FINAL PROJECT REPORT

ON

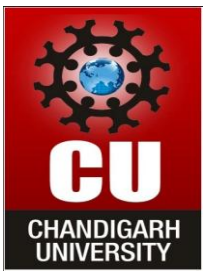
Campus Architecture

Submitted for the requirement of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE & ENGINEERING



Submitted to :

Miss. Pooja Kaplesh

Submitted By(18/A) :-

Ravi Anand(18BCS6553)

Shourya Tayal(18BCS6566)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CHANDIGARH UNIVERSITY, GHARUAN

CERTIFICATE

This is to certify that the work embodied in this Project Report entitled "Campus Architecture " being submitted by "**RAVI ANAND(18BCS6553) & SHOURYA TAYAL(18BCS6566) "** , 5th Semester for fully fulfillment of the requirement for the degree of " Bachelor of Engineering in Computer Science & Engineering " discipline in " Chandigarh University " during the academic session August-Dec 2020 is a record of bonafide piece of work, carried out by student under my supervision and guidance in the " Department of Computer Science & Engineering ", Chandigarh University.

DECLARATION

I, student of **Bachelor of Engineering** in **Computer Science & Engineering, 5th Semester** , **session: Aug – Dec 2020, Chandigarh University,** hereby declare that the work presented in this Project Report entitled **"Campus Architecture"** is the outcome of my own work, is bona fide and correct to the best of my knowledge and this work has been carried out taking care of Engineering Ethics. The work presented does not infringe any patented work and has not been submitted to any other university or anywhere else for the award of any degree or any professional diploma**.**

ABSTRACT

Security has been a pivotal issue in the design and deployment of an enterprise network. With the innovation and diffusion of new technology such as Universal computing, Enterprise mobility, E-commerce and Cloud computing, the network security has still remained as an ever increasing challenge. A Campus network is an important part of campus life and network security is essential for a campus. Campus network faces challenges to address core issues of security which are governed by network architecture. Secured network protects an institution from security attacks associated with network. A university network has a number of uses, such as teaching, learning, research, management, e-library, result publishing and connection with the external users. Network security will prevent the university network from different types of threats and attacks. The theoretical contribution of this study is a reference model architecture of the university campus network that can be followed or adapted to build a robust yet flexible network that responds to the next generation requirements. A hierarchical architecture of the campus network is configured with different types of security issues for ensuring the quality of service. In this project, a tested and secure network design is proposed based on the practical requirements and this proposed network infrastructure is realizable with adaptable infrastructure.

Keywords—Campus Network, Security, WAN, Security Threats, Network Attacks, VPN, VLAN, Firewall.

Project Description

INTRODUCTION

The increase in the computer network system has exposed many networks to various kinds of internet threats and with this exposure.
Campus network is essential and it plays an important role for any organization. Network architecture and its security are as important as air, water, food, and shelter. Computer network security threat and network architecture are always serious issues. A campus network is an autonomous network under the control of a university which is within a local geographical place and sometimes it may be a metropolitan area network The network infrastructure design has become a critical part for some IT organizations in recent years. An
important network design consideration for today's networks is creating the potential to support future expansion in a reliable, scalable and secure manner. This requires the designer to define the client's unique situation, particularly the current technology, application, and data architecture. University Management and IT manager may know exactly what kind of network they

want to set up, upcoming plans, and expected growths. Contingencies for future area, power, and other resource must be part of the physical plan of a university. Building a contemporary university network atmosphere also contains functional and safety elements
skills.

BACKGROUND

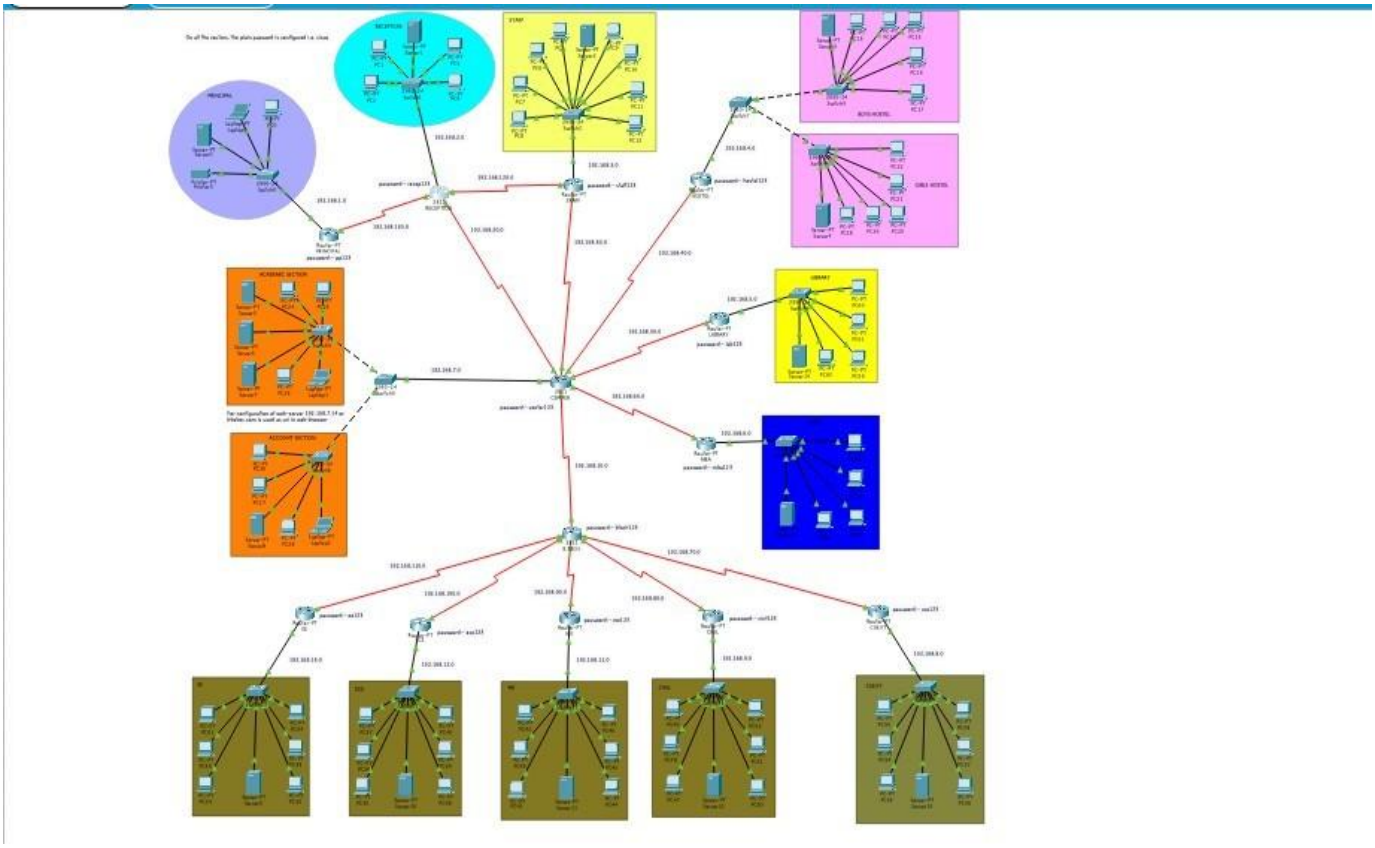
There are various types of network such as Personal Area Network (PAN), Local Area Network (LAN), Metropolitan Area Network (MAN), Campus Area Network (CAN), Storage Area Network (SAN) and Wide Area Network (WAN).

IMPLEMENTATION

This is the project of campus architecture. In this project I have connected different department using router. I have created different departments I.e. Reception, Principal, Hostels(boys and girls), Staffs, Library, MBA, Academic section and Account section and connected the departments with the help of router.

There is a central router from which which I have connected different engineering departmentI.e. CSE/IT, ME, ECE, Civil, EE in common router. There are different numbers of system of each department and I have defined different user and for each user I have used different email configure. I have created different password for each department and even configure the password for different routers. When I want to check the configure of router firstly I will select router then will write command Router, then will write enable and give password which has been assigned for that router and after that to check configuration I will write show run command and from this I will check all the router's configuration. I have connected all the router through eigrp. I have put a access limit in hostel department which will help to deny the whole hostel's communication from another departments for security purpose. So I have done 100% of this project.

This is the overview of Campus Architecture



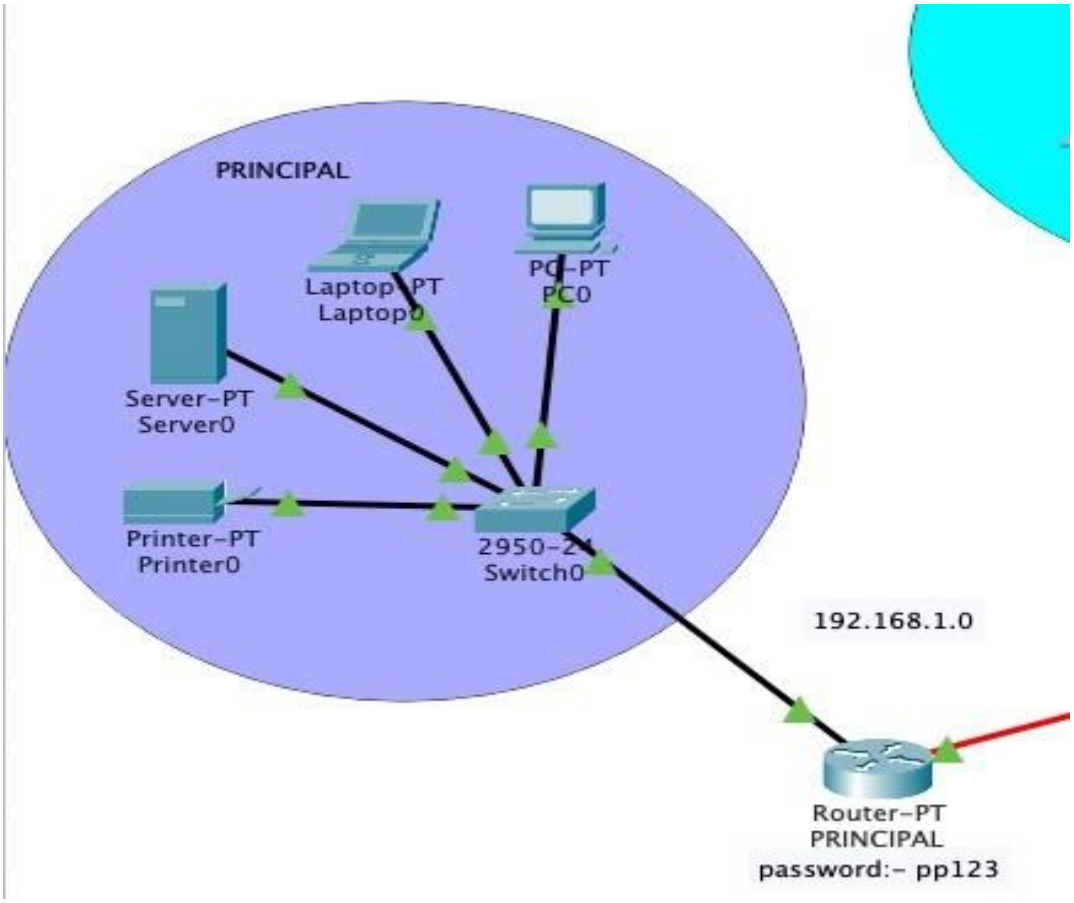
OUTPUT VALIDATION AND COMPARISON

There are total 8 sections which is Principal, Reception, Staff, Hostel, MBA department, Library, B.tech and two another section which connected from the common switch which is Academic section and Account section. In Hostel section I have divide it in two parts boys hostel and girls hostel. In hostel section, I have put a access limit which will help to deny the whole hostel's communication from another departments for security purpose. I have connected all the departments with common router which is center. In b.tech section, there are total 5 departments

I.e. CSE/IT, ME, ECE, Civil, EE. I have given IP address of all the sections. On all the routers, the plain password is configured i.e. cisco. I have given all the departments and sections to individual passwords. For configuration of Ib-server 192.168.7.14 or bbsbec.com is used as uri in Ib browser.

The sections and departments with IP address and password are as follow: -

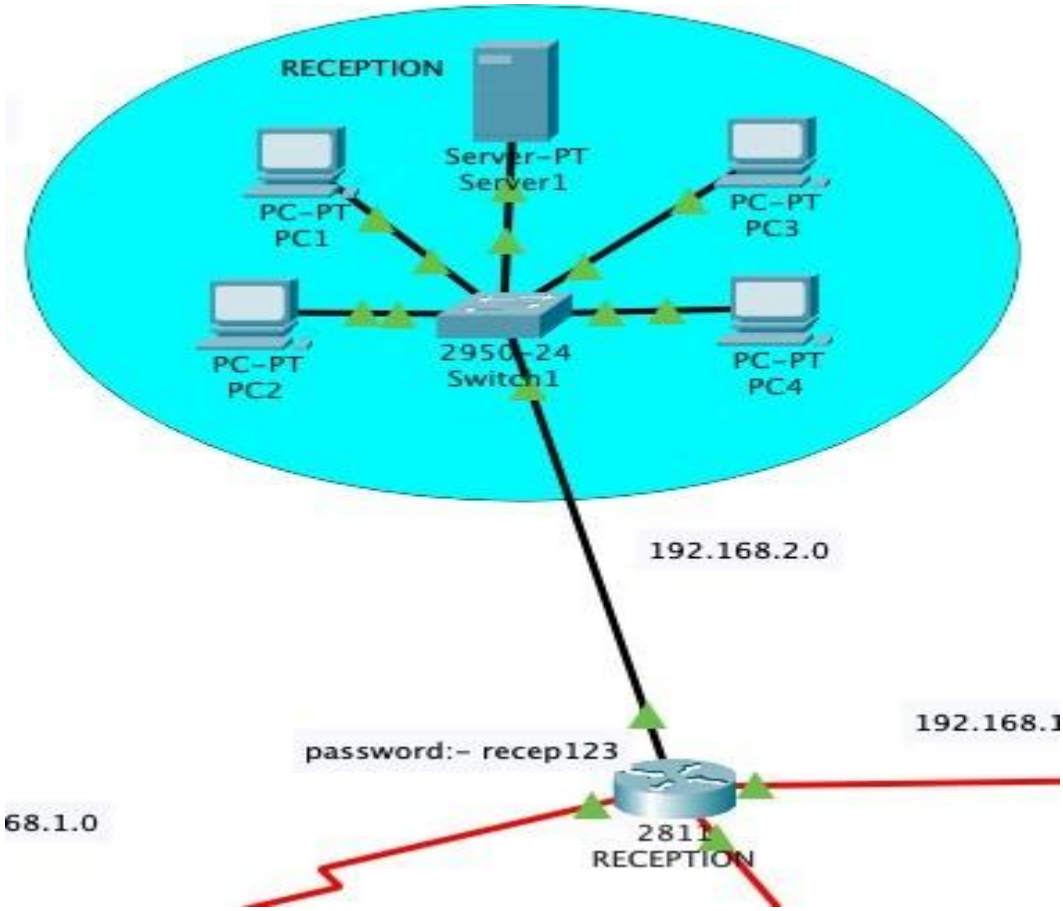
1. ***PRINCIPAL SECTION*** **:-**



IP address: - 192.168.1.0

Password: - pp123

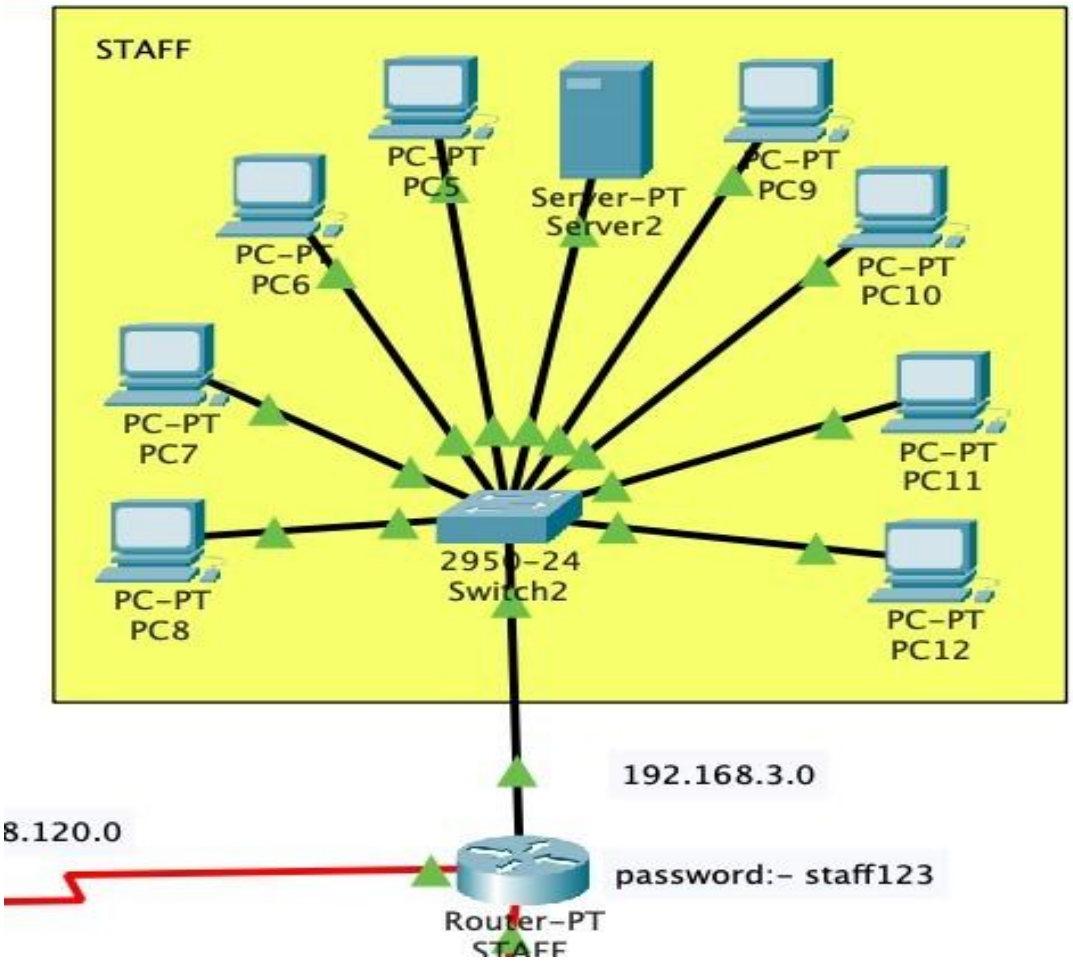
2. ***RECEPTION SECTION:*** **-**



IP address: - 192.168.2.0

Password: - recep123

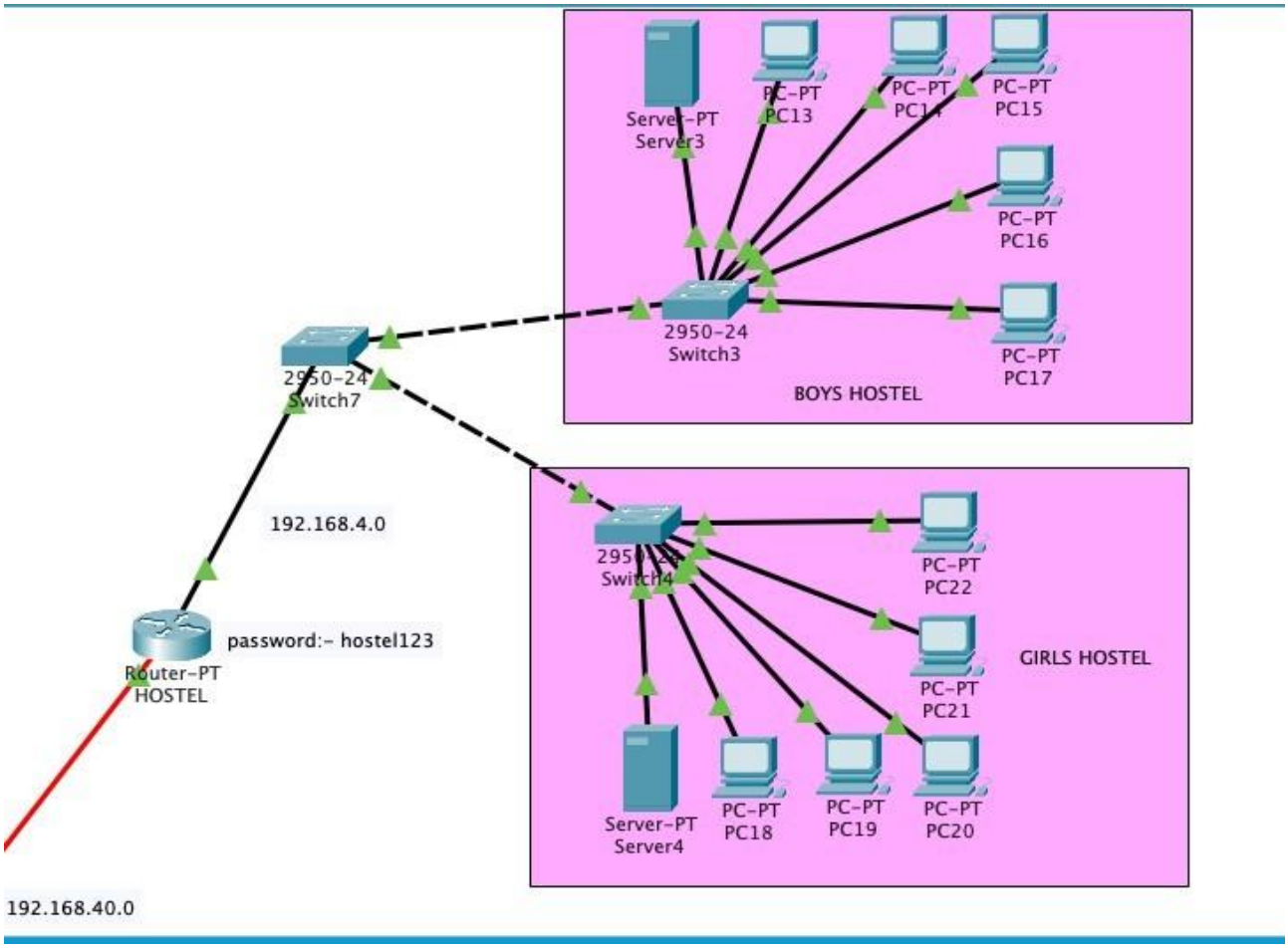
3. ***<u>STAFF SECTON</u>: -***



IP address:- 192.168.3.0

Password: - staff123

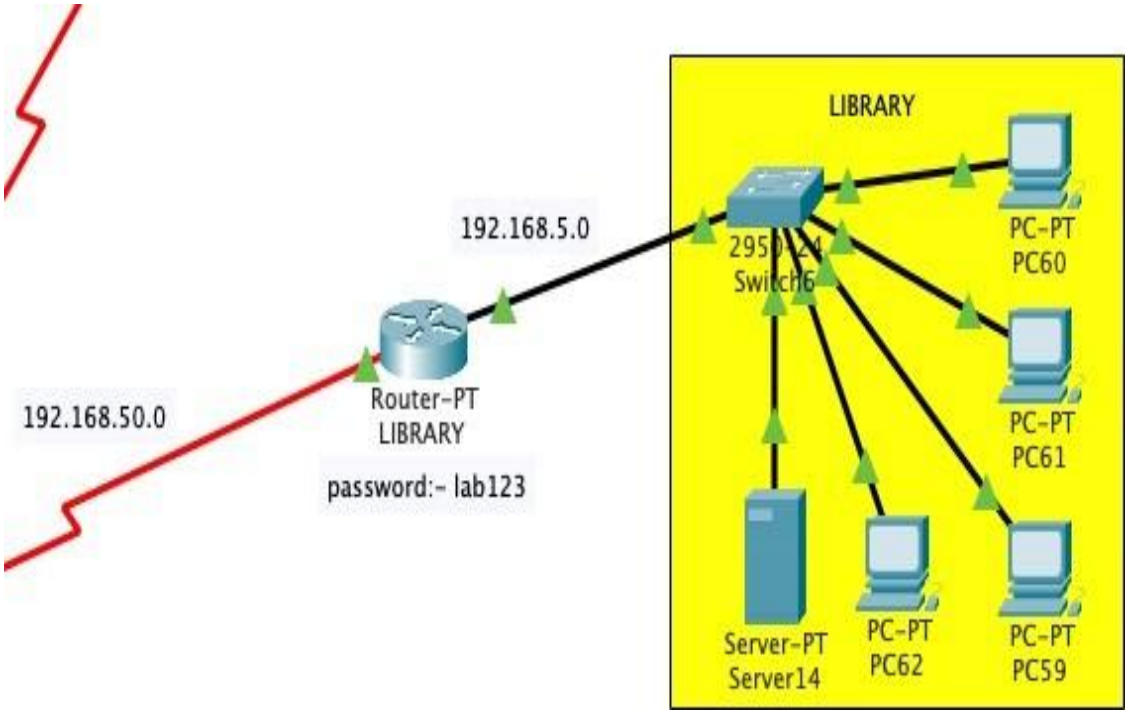
4. ***HOSTEL SECTION*: -**



IP address:- 192.168.4.0

Password: -hostel123

5. ***LIBRARY SECTION*: -**

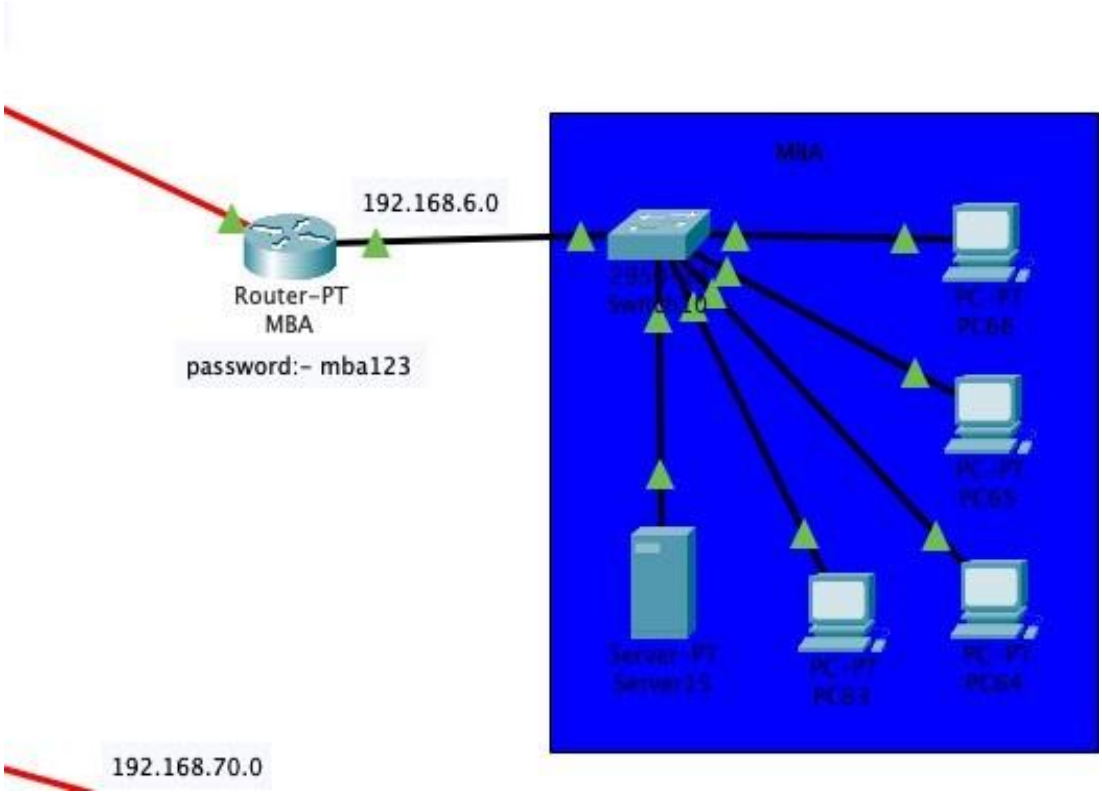


IP address:-

192.168.5.0

Password:- lab123

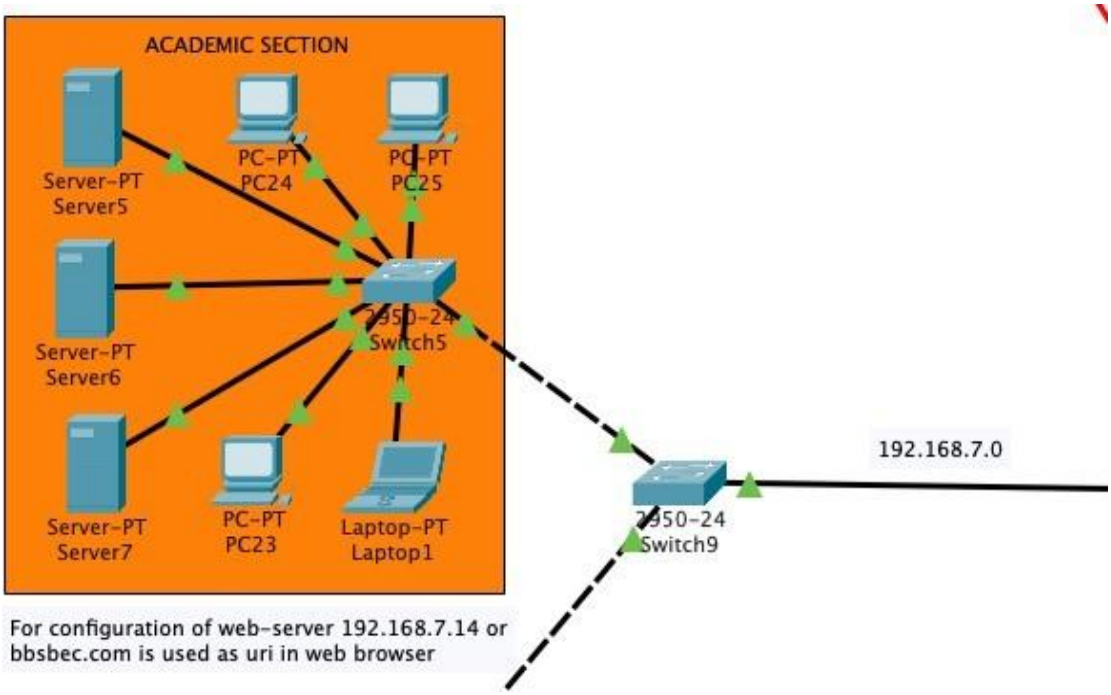
6. ***MBA DEPARTMENT*: -**



IP address: - 192.168.6.0

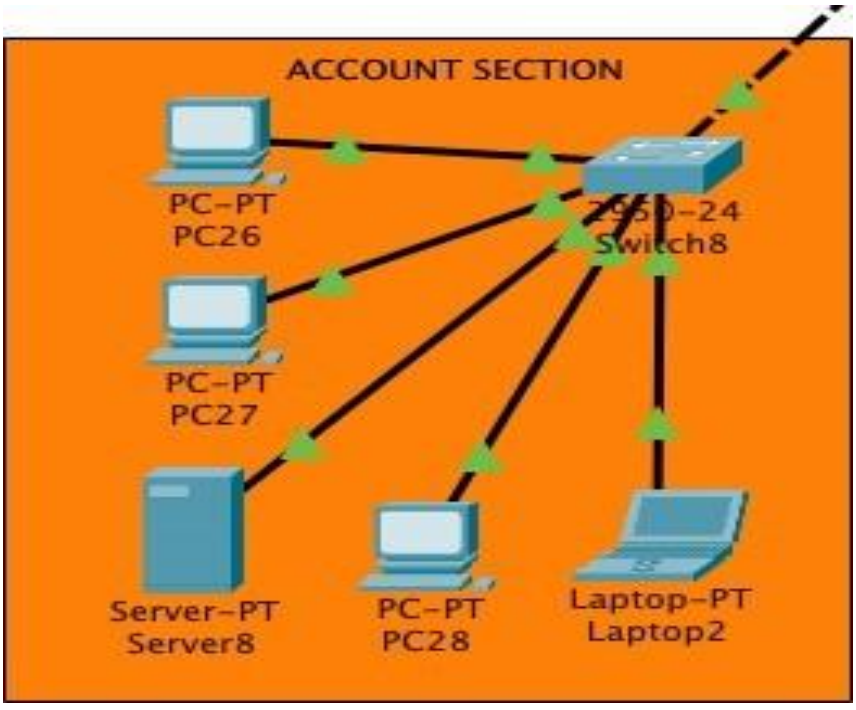
Password: - mba123

7. ***ACADEMIC SECTION*: -**



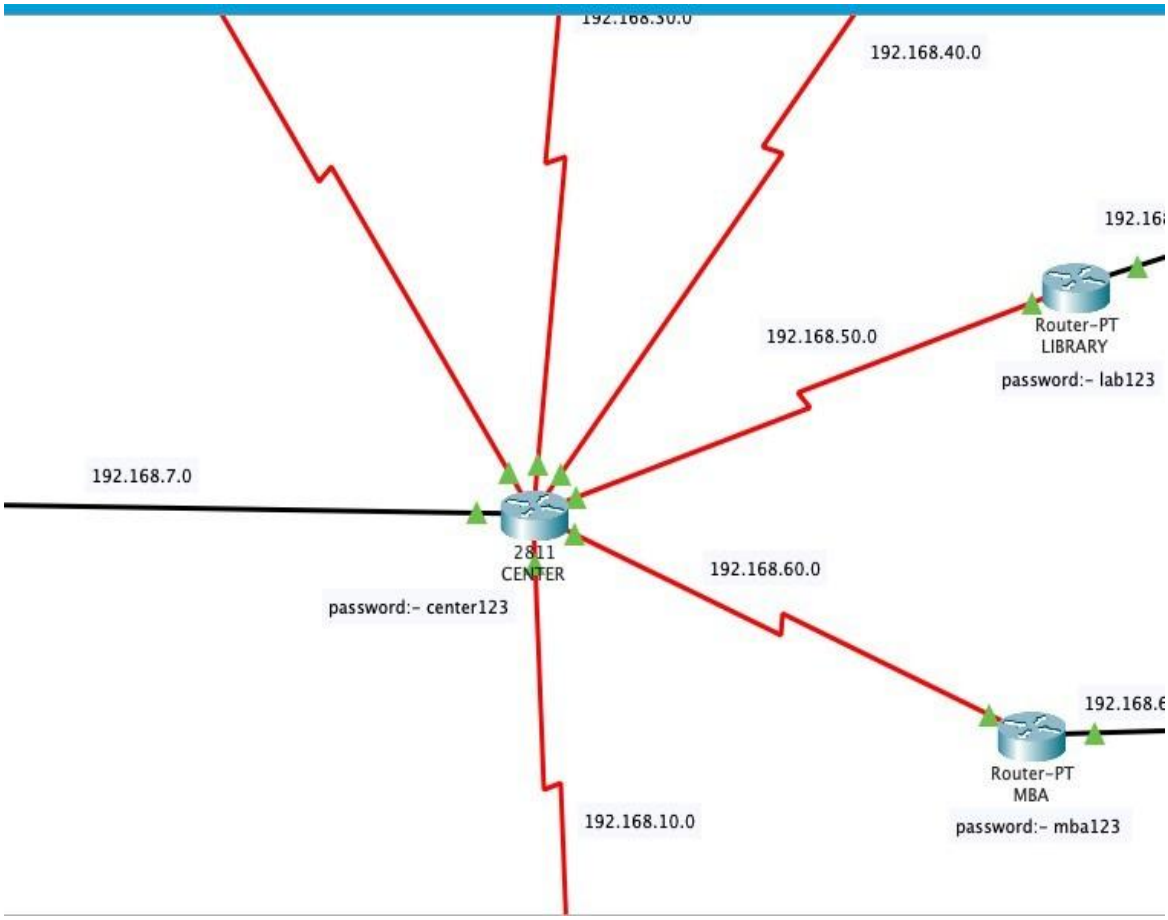
IP address: - 192.168.7.0

8. ***ACCOUNT SECTION*: -**



IP address: - 192.168.7.0

9. ***CENTER ROUTER:*** -

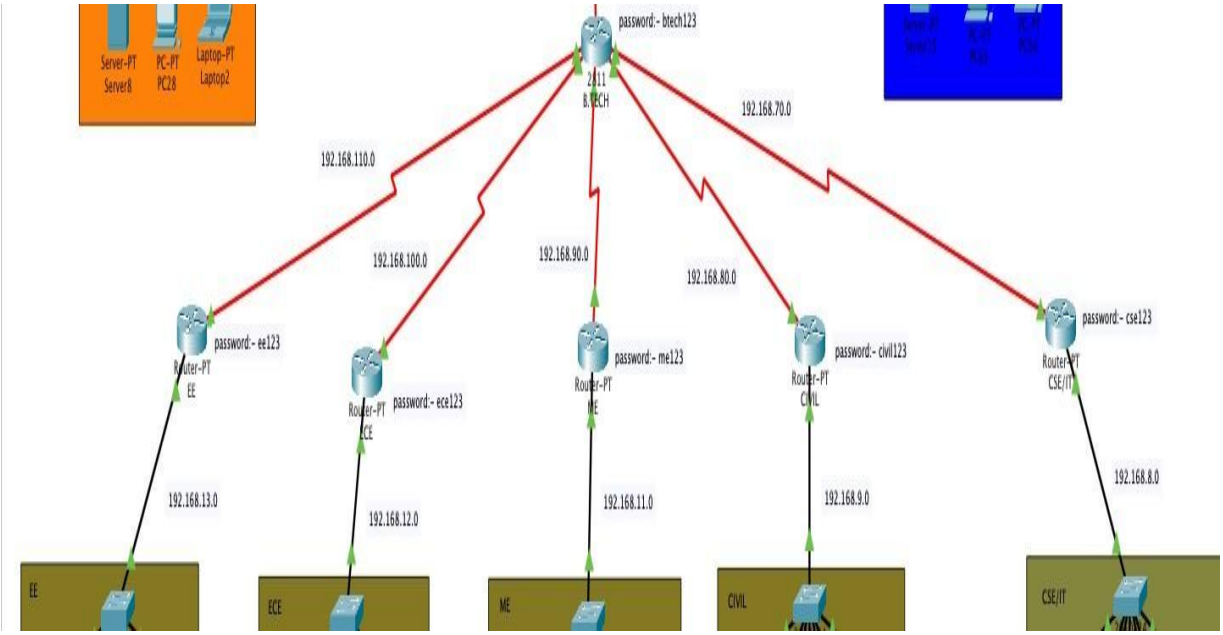


IP address with Reception: - 192.168.20.0 IP address with Staff: - 192.168.30.0

IP address with Hostel: - 192.168.40.0 IP address with Library: - 192.168.50.0 IP address with MBA: -

192.168.60.0 IP address with B.tech: - 192.168.10.0 Password: - center123

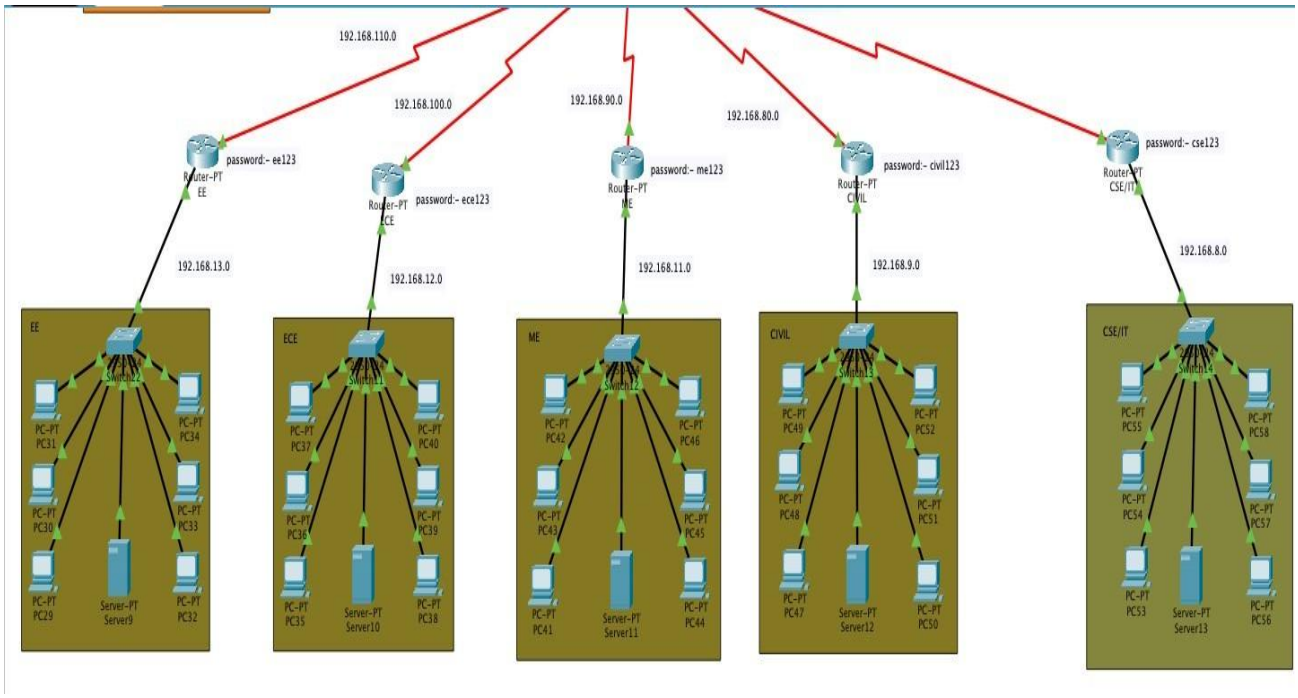
10. <u>B.tech DEPARTMENT</u>: -



IP address with CSE/IT department: - 192.168.70.0 IP address with Civil department: - 192.168.80.0 IP address with ME department: - 192.168.90.0

IP address with ECE department: - 192.168.100.0 IP address with EE department: - 192.168.110.0

11. <u>ENGINEERING DEPARTMENTS</u>: -



IP address of CSE/IT:- 192.168.8.0 Password of CSE/IT: - cse123

IP address of Civil: - 192.168.9.0 Password of Civil: - civil123

IP address of ME: - 192.168.11.0 Password of ME: - me123

IP address of ECE: - 192.168.12.0 Password of ECE: - ece123

IP address of EE: - 192.168.13.0 Password of EE: - ee123