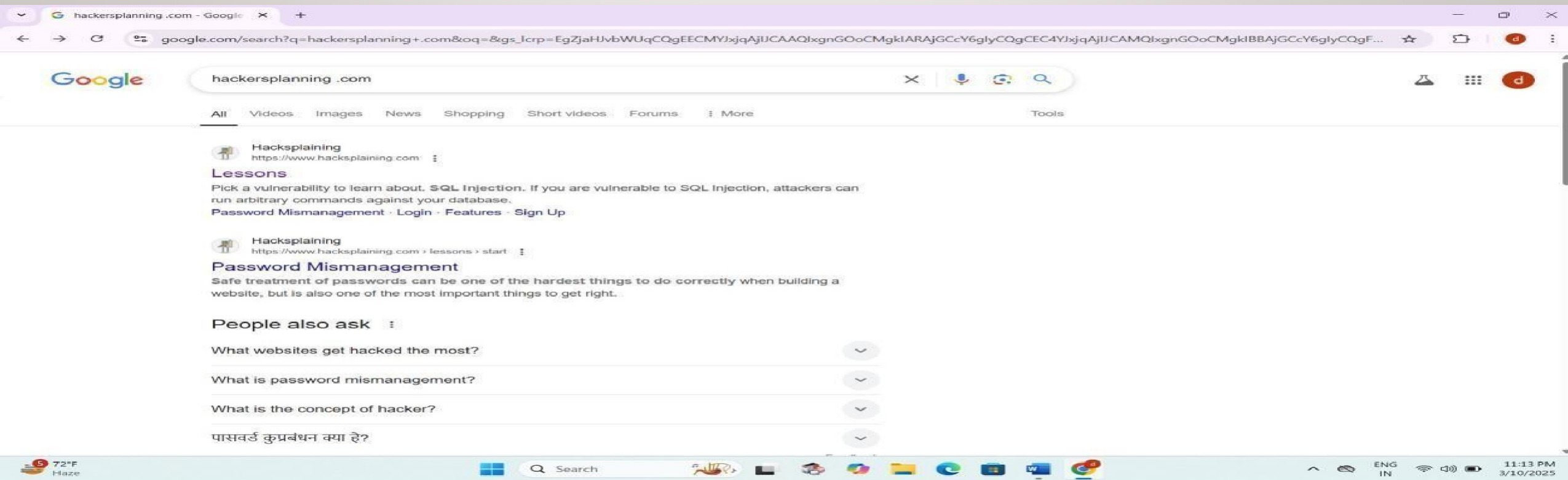
Welcome !

SQL INJECTION

- THIS ATTACK IS MOST COMMON IN DATABASE-DRIVEN WEBSITES.
- HERE SQL QUERY IS EXECUTED TO THE DATABASE AS THE INPUT FROM THE CLIENT AND THE SERVER
- IT MOSTLY WORKS IF A WEBSITE USES DYNAMIC SQL.

PRACTICAL ON SQL INJECTION :REFERENCE

:- HACKERPLANNING.COM



SEARCH HACKERSPLANNING.COM AND SELECT LESSONS OPTION FROM IT.

Lessons

hacksplaining.com/lessons


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Pick a vulnerability to learn about



SQL Injection

If you are vulnerable to SQL Injection, attackers can run arbitrary commands against your database.


[Learn About This Vulnerability →](#)



Cross-Site Scripting

If your site allows users to add content, you need to be sure that attackers cannot inject malicious JavaScript.

[Learn About This Vulnerability →](#)



Command Execution


If your application calls out to the OS, you need to be sure command strings are securely constructed.

[Learn About This Vulnerability →](#)

https://www.hacksplaining.com/lessons/sql-injection/start

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SELECT SQL INJECTION OPTION NOW.

WRITE ANY CREDENTIAL TO LOGIN THE PAGE

SQL Injection

hacksplaining.com/lessons/sql-injection/start

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SQL Injection

This is the vulnerable application we will be trying to hack with a **SQL injection** attack.

www.securebank.com

Username
dfgdxctret

Password
grte44r3r

Log in

SECURE BANK
You can trust us with your money, we almost never get hacked.

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NOW WRITE THE CREDENTIALS WRITTEN OVER THERE TO LOGIN .

SQL Injection



Go ahead and try logging in with the following credentials:

Email: user@email.com

Password: password



← → www.securebank.com

Username

user@email.com

Password

password

Log in

 **SECURE BANK**

You can trust us with your money, we almost never get hacked.

```
Application initialized.User is attempting to login...
SELECT * FROM users WHERE email = 'dfgdxccret' AND password = 'grte44r3r'
Credentials did not match, login failed.
```

NOW WRITE THE PASSWORD AS ' OR 1=1--



SQL Injection

hacksplaining.com/lessons/sql-injection/hacking-the-system

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Sign Up Log In →

SQL Injection

Enter the following credentials and click "Log in":
Email: user@email.com
Password: ' or 1=1--

www.securebank.com

Username
user@email.com

Password
' or 1=1--

Log in

SECURE BANK
You can trust us with your money, we almost never get hacked.

```
code
SELECT *
FROM users
WHERE email = 'user@email.com'
AND password = '' or 1=1--
```

```
Application initialized.User is attempting to login...
SELECT * FROM users WHERE email = 'dfgdxccctret' AND password = 'grte
Credentials did not match, login failed.
User is attempting to login...
SELECT * FROM users WHERE email = 'user@email.com' AND password = 'p
Credentials did not match, login failed.
User is attempting to login...
SELECT * FROM users WHERE email = 'user@email.com' AND password = 'p
```

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SUCCESSFUL SQL INJECTION

SQL Injection

hacksplaining.com/lessons/sql-injection/hack-complete

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Sign UpLog In →


SQL Injection

And we are in! We successfully gained access to the application without having to guess the password, using **SQL injection**.

←→

www.securebank.com

Welcome back, user@email.com!
Your current balance is \$8,266


 **SECURE BANK**

Initiate a transfer


code

```
SELECT *
FROM users
WHERE email = 'user@email.com'
AND password = '' or 1=--
```


```
Application initialized.User is attempting to login...
SELECT * FROM users WHERE email = 'fgsfsd' AND password = 'sedertuy'
Credentials did not match, login failed.
User is attempting to login...
SELECT * FROM users WHERE email = 'fgsfsd' AND password = 'sedertuy'
Credentials did not match, login failed.
User is attempting to login...
SELECT * FROM users WHERE email = 'fgsfsd' AND password = 'sedertuy'
```



Search



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PREVENTION / PROTECTION

1. USE STRONG, UNIQUE PASSWORDS

USE A PASSWORD MANAGER TO CREATE AND STORE COMPLEX PASSWORDS.
AVOID REUSING PASSWORDS ACROSS ACCOUNTS.

2. ENABLE MULTI-FACTOR AUTHENTICATION (MFA)

REQUIRE A SECOND FORM OF VERIFICATION (LIKE A CODE SENT TO YOUR PHONE).

ESSENTIAL FOR PROTECTING SENSITIVE ACCOUNTS LIKE EMAIL, BANKING, AND CLOUD STORAGE.

3. KEEP SOFTWARE AND SYSTEMS UPDATED

REGULARLY UPDATE OPERATING SYSTEMS, APPS, AND ANTIVIRUS SOFTWARE. APPLY SECURITY PATCHES AS SOON AS THEY ARE AVAILABLE.

**4. INSTALL AND MAINTAIN SECURITY SOFTWARE USE
ANTIVIRUS AND ANTI-MALWARE TOOLS.**

ENABLE REAL-TIME PROTECTION AND SCHEDULE REGULAR

SCANS. 5. BE WARY OF PHISHING ATTEMPTS

DON'T CLICK SUSPICIOUS LINKS OR DOWNLOAD ATTACHMENTS
FROM UNKNOWN SOURCES.

VERIFY SENDERS BEFORE SHARING PERSONAL OR FINANCIAL
INFORMATION.

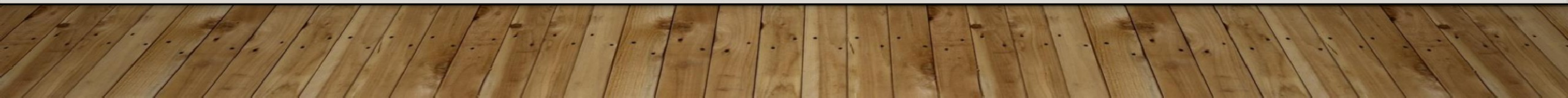
6. USE FIREWALLS

HARDWARE AND SOFTWARE FIREWALLS BLOCK UNAUTHORIZED
ACCESS.

ESPECIALLY IMPORTANT FOR BUSINESSES AND REMOTE WORKERS.

7. LIMIT USER ACCESS

FOLLOW THE PRINCIPLE OF **LEAST PRIVILEGE**: ONLY GIVE USERS
ACCESS TO WHAT THEY NEED.



REGULARLY REVIEW AND REVOKE UNNECESSARY ACCESS.

CONCLUSION

Cyberattacks pose a growing threat to individuals, businesses, and governments, with attackers constantly evolving their methods. The consequences can be severe—ranging from financial losses and data breaches to reputational damage and operational disruption. However, most cyberattacks can be prevented or mitigated through proactive security measures, regular education, and a strong cybersecurity culture. Ultimately, **cybersecurity is not a one-time solution but an ongoing commitment**. By staying vigilant, keeping systems updated, and promoting safe online behavior, we can significantly reduce the risk and impact of cyber threats in our increasingly connected world.

THANK YOU !

