Day 7 - Introduction to Virtualization and VirtualBox

Date: 2/07/25

📝 **Summary of the Session:**

On Day 7, Sir introduced us to the concept of **Virtualization** – a fundamental technology used in cybersecurity, ethical hacking, and network security testing. The main focus was on understanding what virtualization is, its advantages, and the tools used to implement it.

Key Concepts Discussed:

- **What is Virtualization?**
  Virtualization is the process of creating a virtual version of a computer system, including hardware platforms, storage devices, and network resources.
- **Benefits of Virtualization:**
  - Allows multiple OS to run on a single physical machine.
  - Better resource utilization.
  - Isolates environments for testing and development.
  - Essential for creating safe hacking/sandbox environments.
- **Types of Virtualization:**
  - Hardware Virtualization
  - Software Virtualization
  - OS-level Virtualization
  - Storage and Network Virtualization
- **Tool Introduced: VirtualBox**
  - A free and open-source hosted hypervisor developed by Oracle.
  - Enables users to run multiple operating systems on their host system.

Live Demo:
Sir demonstrated how to:

- Download and install VirtualBox.
- Download ISO files for Linux distributions (e.g., Kali Linux, Ubuntu).
- Create a new virtual machine.
- Allocate RAM, storage, and choose the ISO to boot the VM.

Day 8 - Commands in Virtual Environment + Task Assigned

Date: 3/07/25

📝 **Summary of the Session:**

Day 8 was focused on practical implementation. Sir taught us some important Linux commands inside a virtual machine and explained their use in real cybersecurity scenarios. We also learned how to interact with a virtual OS from our host machine.

Commands Practiced in VM (Linux Environment):

- pwd – Show current directory.
- ls – List files and folders.
- cd – Change directory.
- mkdir – Create new directory.
- touch – Create a file.
- rm – Delete files or folders.
- sudo – Execute commands with root privileges.
- apt-get update – Update package lists.
- apt-get install [package_name] – Install software packages.

Networking Commands:

- ifconfig / ip a – View IP address and network configuration.
- ping [website] – Check connectivity.
- netstat – View network status and open ports.

🔧 **Task Given by Sir:**

Each student must **set up their own virtual environment** on their personal system. The setup should include:

- Installation of VirtualBox.
- Setting up at least one Linux-based VM (preferably Kali Linux or Ubuntu).
- Taking a screenshot of the running VM and submitting it as proof.
- Running basic commands inside the VM and documenting them.

📝 **Learning Outcome:**

- Understood how virtualization helps in ethical hacking and security testing.
- Gained confidence in using Linux commands within a virtual environment.

- Learned how to set up a safe and isolated lab for cybersecurity practice.