VLSM Details
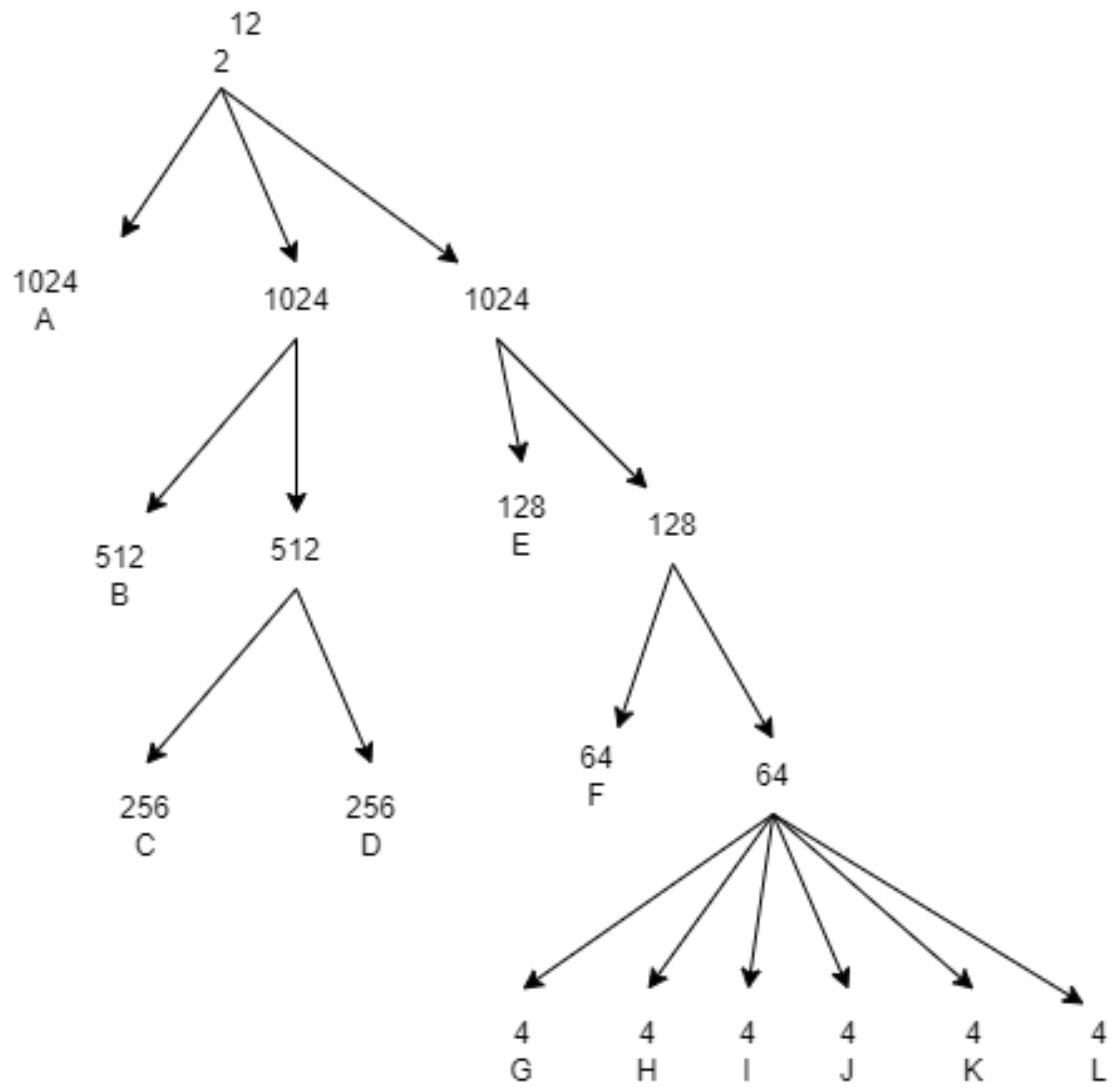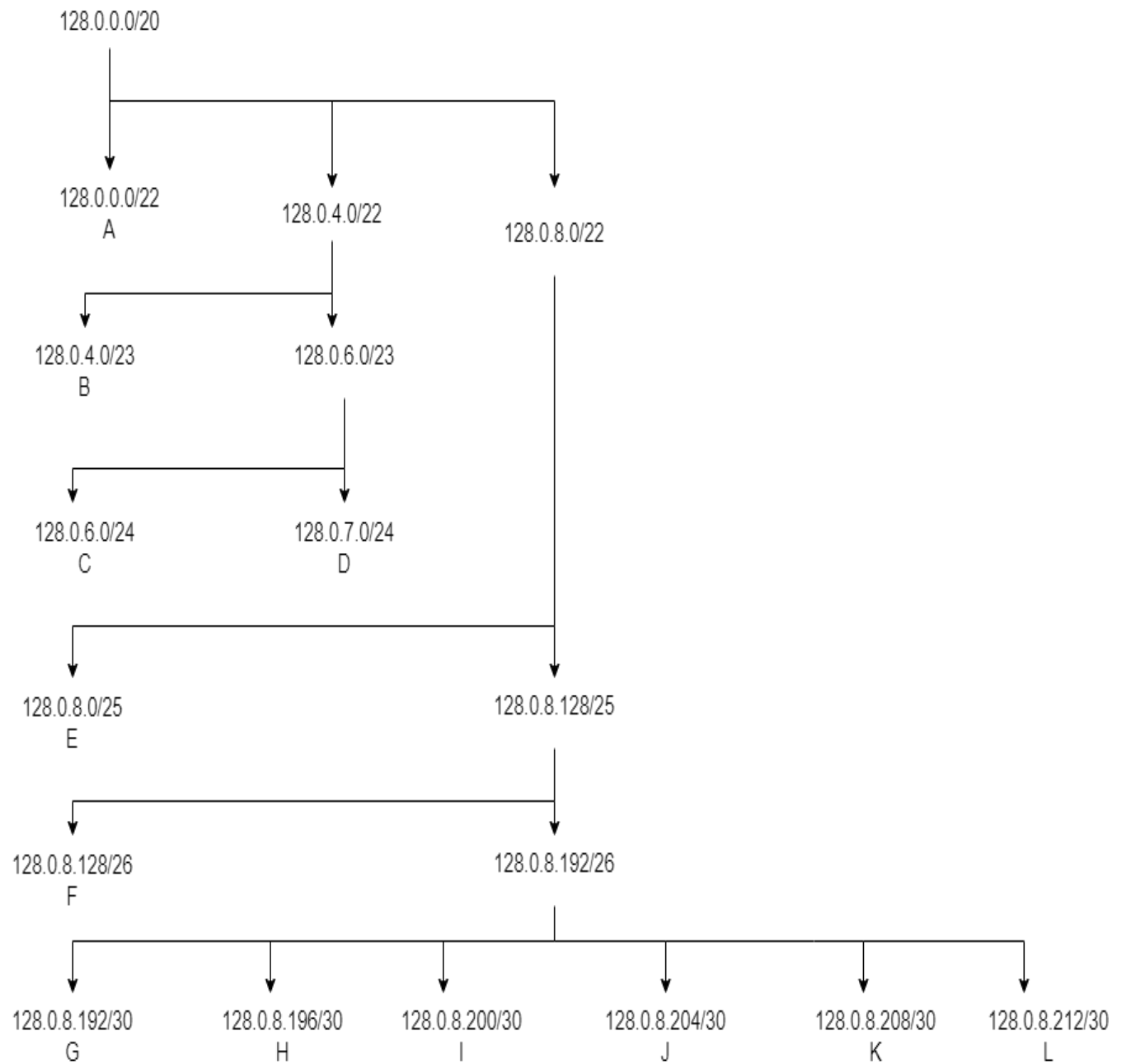
Host requirements:

A. Gulsan Lan→ 560
B. Mirpur Lan→ 350
C. Wari Lan→ 210
D. Motijheel Lan→ 128
E. Uttara Lan→ 80
F. Dhanmondi Lan→ 40
G. Motijheel to Dhanmondi → 2
H. Motijheel to Wari → 2
I. Wari to Dhanmondi → 2
J. Motijheel to Gulshan→ 2
K. Gulshan to Mirpur→ 2
L. Gulshan to Uttara→ 2

Name		Host	Host+2	IP block	Host Bit	P/M	Network Address	S/M
Gulsan Lan	A	560	562	1024	10	22	128.0.0.0	255.255.252.0
Mirpur Lan	B	350	352	512	9	23	128.0.4.0	255.255.254.0
Wari Lan	C	210	212	256	8	24	128.0.6.0	255.255.255.0
Motijheel Lan	D	128	130	256	8	24	128.0.7.0	255.255.255.0
Uttara Lan	E	80	82	128	7	25	128.0.8.0	255.255.255.128
Dhanmondi Lan	F	40	42	64	6	26	128.0.8.128	255.255.255.192
Motijheel to Dhanmondi	G	2	4	4	2	30	128.0.8.192	255.255.255.252
Motijheel to Wari	H	2	4	4	2	30	128.0.8.196	255.255.255.252
Wari to Dhanmondi	I	2	4	4	2	30	128.0.8.200	255.255.255.252
Motijheel to Gulshan	J	2	4	4	2	30	128.0.8.204	255.255.255.252
Gulshan to Mirpur	K	2	4	4	2	30	128.0.8.208	255.255.255.252
Gulshan to Uttara	L	2	4	4	2	30	128.0.8.212	255.255.255.252

As we need 12 bit for host for minimum wastage so proposed IP address is 128.0.0.0/20

128.0.0.0/20

128.0.0.0/22
A

128.0.4.0/22

128.0.8.0/22

128.0.4.0/23
B

128.0.6.0/23

128.0.6.0/24
C

128.0.7.0/24
D

128.0.8.0/25
E

128.0.8.128/25

128.0.8.128/26
F

128.0.8.192/26

128.0.8.192/30
G

128.0.8.196/30
H

128.0.8.200/30
I

128.0.8.204/30
J

128.0.8.208/30
K

128.0.8.212/30
L

IP Address Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
Motijheel (Router)	Serial0/0	128.0.8.205	255.255.255.252	N/A
	Serial1/0	128.0.8.193	255.255.255.252	N/A
	Serial2/0	128.0.8.197	255.255.255.252	N/A
	FastEthernet3/0	128.0.7.1	255.255.255.0	N/A
Dhanmondi (Router)	Serial0/0	128.0.8.194	255.255.255.252	N/A
	Serial1/0	128.0.8.201	255.255.255.252	N/A
	FastEthernet2/0	128.0.8.129	255.255.255.192	N/A
Wari (Router)	Serial0/0	128.0.8.198	255.255.255.252	N/A
	Serial1/0	128.0.8.202	255.255.255.252	N/A
	FastEthernet2/0	128.0.6.1	255.255.255.0	N/A
Gulshan (Router)	Serial0/0	128.0.8.206	255.255.255.252	N/A
	Serial1/0	128.0.8.209	255.255.255.252	N/A
	Serial2/0	128.0.8.213	255.255.255.252	N/A
	FastEthernet3/0	128.0.0.1	255.255.252.0	N/A
Mirpur (Router)	Serial0/0	128.0.8.210	255.255.255.252	N/A
	FastEthernet1/0	128.0.4.1	255.255.254.0	N/A

Uttara (Router)	Serial0/0	128.0.8.214	255.255.255.252	N/A
	FastEthernet1/0	128.0.8.1	255.255.255.128	N/A
PC0	N/A	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC1	N/A	128.0.8.130	255.255.255.192	128.0.8.129
PC2	N/A	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC3	N/A	128.0.4.2	255.255.254.0	128.0.4.1
PC4	N/A	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC5	N/A	DHCP Assigned	DHCP Assigned	DHCP Assigned
Printer0	N/A	128.0.7.2	255.255.255.0	128.0.7.1
Printer1	N/A	128.0.8.131	255.255.255.192	128.0.8.129
Printer2	N/A	128.0.6.2	255.255.255.0	128.0.6.1
Printer3	N/A	128.0.4.3	255.255.254.0	128.0.4.1
Printer4	N/A	128.0.8.2	255.255.255.128	128.0.8.1
Printer5	N/A	128.0.0.2	255.255.252.0	128.0.0.1
DHCP Server	N/A	128.0.8.132	255.255.255.192	128.0.8.129
WEB Server	N/A	128.0.8.133	255.255.255.192	128.0.8.129
DNS Server	N/A	128.0.8.134	255.255.255.192	128.0.8.129
Email Server	N/A	128.0.8.3	255.255.255.128	128.0.8.1

List of Assumptions

1. All printers and servers from any networks will have a static ip without considering the network will use static ip addressing or from DHCP pool as server and printers will be frequently used by the users.
2. The Motijheel branch will be the Head Office of BRACU Bank and will act as the centerpiece for all other branches means that it will act as an edge router.

Configuration Command

Motijheel (Router)

Router>en
Router#config t
Router(config)#hostname Motijheel
Motijheel(config)#no ip domain-lookup

Motijheel(config)#interface Se0/0
Motijheel(config-if)#ip address 128.0.8.205 255.255.255.252
Motijheel(config-if)#clock rate 64000
Motijheel(config-if)#no shutdown
Motijheel(config-if)#end

Motijheel#config t
Motijheel(config)#interface Se1/0
Motijheel(config-if)#ip address 128.0.8.193 255.255.255.252
Motijheel(config-if)#clock rate 64000
Motijheel(config-if)#no shutdown
Motijheel(config-if)#end

Motijheel#config t
Motijheel(config)#interface Se2/0
Motijheel(config-if)#ip address 128.0.8.197 255.255.255.252
Motijheel(config-if)#clock rate 64000
Motijheel(config-if)#no shutdown
Motijheel(config-if)#end

Motijheel#config t
Motijheel(config)#Interface Fa3/0
Motijheel(config-if)#ip address 128.0.7.1 255.255.255.0
Motijheel(config-if)#no shutdown
Motijheel(config-if)#end
Motijheel#copy running-config startup-config

Motijheel>en
Motijheel#config t

```
Motijheel(config)#interface Fa3/0
Motijheel(config-if)#ip helper-address 128.0.8.132
Motijheel(config-if)#no shutdown
Motijheel(config-if)#end
Motijheel#copy run start


Motijheel>en
Motijheel#config t
Motijheel(config)#ip route 128.0.8.128 255.255.255.192 Se1/0
Motijheel(config)#ip route 128.0.8.200 255.255.255.252 Se1/0
Motijheel(config)#ip route 128.0.6.0 255.255.255.0 Se1/0
Motijheel(config)#ip route 128.0.6.0 255.255.255.0 Se2/0 5
Motijheel(config)#ip route 128.0.0.0 255.255.252.0 Se0/0
Motijheel(config)#ip route 128.0.8.212 255.255.255.252 Se0/0
Motijheel(config)#ip route 128.0.8.208 255.255.255.252 Se0/0
Motijheel(config)#ip route 128.0.8.0 255.255.255.128 Se0/0
Motijheel(config)#ip route 128.0.4.0 255.255.254.0 Se0/0
Motijheel(config)#end
Motijheel#
Motijheel#copy run start
```

Dhanmondi (Router)

Router>en
Router#config t
Router(config)#hostname Dhanmondi
Dhanmondi(config)#no ip domain-lookup

Dhanmondi(config)#interface Se0/0
Dhanmondi(config-if)#ip address 128.0.8.194 255.255.255.252
Dhanmondi(config-if)#no shutdown
Dhanmondi(config-if)#end

Dhanmondi#config t
Dhanmondi(config)#interface Se1/0
Dhanmondi(config-if)#ip address 128.0.8.201 255.255.255.252
Dhanmondi(config-if)#no shutdown
Dhanmondi(config-if)#end

Dhanmondi#config t
Dhanmondi(config)#interface Fa2/0
Dhanmondi(config-if)#ip address 128.0.8.129 255.255.255.192
Dhanmondi(config-if)#no shutdown
Dhanmondi(config-if)#end
Dhanmondi#copy running-config startup-config

Dhanmondi>
Dhanmondi>en
Dhanmondi#config t
Dhanmondi(config)#ip route 128.0.7.0 255.255.255.0 Se0/0
Dhanmondi(config)#ip route 128.0.8.204 255.255.255.252 Se0/0
Dhanmondi(config)#ip route 128.0.8.196 255.255.255.252 Se1/0
Dhanmondi(config)#ip route 128.0.6.0 255.255.255.0 Se1/0
Dhanmondi(config)#ip route 128.0.8.208 255.255.255.252 Se0/0
Dhanmondi(config)#ip route 128.0.8.212 255.255.255.252 Se0/0
Dhanmondi(config)#ip route 128.0.4.0 255.255.254.0 Se0/0
Dhanmondi(config)#ip route 128.0.8.0 255.255.255.128 Se0/0
Dhanmondi(config)#ip route 128.0.0.0 255.255.252.0 Se0/0
Dhanmondi(config)#end
Dhanmondi#copy run start

Wari (Router)

Router>en
Router#config t
Router(config)#hostname Wari
Wari(config)#no ip domain-lookup

Wari(config)#interface Se0/0
Wari(config-if)#ip address 128.0.8.198 255.255.255.252
Wari(config-if)#no shutdown
Wari(config-if)#end

Wari#config t
Wari(config)#interface Se1/0
Wari(config-if)#ip address 128.0.8.202 255.255.255.252
Wari(config-if)#clock rate 64000
Wari(config-if)#no shutdown
Wari(config-if)#end

Wari#config t
Enter configuration commands, one per line. End with CNTL/Z.
Wari(config)#interface Fa2/0
Wari(config-if)#ip address 128.0.6.1 255.255.255.0
Wari(config-if)#no shutdown
Wari(config-if)#end
Wari#copy running-config startup-config

Wari>en
Wari#config t
Wari(config)#interface Fa2/0
Wari(config-if)#ip helper-address 128.0.8.132
Wari(config-if)#no shutdown
Wari(config-if)#end
Wari#copy run start

Wari>en
Wari#config t
Wari(config)#ip route 128.0.7.0 255.255.255.0 Se1/0
Wari(config)#ip route 128.0.7.0 255.255.255.0 Se0/0 5
Wari(config)#ip route 128.0.8.192 255.255.255.252 Se1/0
Wari(config)#ip route 128.0.8.192 255.255.255.252 Se0/0 5
Wari(config)#ip route 128.0.8.204 255.255.255.252 Se1/0
Wari(config)#ip route 128.0.8.204 255.255.255.252 Se0/0 5

```
Wari(config)#ip route 128.0.8.128 255.255.255.192 Se1/0
Wari(config)#ip route 128.0.8.208 255.255.255.252 Se1/0
Wari(config)#ip route 128.0.8.208 255.255.255.252 Se0/0 5
Wari(config)#ip route 128.0.8.212 255.255.255.252 Se1/0
Wari(config)#ip route 128.0.8.212 255.255.255.252 Se0/0 5
Wari(config)#ip route 128.0.4.0 255.255.254.0 Se1/0
Wari(config)#ip route 128.0.4.0 255.255.254.0 Se0/0 5
Wari(config)#ip route 128.0.8.0 255.255.255.128 Se1/0
Wari(config)#ip route 128.0.8.0 255.255.255.128 Se0/0 5
Wari(config)#ip route 128.0.0.0 255.255.252.0 Se1/0
Wari(config)#ip route 128.0.0.0 255.255.252.0 Se0/0 5
Wari(config)#end
Wari#copy run start
```

Gulshan (Router)

Router>en
Router#config t
Router(config)#hostname Gulshan
Gulshan(config)#no ip domain-lookup

Gulshan(config)#interface Se0/0
Gulshan(config-if)#ip address 128.0.8.206 255.255.255.252
Gulshan(config-if)#no shutdown
Gulshan(config-if)#end

Gulshan#config t
Enter configuration commands, one per line. End with CNTL/Z.
Gulshan(config)#interface Se1/0
Gulshan(config-if)#ip address 128.0.8.209 255.255.255.252
Gulshan(config-if)#clock rate 64000
Gulshan(config-if)#no shutdown
Gulshan(config-if)#end

Gulshan#config t
Enter configuration commands, one per line. End with CNTL/Z.
Gulshan(config)#interface Se2/0
Gulshan(config-if)#ip address 128.0.8.213 255.255.255.252
Gulshan(config-if)#clock rate 64000
Gulshan(config-if)#no shutdown
Gulshan(config-if)#end

Gulshan#config t
Enter configuration commands, one per line. End with CNTL/Z.
Gulshan(config)#interface Fa3/0
Gulshan(config-if)#ip address 128.0.0.1 255.255.252.0
Gulshan(config-if)#no shutdown
Gulshan(config-if)#end
Gulshan#copy run start

Gulshan>en
Gulshan#config t
Gulshan(config)#interface Fa3/0
Gulshan(config-if)#ip helper-address 128.0.8.132
Gulshan(config-if)#no shutdown

```
Gulshan(config-if)#end
Gulshan#copy run start


Gulshan>en
Gulshan#config t
Gulshan(config)#ip route 128.0.7.0 255.255.255.0 Se0/0
Gulshan(config)#ip route 128.0.8.192 255.255.255.252 Se0/0
Gulshan(config)#ip route 128.0.8.196 255.255.255.252 Se0/0
Gulshan(config)#ip route 128.0.8.200 255.255.255.252 Se0/0
Gulshan(config)#ip route 128.0.8.128 255.255.255.192 Se0/0
Gulshan(config)#ip route 128.0.6.0 255.255.255.0 Se0/0
Gulshan(config)#end
Gulshan#copy run start


Gulshan>en
Gulshan#config t
Gulshan(config)#router rip
Gulshan(config-router)#version 2
Gulshan(config-router)#no auto-summary
Gulshan(config-router)#network 128.0.8.208
Gulshan(config-router)#network 128.0.8.212
Gulshan(config-router)#passive-interface Fa3/0
Gulshan(config-router)#default-information originate
Gulshan(config-router)#end
Gulshan#copy run start

Gulshan>en
Gulshan#config t
Enter configuration commands, one per line. End with CNTL/Z.
Gulshan(config)#router rip
Gulshan(config-router)#version 2
Gulshan(config-router)#redistribute static
Gulshan(config-router)#end
Gulshan#copy run start
```

Mirpur (Router)

Router>en
Router#config t
Router(config)#hostname Mirpur
Mirpur(config)#no ip domain-lookup

Mirpur(config)#interface Se0/0
Mirpur(config-if)#ip address 128.0.8.210 255.255.255.252
Mirpur(config-if)#no shutdown
Mirpur(config-if)#end

Mirpur#config t
Mirpur(config)#interface Fa1/0
Mirpur(config-if)#ip address 128.0.4.1 255.255.254.0
Mirpur(config-if)#no shutdown
Mirpur(config-if)#end
Mirpur#copy run start

Mirpur>en
Mirpur#config t
Mirpur(config)#router rip
Mirpur(config-router)#version 2
Mirpur(config-router)#no auto-summary
Mirpur(config-router)#network 128.0.8.208
Mirpur(config-router)#network 128.0.4.0
Mirpur(config-router)#passive-interface Fa1/0
Mirpur(config-router)#default-information originate
Mirpur(config-router)#end
Mirpur#copy run start

Uttara (Router)

```
Router>en
Router#config t
Router(config)#hostname Uttara
Uttara(config)#no ip domain-lookup

Uttara(config)#interface Se0/0
Uttara(config-if)#ip address 128.0.8.214 255.255.255.252
Uttara(config-if)#no shutdown
Uttara(config-if)#end

Uttara#config t
Enter configuration commands, one per line. End with CNTL/Z.
Uttara(config)#interface Fa1/0
Uttara(config-if)#ip address 128.0.8.1 255.255.255.128
Uttara(config-if)#no shutdown
Uttara(config-if)#end
Uttara#copy run start

Uttara>en
Uttara#config t
Uttara(config)#interface Fa1/0
Uttara(config-if)#ip helper-address 128.0.8.132
Uttara(config-if)#no shutdown
Uttara(config-if)#end
Uttara#copy run start


Uttara>
Uttara>en
Uttara#config t
Uttara(config)#router rip
Uttara(config-router)#version 2
Uttara(config-router)#no auto-summary
Uttara(config-router)#network 128.0.8.212
Uttara(config-router)#network 128.0.8.0
Uttara(config-router)#passive-interface Fa1/0
Uttara(config-router)#default-information originate
Uttara(config-router)#end
Uttara#copy run start
```