Snyderverse

Bruce Wayne aka Batman, has decided to form the Justice League to prevent annihilation of his planet. Until now, he has managed to convince Diana, Arthur, Barry, and Victor to join his team in order to stop Steppenwolf from collecting all the motherboxes. But he needs to set up a network architecture to communicate with his colleagues. As a result, he asked Alfred to design a network that would allow the humans, Atlanteans and amazons to communicate again. However, Alfred was occupied with something personal so he decided to ask you to do it in his stead.

Alfred has provided you with all the necessary information, and your job is to design the network infrastructure that would reestablish the age of heroes.

*The numbers in brackets () specify the population size of the location and the distance (***in kms***) between each zone is the ***value in the cells***.

	Wayne Mansion	Atlantis	Amazon	Star Labs	The Daily Planet	Barry's Residence
Wayne Mansion (940)	**0**					
Atlantis (7082)	**523**	**0**				
Amazon (3940)	**421**	**459**	**0**			
Star Labs (509)	**104**	**333**	**386**	**0**		
The Daily Planet (760)	**203**	**377**	**368**	**194**	**0**	
Barry's Residence (492)	**270**	**486**	**397**	**326**	**248**	**0**

While creating the network infrastructure there are certain restrictions and rules that you need to follow:

- Consider each location as a separate network connected by routers.
- For that you need to choose an appropriate network address and from that create subnets to assign to each location. But remember you can use only half the available ip addresses from the network address i.e 102.1.1.0/24 has 254 possible ip addresses, but you can use only 126 which is half of that.
- Assign ip addresses to all interfaces and devices. You must show at least two end devices for a location.
    - **Wayne Mansion** (940) will have its own **Web** server and a **DNS** server. The agents will be able to access the Wayne's Web server upon entering the server either as URL or IP address, it will show the message as an HTTP response:

      "Welcome to Wayne Mansion."
    - **Star Labs** (509) is the most important zone; for security, they will use static IP addressing while the other zones' IP addresses will be assigned using DHCP and handled by their network's **DHCP** server.
    - **Atlantis** and **Amazon** will be communicating a lot, which is why they will require **Email** servers to be set up so that they can exchange mail among themselves. Make sure the email configurations are all set up for sending mail, receiving mail, and replying to mail.
    - Establish connections among all the networks with the shortest route possible.
        - Must have at least one floating route.
        - Configure half of the networks to be routed dynamically and at least two statically.
        - A secure connection must be set up between Wayne Mansion and Barry's Residence.
        - You must remember that the default route cannot be used while exchanging any packets. Data will be delivered using static or dynamic routes only.

- Make sure that you can ping from a device in one location to another after completion.

Deliverables

- The network mentioned above should be implemented in the packet tracer, with necessary devices and full configuration.
- After completion you should be able to test the conditions imposed.

- You will have to submit the followings:
    - Network topology diagram with proper labels
    - The configuration commands of all the routers that you have implemented.
    - VLSM/Network address table.
    - IP address table