Hogwarts University is a large university which has **two campuses** situated 20 miles apart. The university’s students and staff are distributed in 4 faculties; these include the faculties of Health and Sciences; Business; Engineering/Computing and Art/Design. Each member of staff has a PC and students have access to their workstation in the labs. You can design the network based on the below addressing schemes and departments.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Main Campus\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

The main campus has 3 buildings:

**Building A**: The building consists of:

* **Administration- VLAN 10 (192.168.1.0/24)**
* **HR- VLAN 20 (192.168.2.0/24)**
* **Finance- VLAN 30 (192.168.3.0/24)**
* **Business – VLAN 40 (19.268.4.0/24)**

**Building B**: Consists of-

* **Engineering and Computing- VLAN 50 (192.168.5.0/24)**
* **Art and Design- VLAN 60 (192.168.6.0/24)**

**Building C**: Consists of-

* Student labs -**VLAN 70 (192.168.7.0/24)**
* IT Department- **VLAN 80 (192.168.8.0/24)**

This building hosts the University’s **Web servers, DNS Server, File sharing server**.

There’s also an **email server that’s hosted on the cloud**. The subnet for Cloud Server is **20.0.0.0/30.** IP address scheme for the serial link between Main Campus Router and Cloud Router is **10.10.10.4/30.**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Branch Campus\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

-Smaller campus is connected to the Main Campus using a serial link. The addressing scheme for the link is **(10.10.10.0/30)**

There’s only one building with two floors.

* The first floor consists of student labs computers- **VLAN 90 (192.168.9.0/24)**
* The second floor hosts the systems of Staff. **VLAN 100 (192.168.10.0/24)**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Implementation\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

You need to configure the network devices to enable connectivity between both the campuses.

* Devices in Building A are required to acquire IP address dynamically from the router itself.
* Each department/faculty is expected to be on its own separate IP network.
* Configure the switches with appropriate settings like hostname and security settings.
* Configure RIPv2 routing protocol to provide routing between the two buildings and to the external server hosted on the cloud.
* Configure inter-VLAN routing between both the campuses.
* Configure SSH for Remote Access for Main Campus and Branch Campus router. Only systems in Admin department and IT department should access these routers.
* Configure access lists to restrict ping to systems in ADMIN, HR, FINANCE and IT DEPT.
* The systems in Building B should not be able to reach systems in the ADMIN, HR, FINANCE department. Use the same approach at Branch campus restricting Student systems from reaching out to Staff.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEVICES\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

* Routers- 2911 Routers for the Main campus, branch campus and for the cloud server
  + Configure the enable password as “admin”
  + Same password (admin) goes for the SSH.
* Cisco 2911 switches for access layer [each department]
* Distribution switch can be cisco c3650 for both the campuses.
* For simplicity purposes you can add one Desktop PC and a printer in all the buildings.