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What is Linux?

Linux is an open-source operating system that manages hardware and software resources on a computer. It is based on the UNIX operating system and is widely used for its stability, security, and flexibility. Unlike Windows or macOS, Linux is open-source, meaning anyone can modify and distribute its source code.

Key Features of Linux:

- **Open-Source**: Free to use and modify.
- **Security**: Provides strong user permission control.
- **Stability**: Less prone to crashes and issues.
- **Multi-User Support**: Multiple users can access the system simultaneously.
- **Portability**: Can run on various hardware architectures.
- **Customization**: Highly configurable and supports multiple desktop environments.
- **Shell Support**: Provides powerful command-line utilities.

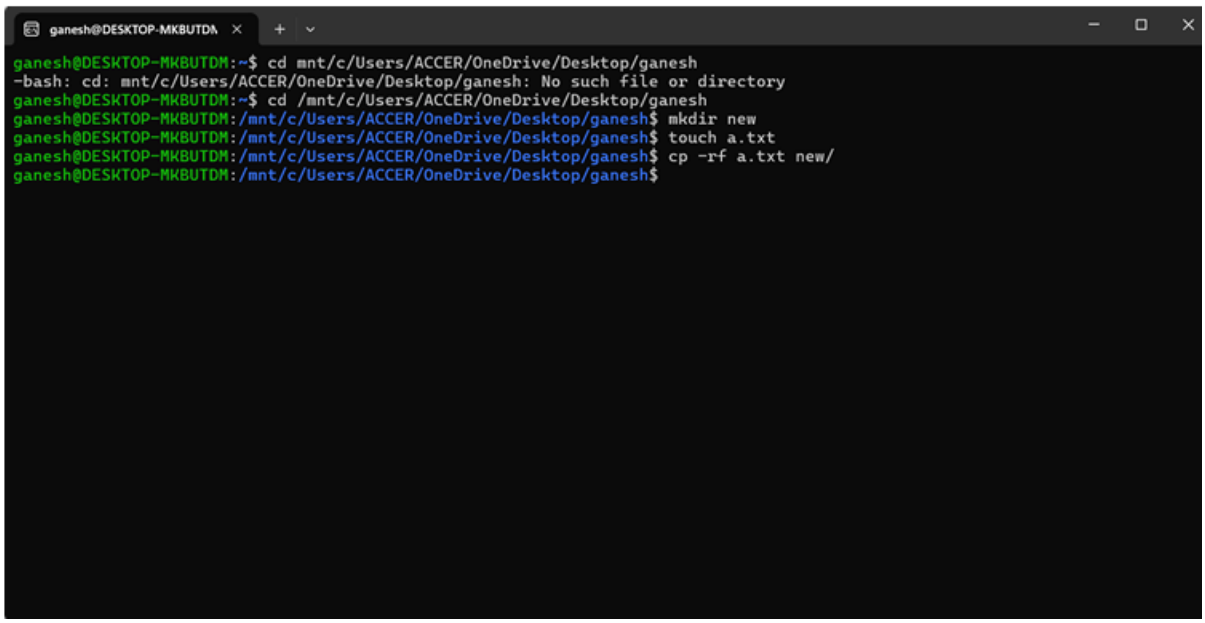
Basic Linux Commands

Creating and Navigating Directories

- **Create a directory**: mkdir myfolder
- **Navigate into a directory**: cd myfolder
- **Move back to the previous directory**: cd ..
- **List contents of a directory**: ls -l
- **Remove an empty directory**: rmdir myfolder

Creating and Managing Files

- **Create an empty file**: touch file.txt
- **View file contents**: cat file.txt
- **Copy a file**: cp file.txt newfile.txt
- **Move/rename a file**: mv file.txt newlocation/
- **Delete a file**: rm file.txt



Recursive File and Directory Operations

- **Create a nested directory structure**: mkdir -p parent/child/grandchild
- **Remove a directory and all its contents**: rm -rf directory_name

Changing File Permissions and Ownership

- **Modify file permissions**: chmod 755 file.txt
- **Change file ownership**: chown user:group file.txt

Searching with Grep Command

- **Search for a word in a file**: grep "word" file.txt
- **Search recursively in directories**: grep -r "word" /path/

Working with WSL (Windows Subsystem for Linux)

Windows Subsystem for Linux (WSL) allows users to run Linux distributions on a Windows machine. It provides a Linux-compatible terminal interface within Windows.

Basic WSL Commands

- **Launch WSL**: Open PowerShell and type wsl
- **List installed distributions**: wsl -l
- **Install a new distribution**: wsl --install -d <distribution_name>
- **Run a Linux command from PowerShell**: wsl ls
- **Exit WSL**: exit

Connecting with MySQL in Linux

MySQL is a widely used relational database management system. To connect with MySQL in Linux, follow these steps:

Installing MySQL

sudo apt update

sudo apt install mysql-server

Starting MySQL Service

sudo systemctl start mysql

Logging into MySQL

sudo mysql -u root -p

(Enter the root password when prompted.)

Creating a Database

CREATE DATABASE mydatabase;

Creating a User and Granting Privileges

CREATE USER 'myuser'@'localhost' IDENTIFIED BY 'mypassword';

GRANT ALL PRIVILEGES ON mydatabase.* TO 'myuser'@'localhost';

FLUSH PRIVILEGES;

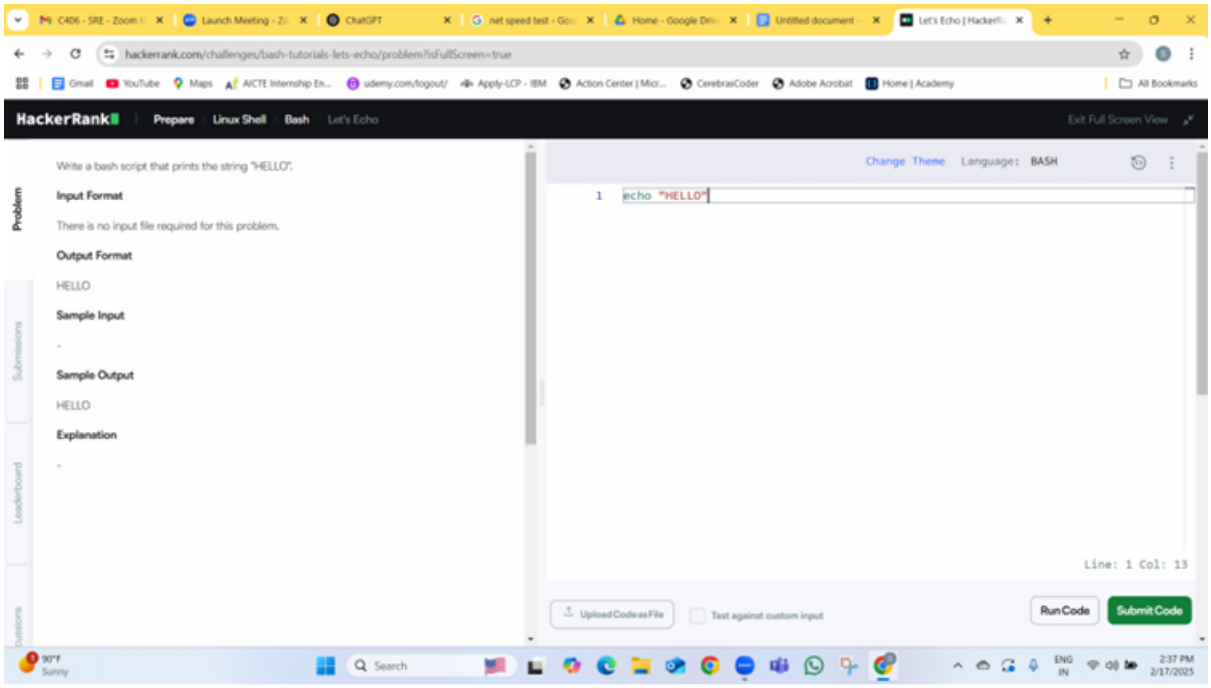
Connecting to MySQL as a User

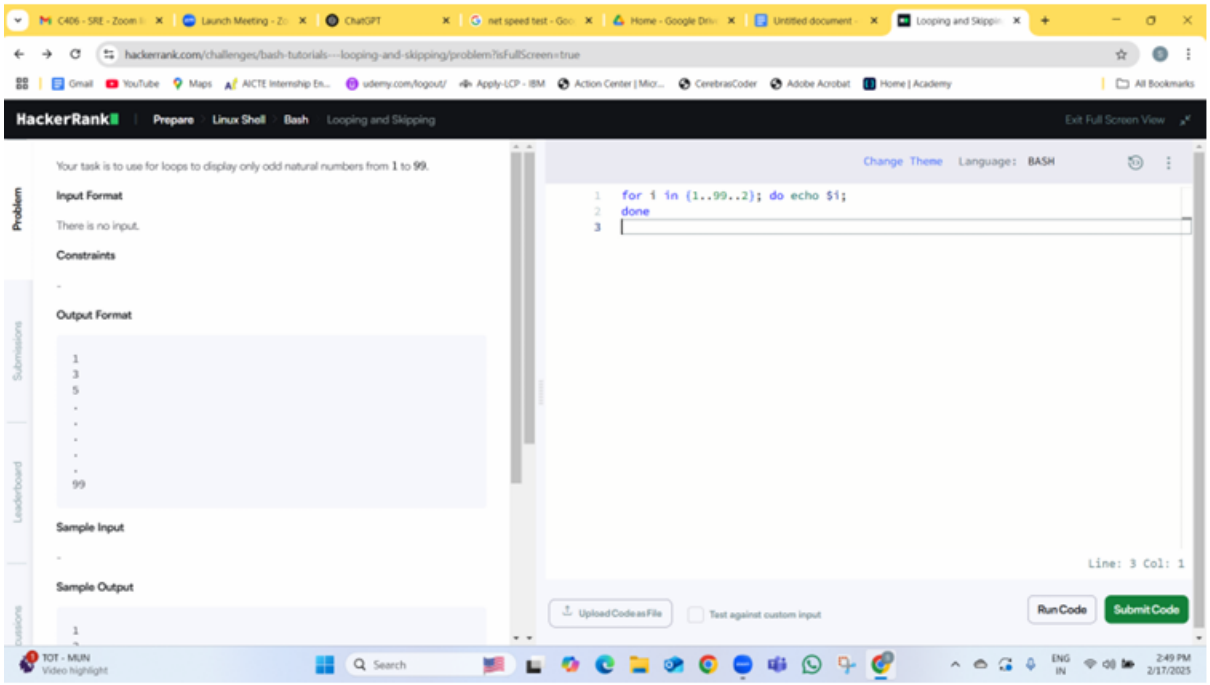
mysql -u myuser -p

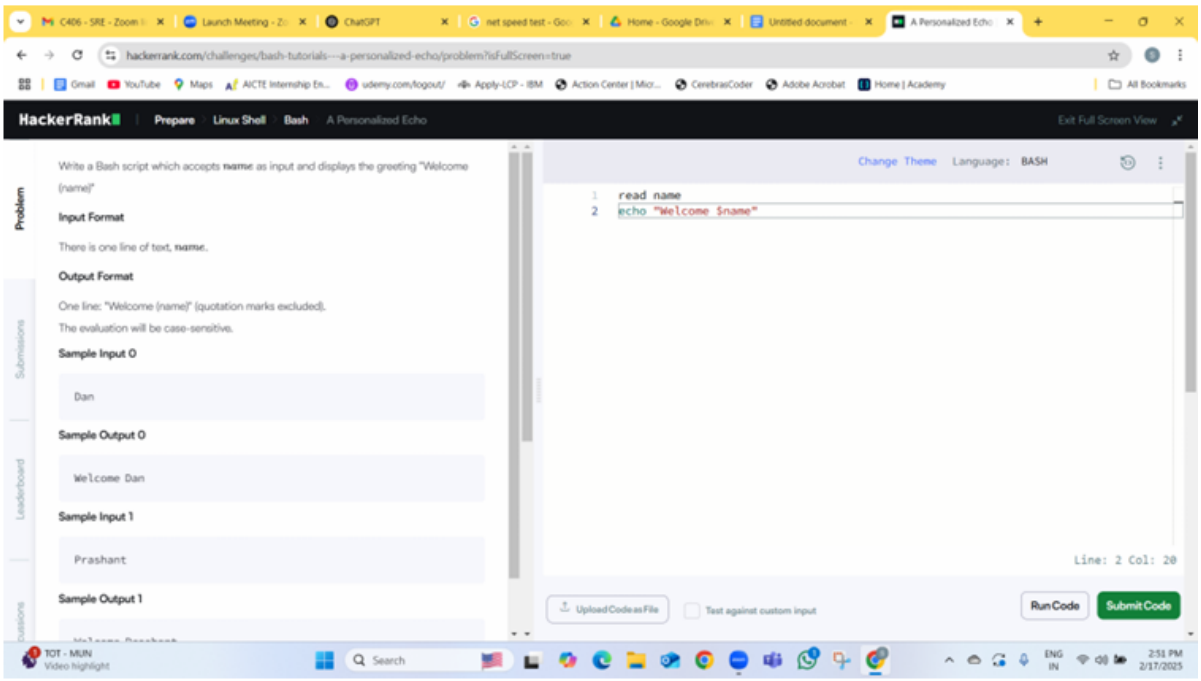
Listing Databases

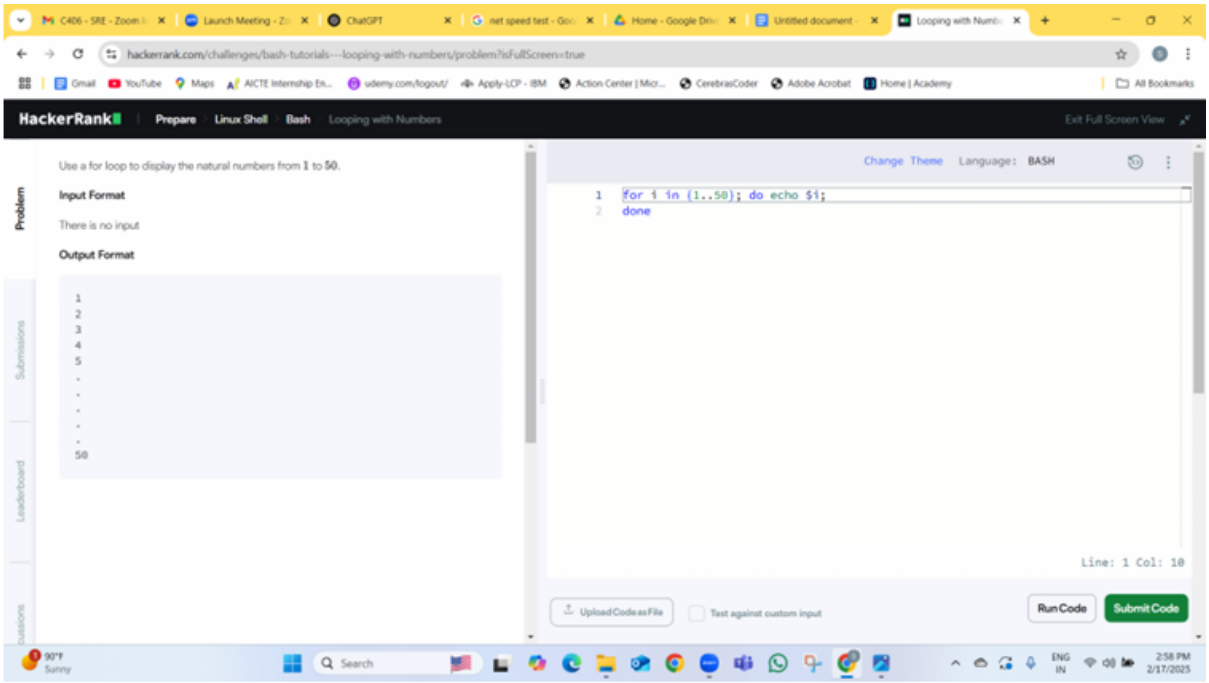
SHOW DATABASES;

Questions on hackerrank:-






HackerRank
Prepare
Linux Shell
Bash
A Personalized Echo
Exit Full Screen View
Problem
Write a Bash script which accepts name as input and displays the greeting "Welcome (name)"
Input Format
There is one line of text, name.
Output Format
One line: "Welcome (name)" (quotation marks excluded).
The evaluation will be case-sensitive.
Sample Input 0
Dan
Sample Output 0
Welcome Dan
Sample Input 1
Prashant
Sample Output 1
Change Theme
Language: BASH
read name
echo "Welcome $name"
Line: 2 Col: 20
Upload Code as File
Test against custom input
Run Code
Submit Code


HackerRank
Prepare
Linux Shell
Bash
Looping with Numbers
Exit Full Screen View
Problem
Use a for loop to display the natural numbers from 1 to 50.
Input Format
There is no input
Output Format
1
2
3
4
5
.
.
.
.
.
50
Change Theme
Language: BASH
for i in {1..50}; do echo $i;
done
Line: 1 Col: 10
Upload Code as File
Test against custom input
Run Code
Submit Code