East West University

Project Report

Course Code: CSE405

Course Title: Computer Networks

Project Name : Design a full-fledged network for an organization with multiple subnets.

Submitted to:

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INDTRODUCTION:

A network is nothing but a system of interconnected things. In a computer network a lot of devices like PC, Laptop, router, switch etc. are interconnected with cables like Ethernet cable, optical fiber cable or sometime via wireless communication system and communicate with each other.

Statement:

In this project, for 'International Apollo University' I have designed and developed a full-fledged network by using components like: routers, switches, WEB server, DHCP server, DNS server. This network is built to support the university with the process like advising, admission, library, e-tender etc.

Tools:

Cisco Packet Tracer version 7.2.1

Implementation:

The network address for all the six campuses of International Apollo University are:

1. 192.168.10.0 Gateway: 192.168.10.254
2. 192.168.20.0 Gateway: 192.168.20.254
3. 192.168.30.0 Gateway: 192.168.30.254
4. 192.168.40.0 Gateway: 192.168.40.254
5. 192.168.50.0 Gateway: 192.168.50.254
6. 192.168.60.0 Gateway: 192.168.60.254

Here I have used only C type IP addresses as there are not a lot of hosts in the network I have designed.

Diagram:

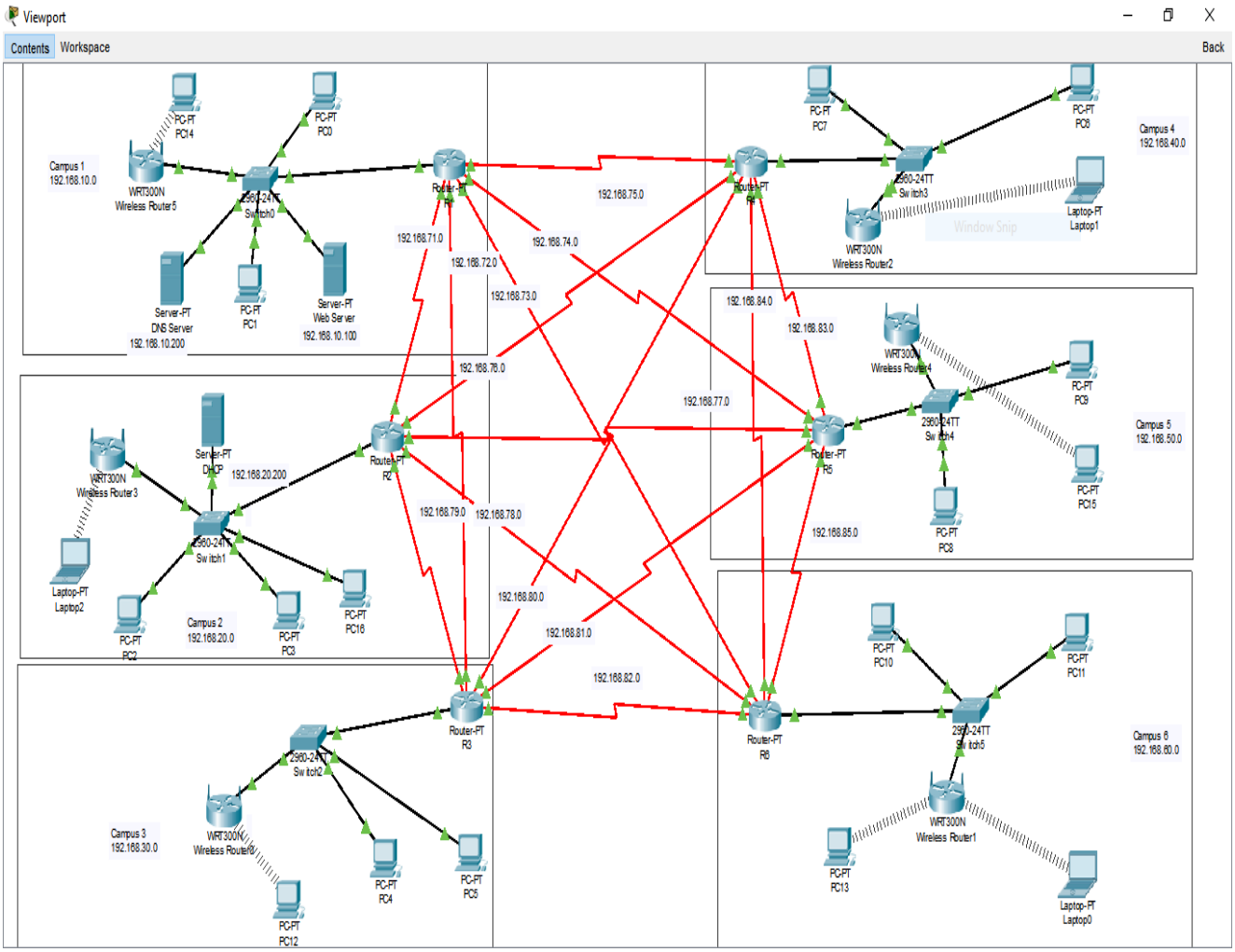

Fig1 : Full-fledged network of Apollo International University

Here all the hosts are connected through switches, routers etc. All the hosts can access the university web page using www.apollointernational.edu URL and can fill the requirementof advising, amission, library . A host from campus one can communicate with other host of campus four easily. As well as all the host can communcate with each other through the network.

Mesh network:

All the routers are interconnected through a mesh connection. As a result is becomes easier for all the hosts to communicate with each other and can have their website related faicilities.

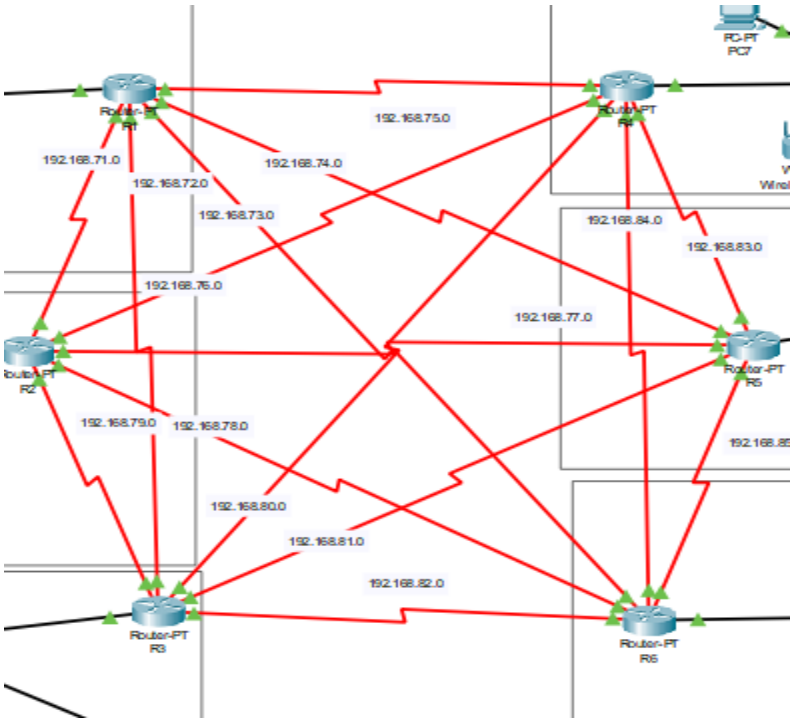

Fig2 : Mesh Connection of all the campuses

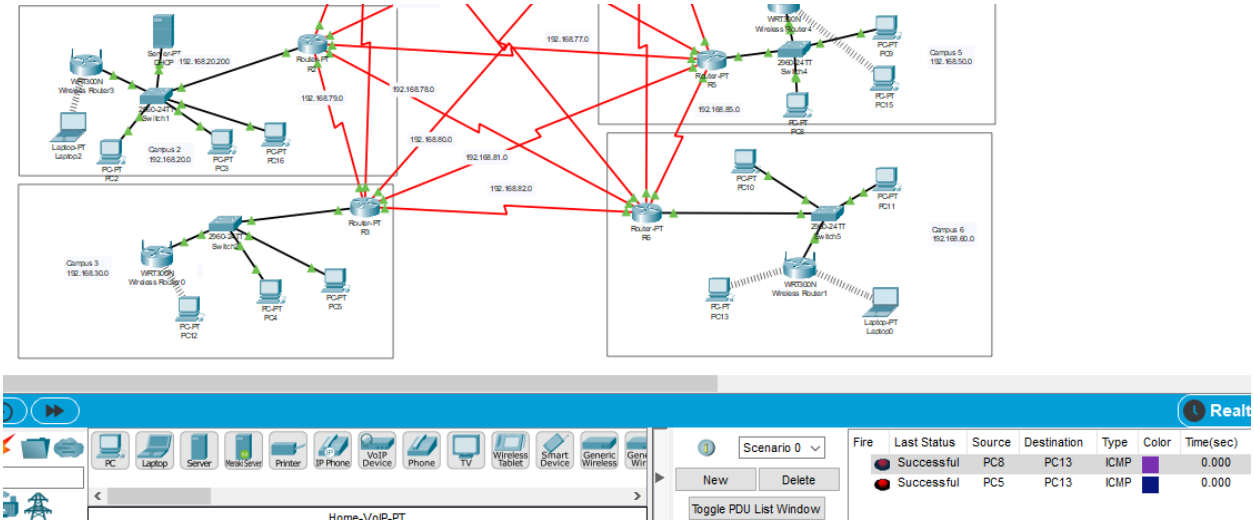

Fig3: Successful communication between two host

Configuration of servers :

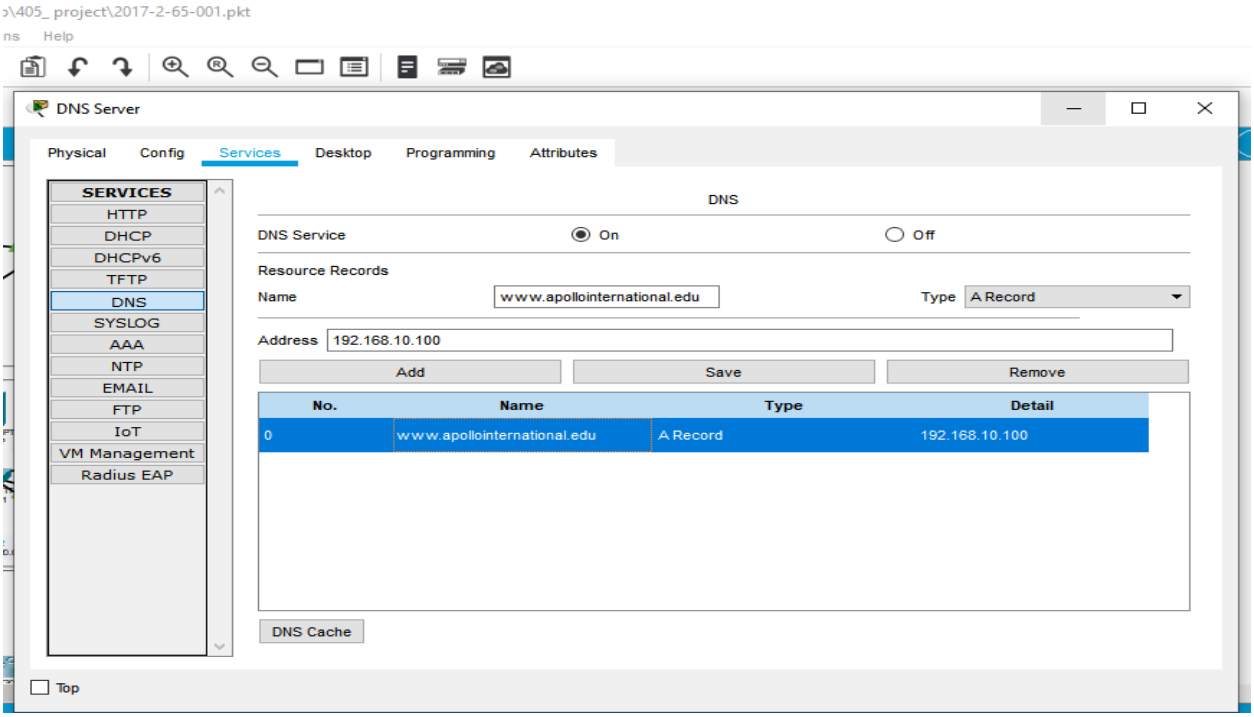

Fig4: DNS server

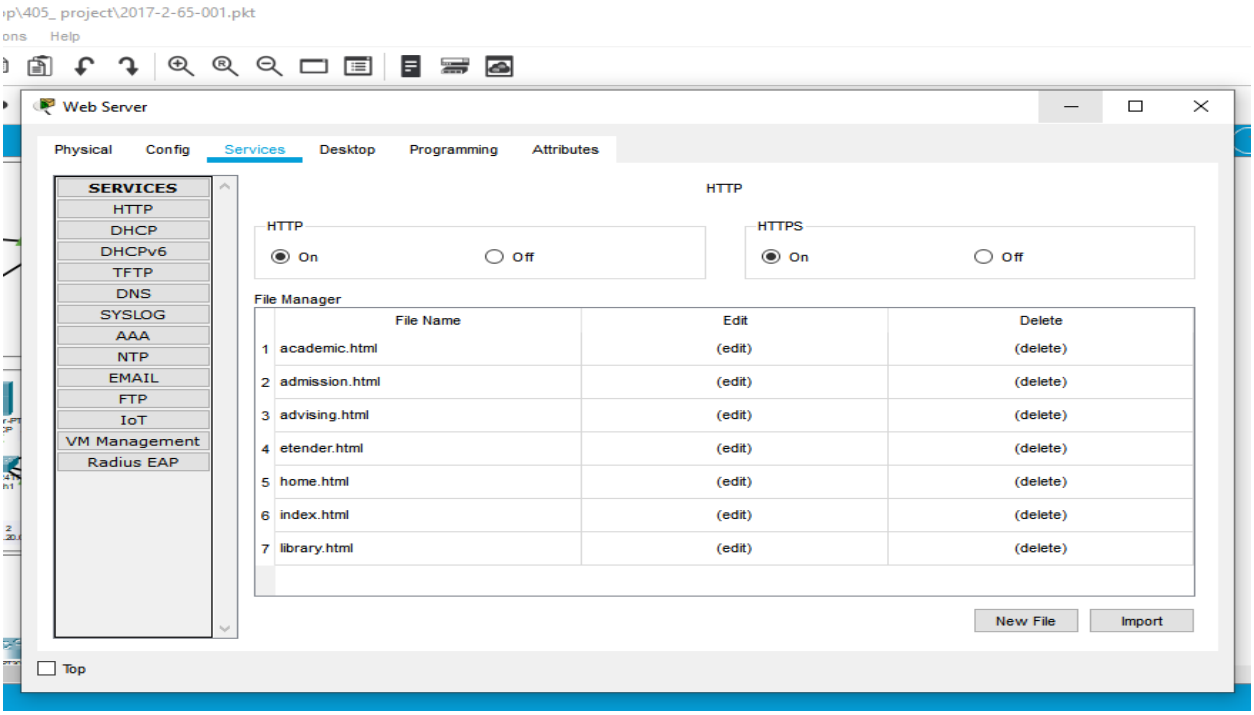

Fig 5:WEB server

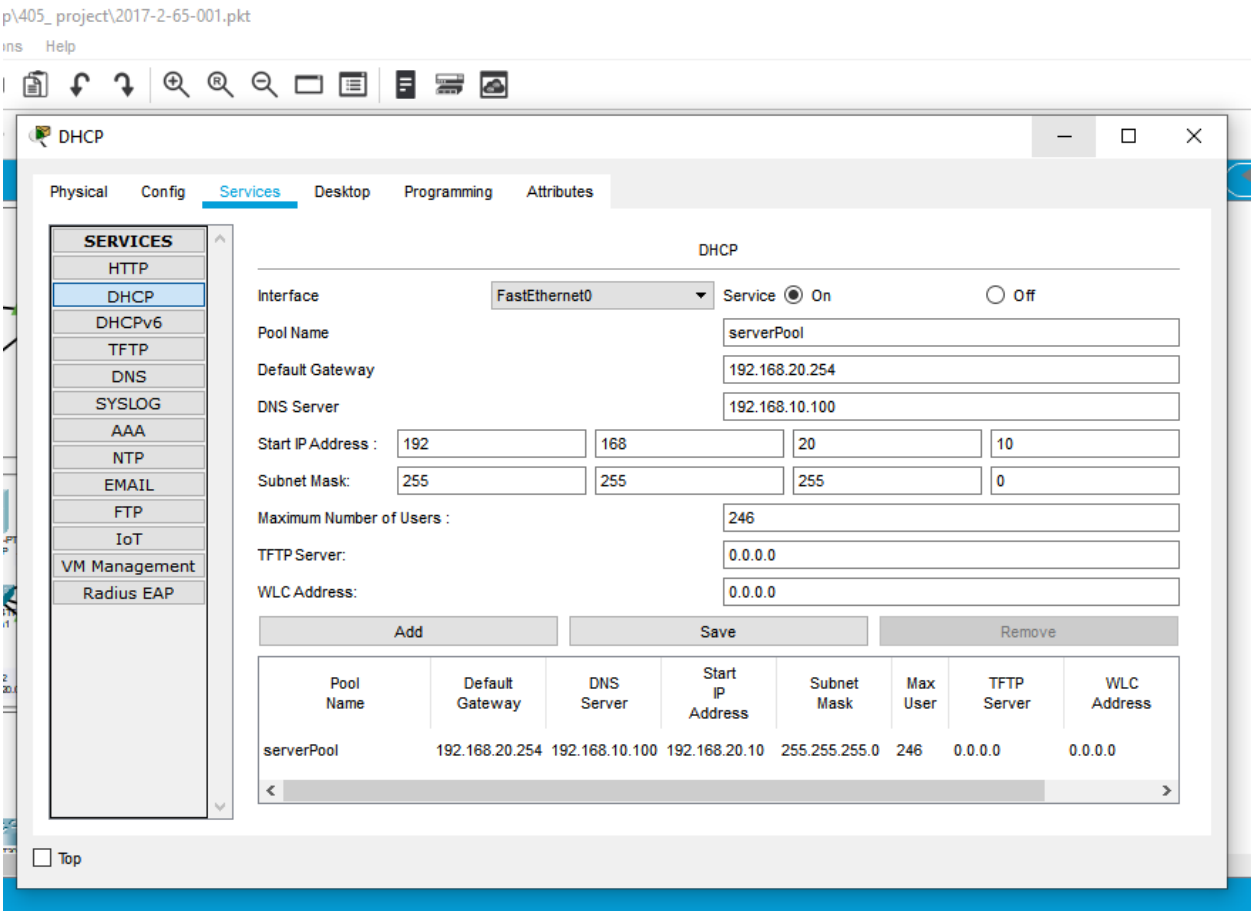

Fig6: DHCP server

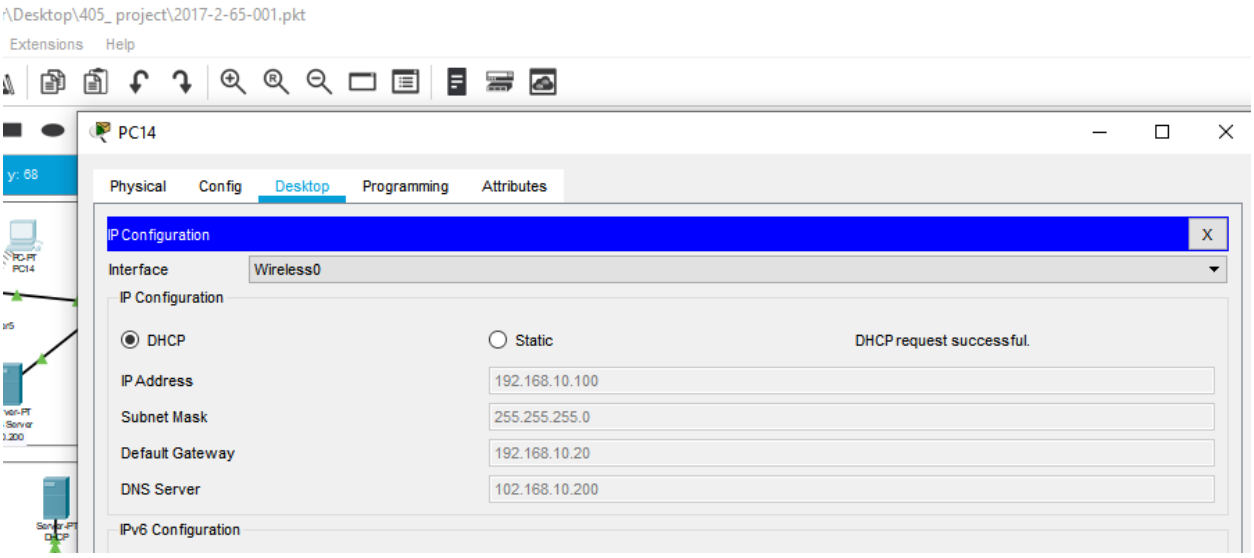

Fig7: DHCP implementation

Web pages:

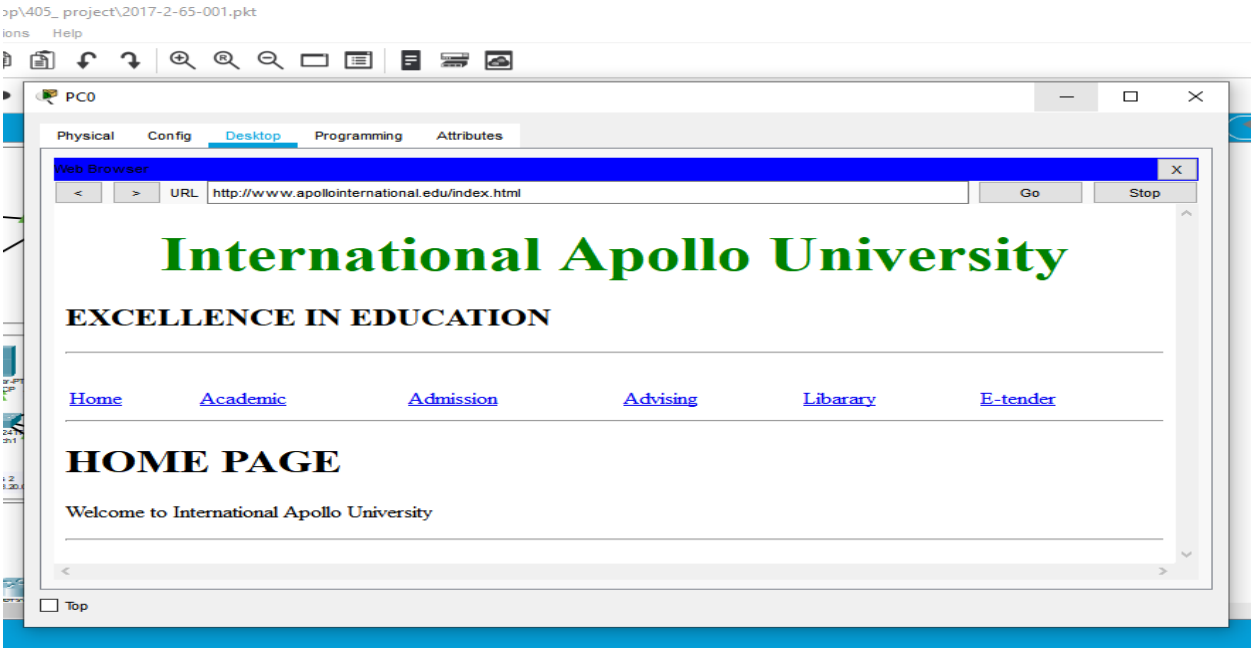

Fig8: Home page

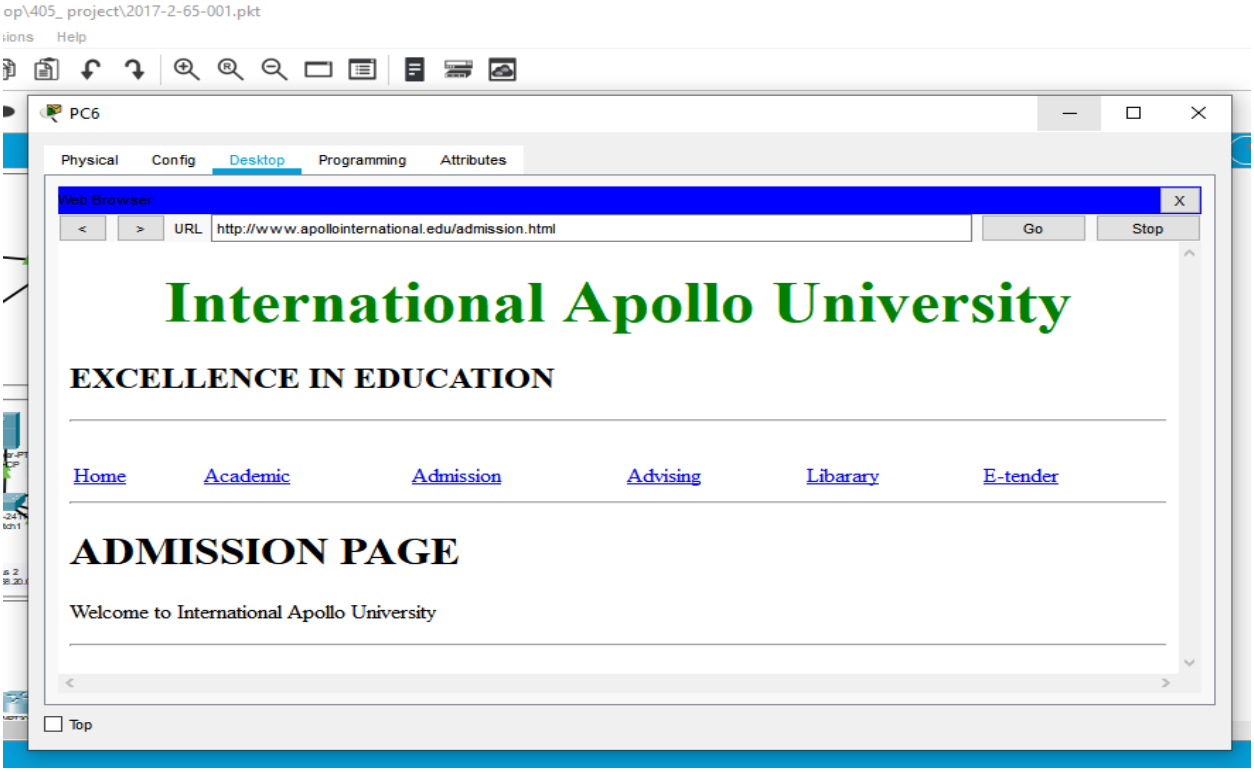

Fig9: Admission page

Code implemented:

For Fast Ethernet Connection:

```
enable
config t
interface fa0/0
ip address 192.168.10.254   255.255.255.0
no shut
do wr
exit
```

For Serial Port Connection:

```
enable
config t
interface se3/0
ip address 192.168.71.1   255.255.255.0
clock rate 64000
no shut
do wr
exit
```

Ospf Protocol:

```
router ospf 1
network 192.168.10.0 0.0.0255 area1
network 192.168.71.0 0.0.0255 area1
network 192.168.72.0 0.0.0255 area1
network 192.168.73.0 0.0.0255 area1
network 192.168.74.0 0.0.0255 area1
network 192.168.75.0 0.0.0255 area1
```

Limitation:

The network I have designed here I only used C type IP adressess. If the network can be built using thousands of host then uses of other types IP addresses would be implementated. To make the network more efficient there should have multiple WEB server, DNS server to bear the load of thousands of hosts. I have implemented DHCP server in campuses where there are wireless connections with the host. I think in future I can use these concept to build a more efficient complex network.