Summary Report – Network Simulation Lab

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Course:ICTAK – Network Simulation Lab

Lab Topic: Getting Started with Network Simulations using GNS3

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1. Introduction

This lab focused on learning the basics of network simulation using GNS3 on Ubuntu. The objective was to install GNS3, create simple switch-based topologies without routers, assign IP addresses, test connectivity, export portable projects, and publish the work in a GitHub repository.

2. Environment Setup

GNS3 was successfully installed on Ubuntu, and the Local Server/GNS3 VM was verified to be running (green status). A screenshot was captured as proof of successful installation. The GNS3 dashboard displayed available devices and confirmed proper system configuration.

3. Network Topologies

Topology 1 – Simple LAN (2 PCs + 1 Switch)

A basic LAN was built with two PCs connected to a single switch.

Both PCs were assigned IP addresses from the same subnet.

Connectivity was confirmed using **ping**, showing successful communication between PC1 and PC2.

Topology 2 – Star Topology (4 PCs + 1 Switch)

Four PCs were connected to a central switch forming a star topology.

All PCs received IP addresses in the same subnet.

Ping tests were performed from PC1 to PC2, PC3, and PC4, confirming full connectivity.

Topology 3 – Multi-Switch Mesh (3 Switches + 3 PCs)

Three switches were interconnected in a loop (SW1 ↔ SW2 ↔ SW3 ↔ SW1).

Each switch had one PC connected and all PCs were assigned IPs from the same subnet.

End-to-end testing was performed, and all PCs successfully communicated across the mesh.

4. Project Export

Each topology was saved as an individual GNS3 project.

All projects were exported using File → Export → Portable Project to ensure compatibility and easy submission.

5. GitHub Repository Submission

A public GitHub repository named NetworkSimLab-Megha Siju was created.

The following were uploaded:

* Portable project folders (all 3 topologies)

* Screenshots of GNS3 installation

* Screenshots of all topologies

* Ping result screenshots

* Summary report

6. Conclusion

This lab successfully demonstrated the fundamentals of network simulation using GNS3, including installation, topology creation, IP configuration, and connectivity testing. Additionally, the assignment reinforced documentation and version-control skills using GitHub.