1. Do the basic configuration and clock rate to the router serial DCE interface and enable the interface also. This configuration below has been done to the F3 Core Router

   en

   conf t

   hostname F-3-Router

   int se0/1/0

   no shut

   clock rate 64000

   exit

   int se0/1/1

   no shut

   exit

   int g0/0

   no shut

   do wr

**** Continue the same configuration to the remaining router and be aware of dce interface before assigning the clock rate**

2. Configure the password on line console
3. Configure the vlan in each switch of all floor. Let's begin with First Floor

   en
   conf t
   hostname F1-SW
   int g0/1
   switchport mode trunk
   int range f0/1-3
   switchport mode access
   switchport access vlan 80
   vlan 80
   name Reception
   int range f0/4-5
   switchport mode access
   switchport access vlan 70
   vlan 70
   name Store
   int range f0/6-7
   switchport mode access
   switchport access vlan 60

vlan 60
name Logistics
do wr

**Continue the configuration on the remaining switches.**

4. Configure the IP address to the router interface
   Let's begin with F1 router
   en
   conf t
   int se0/1/0
   ip address 10.10.10.5 255.255.255.252
   int se0/1/1
   ip address 10.10.10.9 255.255.255.252
   do wr

   for F2 router
   en
   conf t
   int se0/1/0
   ip address 10.10.10.1 255.255.255.252
   int se0/1/1
   ip address 10.10.10.10 255.255.255.252
   do wr

   for F3 router

   en
   conf t
   int se0/1/0
   ip address 10.10.10.6 255.255.255.252
   int se0/1/1
   ip address 10.10.10.2 255.255.255.252
   do wr

5. Configure inter-vlan routing

   Let's begin by creating sub-interfaces on F1 router

   en
   conf t
   int g0/0.80
   encapsulation dot1Q 80
   ip address 192.168.8.1 255.255.255.0

```
int g0/0.70
encapsulation dot1Q 70
ip address 192.168.7.1 255.255.255.0

int g0/0.60
encapsulation dot1Q 60
ip address 192.168.6.1 255.255.255.0
do wr
```

For F2 Router

```
en
conf t
int g0/0.50
encapsulation dot1Q 50
ip address 192.168.5.1 255.255.255.0

int g0/0.40
encapsulation dot1Q 40
ip address 192.168.4.1 255.255.255.0

int g0/0.30
encapsulation dot1Q 30
ip address 192.168.3.1 255.255.255.0
do wr
```

For F1 Router

```
en
conf t
int g0/0.10
encapsulation dot1Q 10
ip address 192.168.1.1 255.255.255.0

int g0/0.20
encapsulation dot1Q 20
ip address 192.168.2.1 255.255.255.0
do wr
```

6. Let’s Configure the Router’s as the DHCP server

Begin with F1-Router

```
en
```

conf t
service dhcp
ip dhcp pool Reception
network 192.168.8.0 255.255.255.0
default-router 192.168.8.1
dns-server 192.168.8.1
exit
ip dhcp pool Store
network 192.168.7.0 255.255.255.0
default-router 192.168.7.1
dns-server 192.168.7.1
exit
ip dhcp pool Logistics
network 192.168.6.0 255.255.255.0
default-router 192.168.6.1
dns-server 192.168.6.1
exit
do wr

F2-Router

en
conf t
service dhcp
ip dhcp pool Finance
network 192.168.5.0 255.255.255.0
default-router 192.168.5.1
dns-server 192.168.5.1
exit
ip dhcp pool HR
network 192.168.4.0 255.255.255.0
default-router 192.168.4.1
dns-server 192.168.4.1
exit
ip dhcp pool Sales
network 192.168.3.0 255.255.255.0
default-router 192.168.3.1
dns-server 192.168.3.1
exit
do wr

For F3-Router

en
conf t

```
service dhcp
ip dhcp pool IT
network 192.168.1.0 255.255.255.0
default-router 192.168.1.1
dns-server 192.168.1.1
exit
 ip dhcp pool Admin
network 192.168.2.0 255.255.255.0
default-router 192.168.2.1
dns-server 192.168.2.1
exit
do wr
```

7. Configure the Dynamic Routing between the Router

   For the this project we will use OSPF as the routing protocol

   Let’s Begin with F1-Router

```
en
conf t
router ospf 10
network 10.10.10.4 255.255.255.252 area 0
network 10.10.10.8 255.255.255.252 area 0
network 192.168.8.0 255.255.255.0 area 0
network 192.168.7.0 255.255.255.0 area 0
network 192.168.6.0 255.255.255.0 area 0
do wr
```

   For F2-Router

```
en
conf t
router ospf 10
network 10.10.10.0 255.255.255.252 area 0
network 10.10.10.8 255.255.255.252 area 0
network 192.168.5.0 255.255.255.0 area 0
network 192.168.4.0 255.255.255.0 area 0
network 192.168.3.0 255.255.255.0 area 0
do wr
```

For F3-Router

```
en
conf t
router ospf 10
network 10.10.10.0 255.255.255.252 area 0
network 10.10.10.4 255.255.255.252 area 0
network 192.168.1.0 255.255.255.0 area 0
network 192.168.2.0 255.255.255.0 area 0
do wr
```

8. Configuring the Access Point on Each floor for the wireless network

   Click on the Access Point, then select port 01 and then set the SSID and password credentials for the wireless connection.

9. Configure the SSH to all the router for Remote Login

   F1-Router

```
en
conf t
ip domain name ashraful.com
username admin password admin
crypto key generate rsa
1024
line vty 0 15
login local
transport input ssh
do wr
```

   **Continue the same configuration on the remaining router**.

10. In IT department add a PC called IT-Admin PC and use the port f0/6 for the test of remote login

```
en
conf t
int f0/6
switchport mode access
switchport access vlan 10
```

11. Configure the port security to IT Dept Switch to Allow only IT-Admin-PC to the access the port f0/6 . We will use Sticky method to obtain mac-address with the violation mode of shutdown.

en
conf  t
int f0/6
switchport port-security
switchport port-security maximum 1
switchport port-security mac-address sticky
switchport port-security violation shutdown
do wr