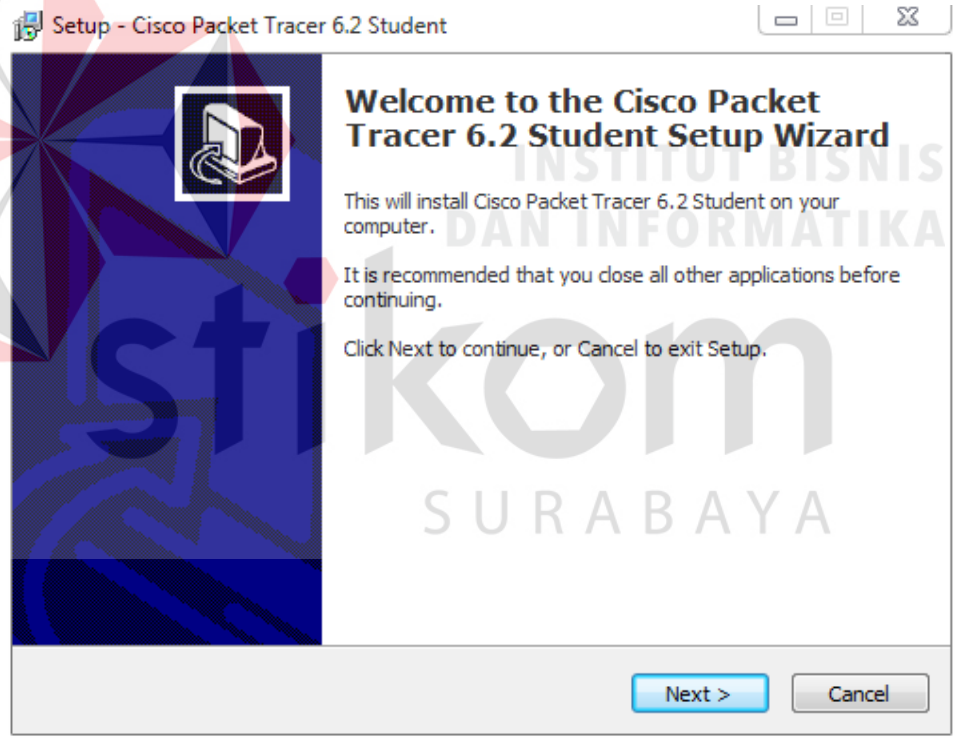
BAB IV

DISKRIPSI KERJA PRAKTIK

Bab ini membahas tentang proses instalasi dan konfigurasi jaringan yang telah dibuat.

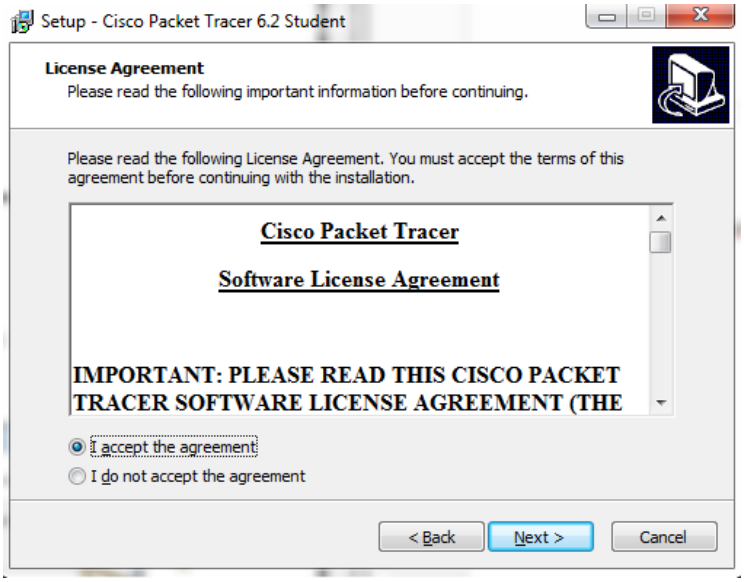
4.1 INSTALASI DAN PENGGUNAAN PACKET TRACER 6.2

1. Buka *Installer Packet Tracer* 6.2 kemudian akan muncul gambar seperti dibawah ini.



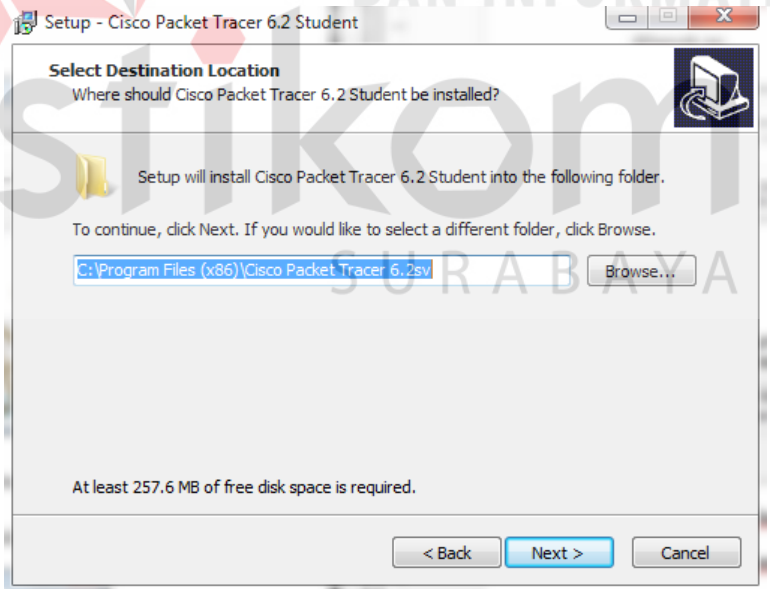
Gambar 4.1 Tampilan *Setup Cisco Packet Tracer* 6.2

2. Setelah itu tekan tombol *Next*, kemudian akan muncul gambar seperti dibawah ini.



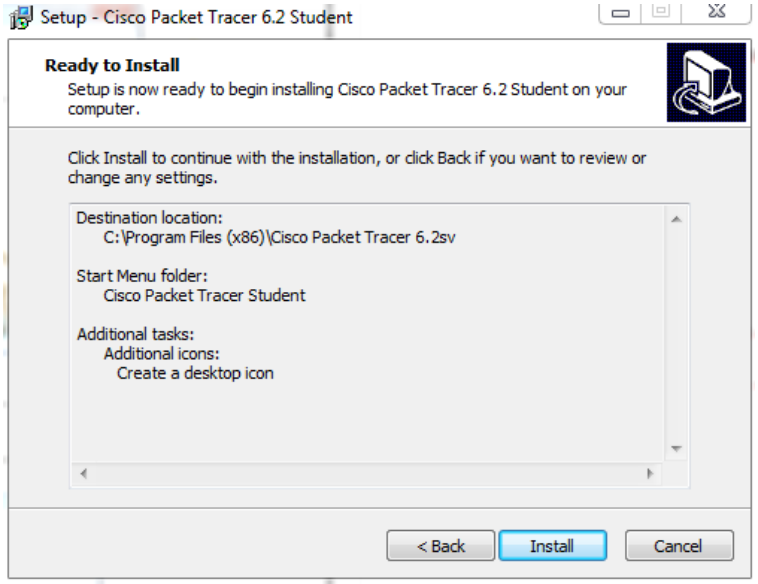
Gambar 4.2 Tampilan *License Agreement*

3. Untuk Proses selanjutnya pilih "I accept the agreement" setelah itu pilih tombol *Next*, Kemudian akan muncul gambar seperti dibawah ini.



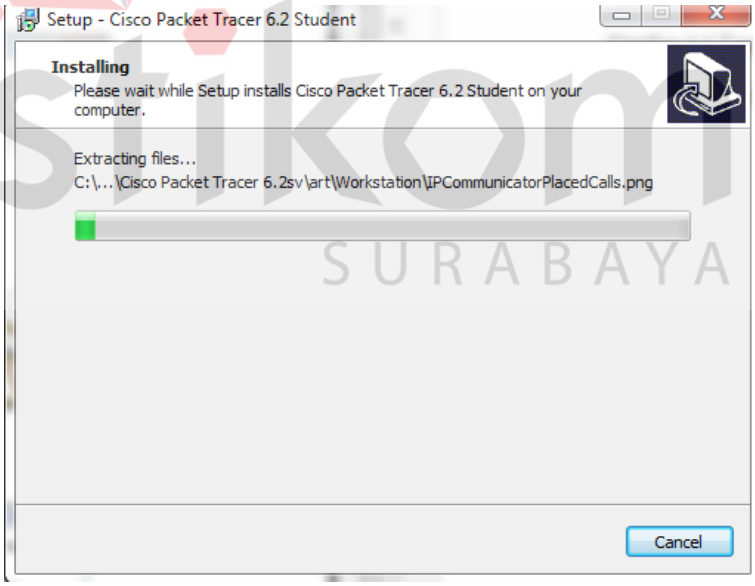
Gambar 4.3 Tampilan pemilihan lokasi program

4. Setelah memilih lokasi program setelah itu pilih tombol *Next*, dan sampai muncul gambar seperti dibawah ini.



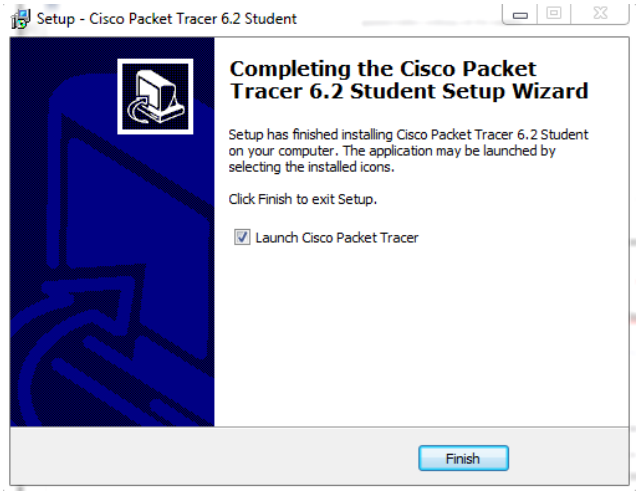
Gambar 4.4 Tampilan persiapan instalasi program

5. Setelah itu pilih tombol *Install* setelah itu proses instalasi *program* akan berjalan.



Gambar 4.5 Tampilan proses instalasi program

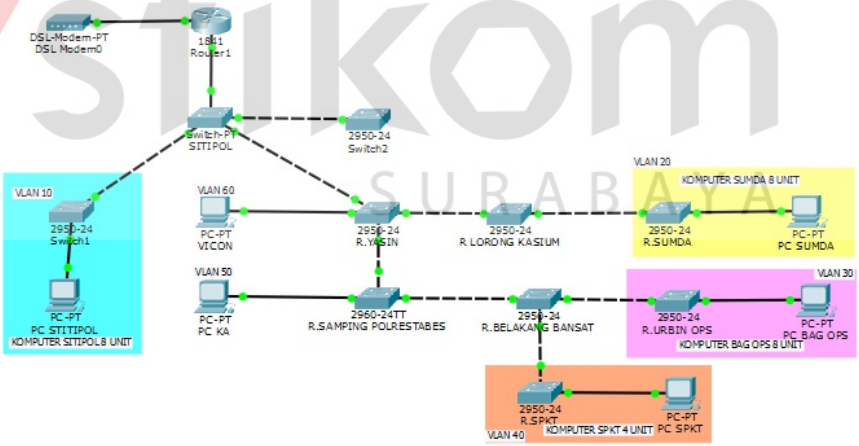
6. Setelah itu proses instalasi selesai.



Gambar 4.6 Tampilan proses instalasi selesai

4.2 KONFIGURASI PEMBUATAN TOPOLOGI PADA PACKET TRACER

Topologi yang digunakan sesuai topologi yang di terapkan pada jaringan Polrestabes Surabaya.



Gambar 4.7 Topologi Polrestabes Surabaya

Pada komputer sitipol yang berjumlah 8 unit akan di jadikan sebagai VLAN 10, pada komputer sumda yang berjumlah 8 unit akan dijadikan VLAN 20, pada komputer bag.ops dan komputer spkt akan dijadikan sebagai VLAN 30, pada komputer ka akan dijadikan VLAN 40, dan pada komputer vicon akan dijadikan VLAN 50.

4.3 PERANCANGAN ADDRESSING TABLE DAN PORT ASSIGMENT

Tabel 4.1 Perancangan IP pada setiap switch dan PC client pada jaringan.

No	*Device*	*Interface*	IP *address*	*Subnet mask*
1	SW SITIPOL 1	VLAN 55	192.168.99.1	255.255.255.0
2	SW SITIPOL 2	VLAN 55	192.168.99.2	255.255.255.0
3	SW R.YASIN	VLAN 55	192.168.99.3	255.255.255.0
4	SW SAMPING POLRESTABES	VLAN 55	192.168.99.4	255.255.255.0
5	SW R.LORONG KASIUM	VLAN 55	192.168.99.5	255.255.255.0
6	SW R.SUMDA	VLAN 55	192.168.99.6	255.255.255.0
7	SW R.BELAKANG BANSAT	VLAN 55	192.168.99.7	255.255.255.0
8	SW R.SPKT	VLAN 55	192.168.99.8	255.255.255.0
9	SW URBIN OPS	VLAN 55	192.168.99.9	255.255.255.0
1	PC SITIPOL 1 - 8	NIC	192.168.1.49 - 192.168.1.54	255.255.255.0
2	PC SUMDA 1 – 8	NIC	192.168.20.1 - 2.168.10.10	255.255.255.0
3	PC BAG OPS 1 – 8	NIC	192.168.30.1 - 2.168.30.10	255.255.255.0
4	PC SPKT 1 – 4	NIC	192.168.30.11 – 2.168.30.20	255.255.255.0
5	PC VICON	NIC	192.168.50.1	255.255.255.0
6	PC KA	NIC	192.168.60.1	255.255.255.0

Tabel 4.2 Perencanaan Port Assigment yang akan di terapkan pada jaringan.

No	Device	Ports	Vtp Mode	Vlan	Nama	Network
1	SW SITIPOL 1	Fa0/1-Fa3/1	Trunk	Vlan 55	Cisco	192.168.55.0/24
2	SW SITIPOL 2	Fa0/1	Trunk	Vlan 55	Cisco	192.168.55.0/24
		Fa0/2	Access	Vlan 10	Sitipol	192.168.10.0/24
3	SW R.YASIN	Fa0/1-3	Trunk	Vlan 55	Cisco	192.168.55.0/24
		Fa0/4	Access	Vlan 50	Vicon	192.168.50.0/24
4	SW R.SAMPING POLRESTABES	Fa0/1-2	Trunk	Vlan 55	cisco	192.168.55.0/24
		Fa0/3	Access	Vlan 40	Ka	192.168.40.0/24
5	SW R.LORONG KASIUM	Fa0/1-2	Trunk	Vlan 55	Cisco	192.168.55.0/24
6	SW BELAKANG BANSAT	Fa0/1-3	Trunk	Vlan 55	Cisco	192.168.55.0/24
7	SW R.SPKT	Fa0/1	Trunk	Vlan 55	Cisco	192.168.55.0/24
		Fa0/2	Access	Vlan 30	SPKT	192.168.55.0/24
8	SW R.URBIN OPS	Fa0/1	Trunk	Vlan 55	Cisco	192.168.55.0 /24
		Fa0/2	Access	Vlan 30	SPKT	192.168.30.0/24
9	SW R.SUMDA	Fa0/1	Trunk	Vlan 99	Cisco	192.168.55.0/24
		Fa0/2	Access	Vlan 20	Sumda	192.168.20.0/24

4.4 KONFIGURASI VLAN

Konfigurasi VLAN cukup di lakukan di switch server (SITIPOL 1),karena jika kita mengkonfigurasi di switch server maka secara otomatis terdistribusi ke switch client yang mempunyai domain yang sama, inilah kelebihan dari VTP kita tidak perlu mengkonfigurasi VLAN pada setiap Switch yang ada , cukup di switch server.

Berikut List konfigurasi VLAN di Switch SITIPOL_1 :

```
SITIPOL_1>en
SITIPOL_1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SITIPOL_1(config)#vlan 99
SITIPOL_1(config-vlan)#name cisco
SITIPOL_1(config-vlan)#exit
SITIPOL_1(config)#vlan 10
SITIPOL_1(config-vlan)#name sitipol
```

```
SITIPOL_1(config-vlan)#exit
SITIPOL_1(config)#vlan 20
SITIPOL_1(config-vlan)#name sumda
SITIPOL_1(config-vlan)#exit
SITIPOL_1(config)#vlan 30
SITIPOL_1(config-vlan)#name SPKT
SITIPOL_1(config-vlan)#exit
SITIPOL_1(config)#vlan 40
SITIPOL_1(config-vlan)#name KA
SITIPOL_1(config-vlan)#exit
SITIPOL_1(config)#vlvvlan 50
SITIPOL_1(config-vlan)#name Vicon
SITIPOL_1(config-vlan)#exit
```

Berikut List konfigurasi VLAN di Switch SPKT :

```
SPKT>en
SPKT#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SPKT(config)#vlan 99
SPKT(config-vlan)#name cisco
SPKT(config-vlan)#exit
SPKT(config)#vlan 10
SPKT(config-vlan)#name sitipol
SPKT(config-vlan)#exit
SPKT(config)#vlan 20
SPKT(config-vlan)#name sumda
SPKT(config-vlan)#exit
SPKT(config)#vlan 30
SPKT(config-vlan)#name SPKT
SPKT(config-vlan)#exit
SPKT(config)#vlan 40
SPKT(config-vlan)#name KA
SPKT(config-vlan)#exit
SPKT(config)#vlvvlan 50
SPKT(config-vlan)#name Vicon
SPKT(config-vlan)#exit
```

Berikut List konfigurasi VLAN di Switch SUMDA :

```
SUMDA>en
SPKT#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SUMDA(config)#vlan 99
SUMDA(config-vlan)#name cisco
SUMDA(config-vlan)#exit
SUMDA(config)#vlan 10
SUMDA(config-vlan)#name sitipol
SUMDA(config-vlan)#exit
SUMDA(config)#vlan 20
SUMDA(config-vlan)#name sumda
SUMDA(config-vlan)#exit
SUMDA(config)#vlan 30
SUMDA(config-vlan)#name SPKT
SUMDA(config-vlan)#exit
SUMDA(config)#vlan 40
SUMDA(config-vlan)#name KA
SUMDA(config-vlan)#exit
SUMDA(config)#vlvvlan 50
SUMDA(config-vlan)#name Vicon
SUMDA(config-vlan)#exit
```

Berikut List konfigurasi VLAN di Switch SUMDA :

```
SUMDA>en
SPKT#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SUMDA(config)#vlan 99
SUMDA(config-vlan)#name cisco
SUMDA(config-vlan)#exit
SUMDA(config)#vlan 10
SUMDA(config-vlan)#name sitipol
SUMDA(config-vlan)#exit
SUMDA(config)#vlan 20
SUMDA(config-vlan)#name sumda
SUMDA(config-vlan)#exit
SUMDA(config)#vlan 30
SUMDA(config-vlan)#name SPKT
```

```
SUMDA(config-vlan)#exit
SUMDA(config)#vlan 40
SUMDA(config-vlan)#name KA
SUMDA(config-vlan)#exit
SUMDA(config)#vlvvlan 50
SUMDA(config-vlan)#name Vicon
SUMDA(config-vlan)#exit
```

Cek apakah VLAN yang sudah dibuat sudah masuk *database* dari masing masing tiap switch. Cara mengecek dengan memasukan perintah '*show vlan brief*'.

```
VLAN Name                             Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                          active    Fa0/4, Fa0/5, Fa0/6, Fa0/7
                                                Fa0/8, Fa0/9, Fa0/10, Fa0/11
                                                Fa0/12, Fa0/13, Fa0/14, Fa0/15
                                                Fa0/16, Fa0/17, Fa0/18, Fa0/19
                                                Fa0/20, Fa0/21, Fa0/22, Fa0/23
                                                Fa0/24
10   sitipol                          active
20   sumda                            active
30   SPKT                             active
40   KA                               active
50   Vicon                            active
99   cisco                            active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
SITIPOL_1#
```

Gambar 4.8 VLAN yang telah di buat di *Switch* SITIPOL

```
R.SPKT>show vlan brief

VLAN Name                             Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                          active    Fa0/2, Fa0/3, Fa0/4, Fa0/5
                                                Fa0/6, Fa0/7, Fa0/8, Fa0/9
                                                Fa0/10, Fa0/11, Fa0/12, Fa0/13
                                                Fa0/14, Fa0/15, Fa0/16, Fa0/17
                                                Fa0/18, Fa0/19, Fa0/20, Fa0/21
                                                Fa0/22, Fa0/23, Fa0/24
10   sitipol                          active
20   sumda                            active
30   SPKT                             active
40   KA                               active
50   Vicon                            active
99   cisco                            active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
R.SPKT>
```

Gambar 4.9 VLAN yang telah terdistribusi ke *Switch* SPKT

```
R.SUMDA>show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/2, Fa0/3, Fa0/4, Fa0/5
                                                Fa0/6, Fa0/7, Fa0/8, Fa0/9
                                                Fa0/10, Fa0/11, Fa0/12, Fa0/13
                                                Fa0/14, Fa0/15, Fa0/16, Fa0/17
                                                Fa0/18, Fa0/19, Fa0/20, Fa0/21
                                                Fa0/22, Fa0/23, Fa0/24
10   sitipol                          active
20   sumda                            active
30   SPKT                             active
40   KA                               active
50   Vicon                            active
99   cisco                            active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
R.SUMDA>
```

Gambar 4.10 VLAN yang telah terdistribusi ke *Switch* SUMDA

4.5 KONFIGURASI ALAMAT *INTERFACE SWITCH*

Digunakan untuk memberi ip pada pada switch yang akan digunakan pada VLAN 99 (Native VLAN) supaya setiap switch dapat memiliki ip.

```
SITIPOL_1(config)#interface vlan 55
SITIPOL_1(config-if)#ip address 192.168.55.1 255.255.255.0
SITIPOL_1(config-if)#no sh

SITIPOL2(config)#Interface vlan 55
SITIPOL2(config-if)#ip address 192.168.55.2 255.255.255.0
SITIPOL2(config-if)#no sh

R.YASIN(config)#interface vlan 55
R.YASIN(config-if)#ip address 192.168.55.3 255.255.255.0
R.YASIN(config-if)#no sh

R.SAMPING_POLRESTABES(config)#interface vlan 55
R.SAMPING_POLRESTABES(config-if)#ip address 192.168.55.4
255.255.255.0
R.SAMPING_POLRESTABES(config-if)#no sh

R.LORONG.KASIUM(config)#interface vlan 55
```

```
R.LORONG.KASIUM(config-if)#ip address 192.168.55.5
255.255.255.0
R.LORONG.KASIUM(config-if)#no sh

R.sumda(config)#interface vlan 55
R.sumda(config-if)#ip address 192.168.55.6 255.255.255.0
R.sumda(config-if)#no sh

R.BELAKANG_BANSAT(config)#interface vlan 55
R.BELAKANG_BANSAT(config-if)#ip address 192.168.55.7
255.255.255.0
R.BELAKANG_BANSAT(config-if)#no sh

R.SPKT(config)#interface vlan 55
R.SPKT(config-if)#ip address 192.168.55.8 255.255.255.0
R.SPKT(config-if)#no sh

R.URBIN_OPS(config)#interface vlan 55
R.URBIN_OPS(config-if)#ip address 192.168.55.9 255.255.255.0
R.URBIN_OPS(config-if)#no sh
```

4.6 KONFIGURASI *SWITCH PORT* DI VLAN

Bertujuan untuk mengenalkan port pada switch dengan VLAN yang digunakan pada tiap subnetwork.

```
SITIPOL2(config)#interface fastEthernet 0/2
SITIPOL2(config-if)#switchport access vlan 10

R.YASIN(config)#interface fastEthernet 0/4
R.YASIN(config-if)#switchport access vlan 50

R.SAMPING_POLRESTABES(config)#interface fastEthernet 0/3
R.SAMPING_POLRESTABES(config-if)#switchport access vlan 40

R.SPKT(config)#interface fastEthernet 0/2
R.SPKT(config-if)#switchport access vlan 30
```

```
R.URBIN_OPS(config)#interface fastEthernet 0/2
R.URBIN_OPS(config-if)#switchport access vlan 30

R.sumda(config)#interface fastEthernet 0/2
R.sumda(config-if)#switchport access vlan 20
```

4.7 HASIL KONFIGURASI VLAN

Setelah melakukan berbagai konfigurasi pada *switch* dan *router*, untuk menguji keberhasilan dari konfigurasi yang telah dilakukan sebelumnya maka perlu mengetikkan perintah ping pada *command prompt*(cmd) di setiap VLAN. Seperti pada Gambar 4.11 sampai pada Gambar 4.16.

```
Pinging 192.168.1.17 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.17:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Gambar 4.11 ping vlan 10 ke vlan 20

Karena memang berbeda VLAN, jika *Request time out* memang konfigurasi kita benar karena yang diharapkan *client* hanya bisa saling terhubung pada VLAN yang sama denganya saja seperti pada Gambar 4.16 jika berbeda VLAN maka tidak saling terhubung seperti pada Gambar 4.11 sampai dengan Gambar 4.15. .

```
Pinging 192.168.1.33 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.33:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Gambar 4.12 ping vlan 10 ke vlan 30

```
Pinging 192.168.1.49 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.49:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Gambar 4.13 ping vlan 10 ke vlan 40

```
Pinging 192.168.1.57 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.57:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Gambar 4.14 ping vlan 10 ke vlan 60

```
Pinging 192.168.1.61 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.61:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Gambar 4.15 ping vlan 10 ke vlan 50

```
Pinging 192.168.1.33 with 32 bytes of data:

Reply from 192.168.1.33: bytes=32 time=27ms TTL=128
Reply from 192.168.1.33: bytes=32 time=0ms TTL=128
Reply from 192.168.1.33: bytes=32 time=1ms TTL=128
Reply from 192.168.1.33: bytes=32 time=0ms TTL=128

Ping statistics for 192.168.1.33:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 27ms, Average = 7ms
```

Gambar 4.16 ping vlan 30 ke vlan 30