Practical Work 1: Discovering Linux

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Introduction

This practical work aims to introduce students to the Linux operating system through hands-on practice. You will install Linux in a virtual environment and learn how to use and configure it.

1 Installing a Linux Distribution in a Virtual Machine

Objective

To understand how an operating system is installed and to experiment safely without affecting your main system.

Step 1: Choose a Linux Distribution (45 min)

Recommended distributions:

- Ubuntu (simple and very popular)
- Linux Mint (similar to Windows and very user-friendly)

Download the ISO file from the official website:

- Ubuntu: `https://ubuntu.com/download`
- Linux Mint: `https://linuxmint.com/download.php`

Step 2: Install Virtual Machine Software (5 min)

Download VirtualBox (free and easy to use):
`https://www.virtualbox.org`

- Download → Windows hosts
- Install the .exe file
- Follow: Next → Next → Install
- Click **Yes** when prompted during installation

Step 3: Create the Virtual Machine

- Open VirtualBox
- Click on **New**
- Name: Linux_Ubuntu
- Type: Linux
- Version: Ubuntu (64-bit)
- Select the downloaded ISO file

- Memory (RAM): Minimum 2 GB (4 GB recommended)
- Create a virtual hard disk

Start the virtual machine and follow the installation process (language, keyboard, user account, etc.).

Linux is now installed successfully.

2 Basic Configuration and System Customization

System Update

Open the Terminal and type:

```
sudo apt update
sudo apt upgrade
```

Customization

- Change the wallpaper
- Modify theme and icons (Settings → Appearance)

Optional tool:

```
sudo apt install gnome-tweaks
```

Installing Useful Software (Optional)

```
sudo apt install vlc gedit curl git
```

3 Navigating the Linux Interface

Main Elements

- Top bar: time, network, battery
- Applications menu
- File manager (Nautilus)

Important Folders

- /home → User files
- /Documents, /Downloads
- /etc → System configuration
- /bin → Essential commands

4 Using Basic Commands (Terminal)

Essential Commands

```
pwd         # Show the current path
ls          # List files
cd          # Change directory
mkdir       # Create a directory
rm          # Delete a file
cp          # Copy
mv          # Move / rename
```

Examples

```
cd Documents
mkdir test
cd test
touch file.txt
ls
```

Learning Outcomes

At the end of this practical work, you will be able to:

- Install Linux in a virtual environment
- Perform basic system configuration
- Navigate the Linux interface
- Use essential terminal commands