

DR. B.C. ROY ACADEMY OF PROFESSIONAL COURSES



(FORMERLY DR B.C. ROY ENGINEERING
COLLEGE) DURGAPUR | AFFILIATED TO
MAKAUT

“NETWORK ADMINISTRATOR”

Project Guide: Dr. Ratnakirti Roy

Submitted by:

SHALU LAHA (32301221077)

ARUP DUTTA (32301221027)

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1. INTRODUCTION

A network administrator plays a crucial role in managing and maintaining an organization's computer networks. A network administrator typically manages an organization's network and is responsible for: installing, monitoring, troubleshooting, and upgrading network infrastructure, including both hardware and software components. With expertise in hardware, software, and security protocols, network administrators are essential in facilitating smooth communication and data flow within an organization's IT environment.

2. PROJECT OBJECTIVE

- Implements IP fetching modules to assign and manage network addresses efficiently.
- Utilizes port scanning modules to identify open ports , identify potential vulnerabilities, and assess network security.
- Deploys bandwidth scanning modules for monitoring and optimizing network data transfer rates.
- Implements port scanning modules to identify potential vulnerabilities, enhancing network security.
- Enhances overall network efficiency by leveraging real-time data from the three modules.

3. DESIGN

3.1 REQUIRMENT

HARDWARE

Memory : Minimum 4 GB or above.

Processor : 2.20 GHz or Higher.

Hard Disk Drive : 4 GB or Higher.

SOFTWARE

Platform

Integrated Development Environment (IDE) :

Visual Studio Code

Language

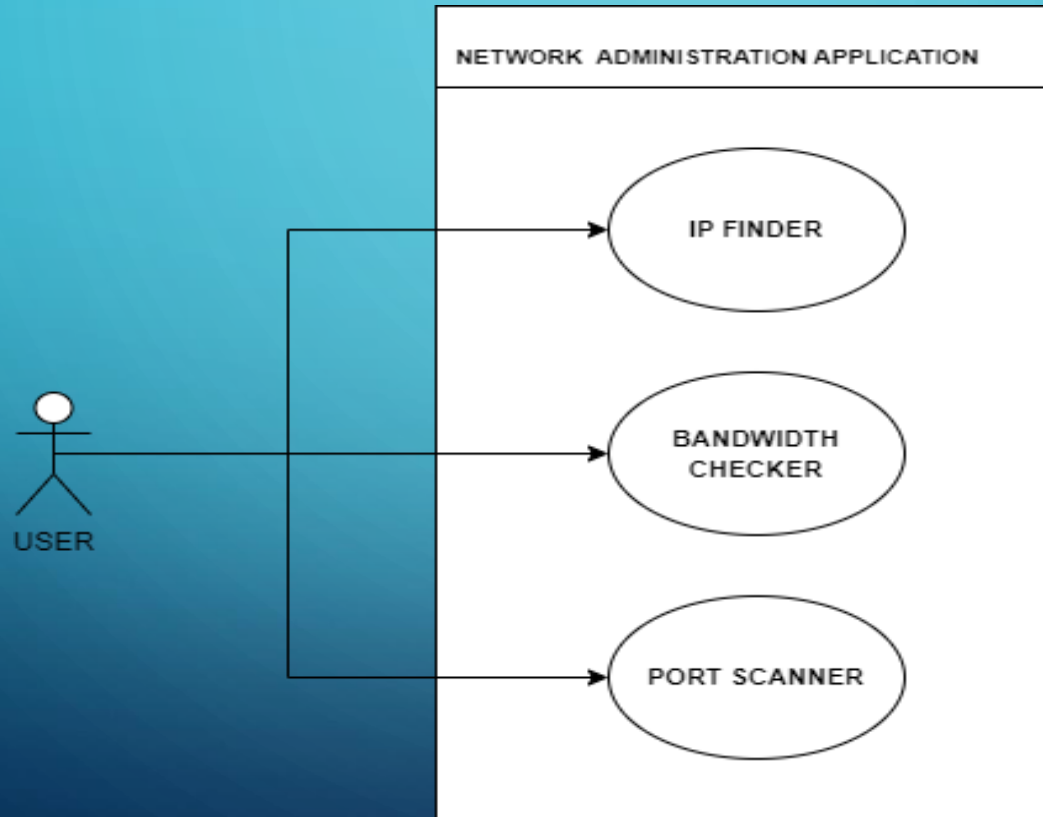
Python

3.2 MODULES

- **IP FINDER** : The purpose of an IP finder is to identify and display the IP addresses of devices or hosts those are connected in a same network.
- **PORT SCANNER** : The purpose of a port scanner is to identify open ports on a network or host, helping assess security and services.
- **BANDWIDTH CHECKER** : The purpose of a bandwidth checker is to measure and assess the network's data transfer capacity, also file downloading and uploading speed , ensuring efficient and optimal internet performance.

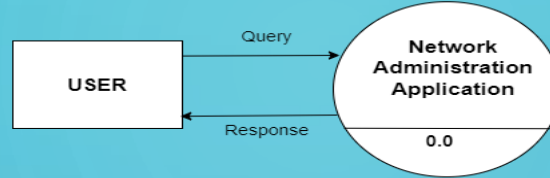
3.3 LOGICAL DESIGN

- USE CASE DIAGRAM

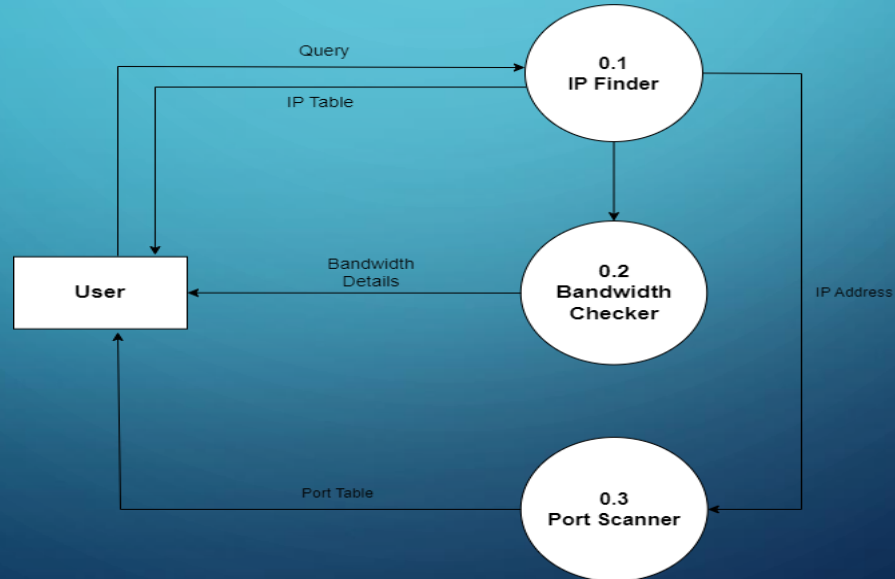


DFD DIAGRAM (DATA FLOW DIAGRAM)

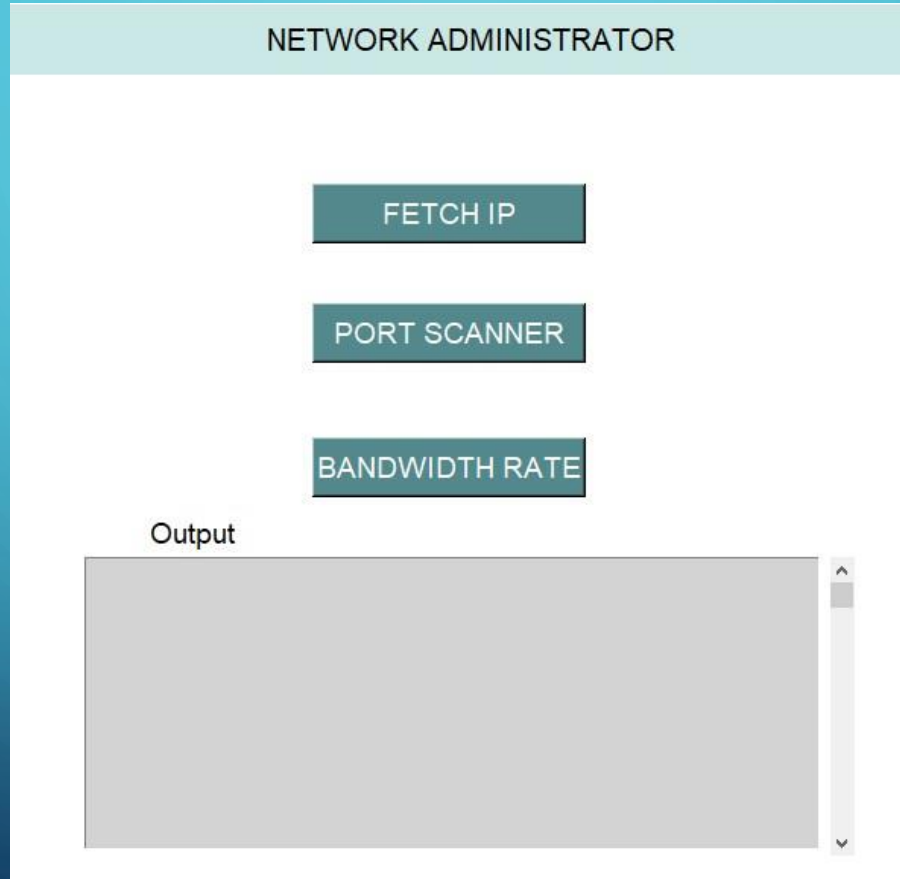
Level 0 DFD



Level 1 DFD



4. MAIN PROJECT INTERFACE



5. TESTING (BLACK BOX)

MODULES	INPUT	EXPECTED OUTPUT	OBSERVED OUTPUT	RESULTS
Fetch Ip	Correct ip	List Of ip Address	List Of ip Address	Pass
	Wrong ip	Empty List	Empty List	
Port Scanner	Correct ip	List of Ports	List of Ports	Pass
	Wrong ip	Empty List	Empty List	
Bandwidth Rate	Correct ip	List of Bandwidth Details	List of Bandwidth Details	Pass
	Wrong ip	Empty List	Empty List	

6. CONCLUSION

In conclusion, a Network Administrator, armed with the modules for IP fetching, port scanning, and bandwidth scanning, plays a pivotal role in ensuring the efficiency, security, and optimal performance of computer networks. By dynamically managing IP addresses, identifying potential vulnerabilities through port scanning, and optimizing data transfer speeds with bandwidth scanning, they create a robust network infrastructure. A Network Administrator, using tools like IP fetching, port scanning, and bandwidth scanning, is like a digital guardian ensuring our internet connections are smooth, safe, and fast.

The image features a blue gradient background with white circuit-like lines in the corners. These lines consist of small circles connected by straight lines, resembling a network or data flow diagram. The lines are positioned in the top-left, top-right, bottom-left, and bottom-right corners, framing the central text.

THANK YOU