Cryptography Final Project

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1. Please show your ip address list in the table

City	Fa 0/0	Fa 0/1	S 0/0/0	S0/0/1
Hull	192.168.2.2 /24		192.168.3.1 /24	192.168.4.1 /24
York	192.168.5.1/24		192.168.3.2 /24	
Sheffield	192.168.6.1 /24		192.168.4.2/24	
Berlin	192.168.12.2/24	192.168.13.1/24	192.168.15.1/24	192.168.14.1/24
Dresden	192.168.16.1/24		192.168.14.2/24	
Hamburg	192.168.17.1/24		192.168.15.2/24	
New York	192.168.22.2/24	192.168.24.1/24	192.168.23.1/24	192.168.25.1/24
San Francisco	192.168.27.1/24		192.168.25.2/24	
Dallas	192.168.26.1/24		192.168.23.2/24	
Melbourne	192.168.32.2/24	192.168.34.1/24		
Sydney	192.168.32.3/24	192.168.33.1/24		

2. Please list 10 important commands you use in this assignment and describe the reason what is the main purpose to use them.

Command	Purpose
Show run	To see the previous command
Show ip int brief	To see the interface and ip address
Show ip route	To check the router connects to which subnet
Router ospf<number>	To set up the OSPF protocol
Ip dhcp pool ip10	To set up the DHCP
Ping IP	To check if the network is constructed correctly
interface tunnel <***number***> ip address <***ip***> <***subnet mask***> tunnel source <***source interface***> tunnel destination <***ip of destination port/ not same for this ip on second line***>	To build the GRE tunnel
crypto isakmp enable crypto isakmp policy ***1*** <could be change> authentication ***pre-share*** <could be	VPN (IKE Phase 1) Configuration

change> encryption **des** <could be change> hash **md5** <could be change> group **1** <could be change> lifetime **34000** <could be change> crypto isakmp key **grapefruit** <could be change> address **1.0.0.1** <could be change>	
crypto ipsec transform-set **OurVPN** <could be change> esp-3des esp-sha-hmac mode tunnel crypto map **Gamma1** <could be change> 1 ipsec-isakmp match address 100 set peer **1.0.0.1** <could be change> set transform-set **OurVPN** <could be change> set pfs **group2** <could be change> set security-association lifetime seconds **44000** <could be change>	VPN (IKE Phase 2) Configuration
interface <interface> crypto map **Gamma1** <Following the VPN (IKE Phase 2) Configuration >	Apply the VPN tunnel to Gamma

3. Question

   a. What is the VPN?

   A VPN extends a [private network](#) across a public network, and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. Applications running across a VPN may therefore benefit from the functionality, security, and management of the private network

   b. Why VPN is important?

   VPN can make the network more secure when you transmit the data.

c. What is the GRE?

GRE is a tunneling protocol which can encapsulate a wide variety of network layer protocol inside virtual point-to-point over an Internet Protocol network

d. What are the roles of cryptography that you found within this assignment
It can make the transmitted data encrypt and decrypt by certain people, which can let the data be more secure, and it won't be stolen by other people.