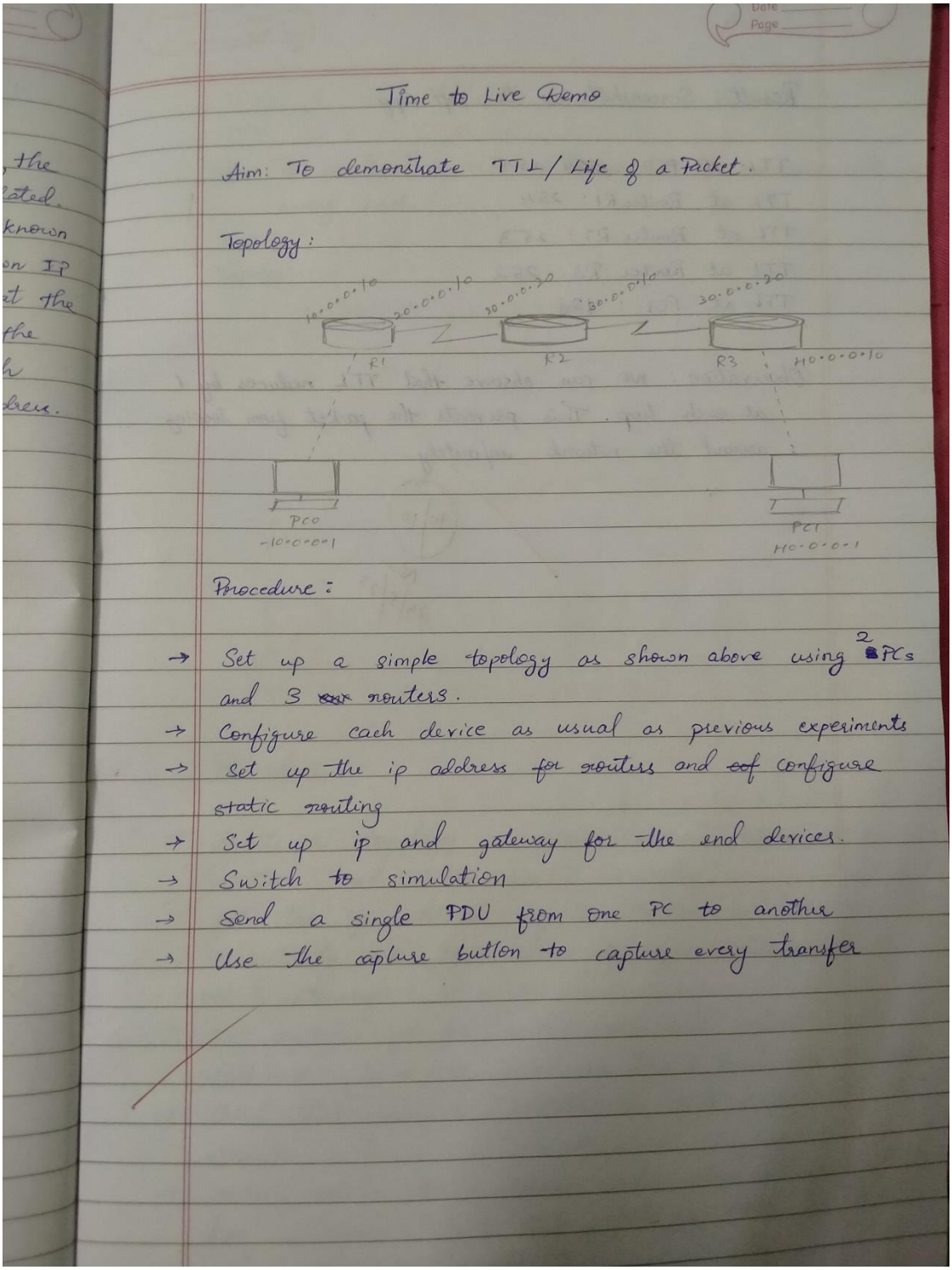
Experiment 7:

Demonstrate TTL of a packet



Time to Live Demo

Aim: To demonstrate TTL / Life of a Packet.

Topology:

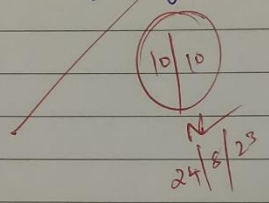
Procedure:

→ Set up a simple topology as shown above using 2 PCs and 3 routers.
→ Configure each device as usual as previous experiments
→ Set up the ip address for routers and configure static routing
→ Set up ip and gateway for the end devices.
→ Switch to simulation
→ Send a single PDU from one PC to another
→ Use the capture button to capture every transfer

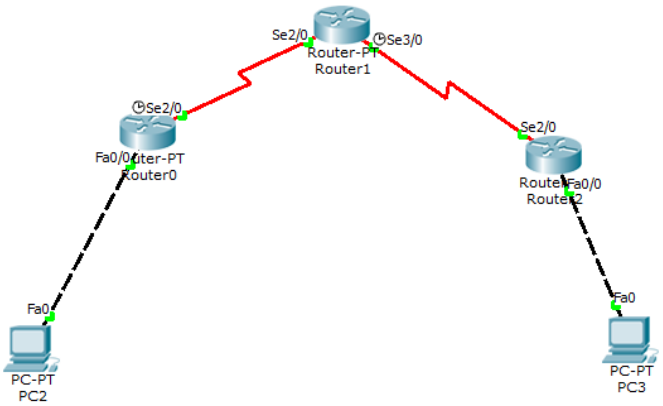
Result: Screenshots in the soft copy.

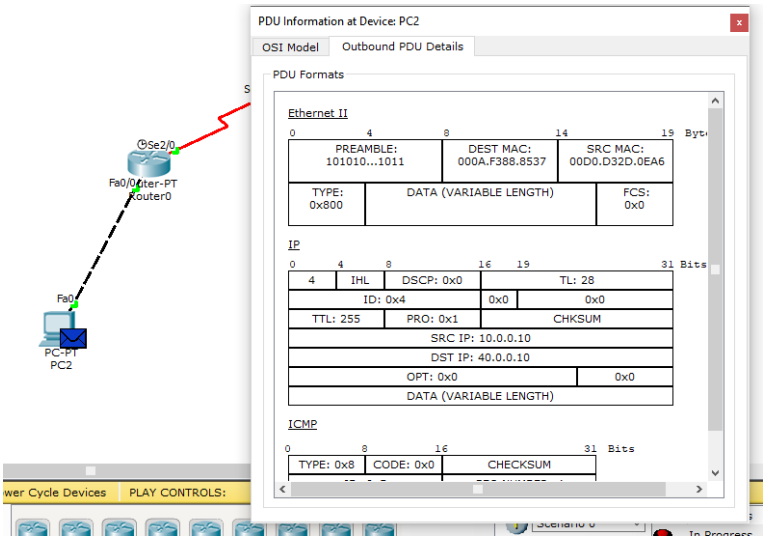
TTL at PC0: 255
TTL at Router R1: 254
TTL at Router R2: 253
TTL at Router R3: 252
TTL at PC1 : 128

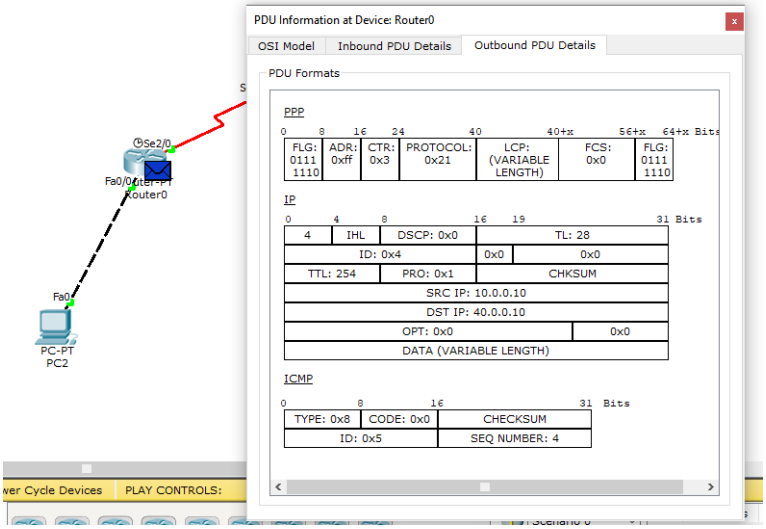
Observation: We can observe that TTL reduces by 1 at each hop. This prevents the packet from looping around the network infinitely.

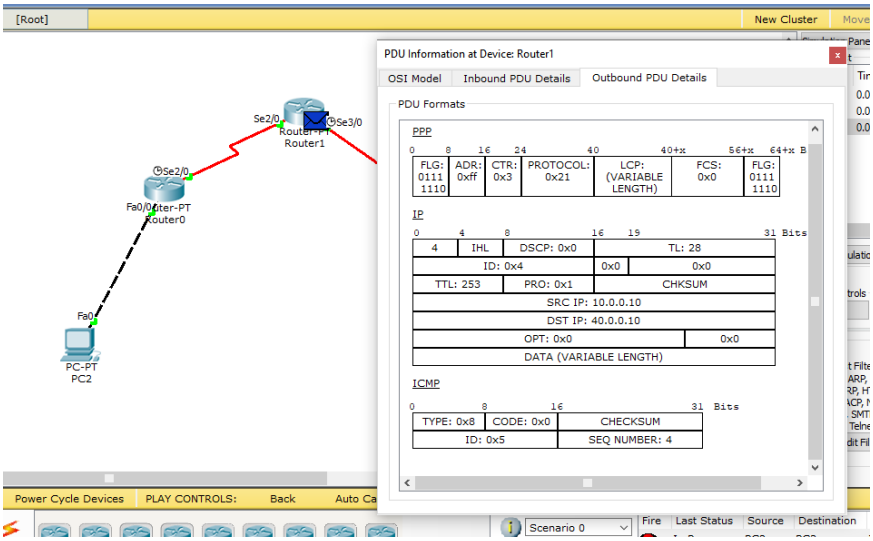


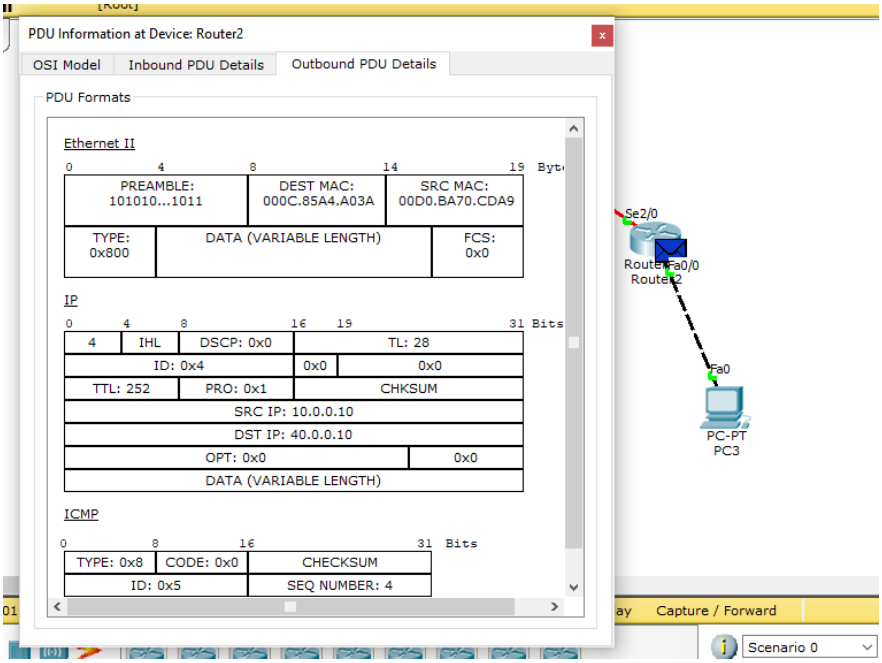
Topology and output screenshots:








[Root]
New Cluster
PDU Information at Device: Router1
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
PPP
FLG: 0111 1110
ADR: 0xff
CTR: 0x3
PROTOCOL: 0x21
LCP: (VARIABLE LENGTH)
FCS: 0x0
FLG: 0111 1110
IP
4
IHL
DSCP: 0x0
TL: 28
ID: 0x4
0x0
0x0
TTL: 253
PRO: 0x1
CHKSUM
SRC IP: 10.0.0.10
DST IP: 40.0.0.10
OPT: 0x0
0x0
DATA (VARIABLE LENGTH)
ICMP
TYPE: 0x8
CODE: 0x0
CHECKSUM
ID: 0x5
SEQ NUMBER: 4
Se2/0
Se3/0
Router1
Se2/0
Fa0/0
Router0
Fa0
PC-PT
PC2
Power Cycle Devices
PLAY CONTROLS:
Back
Scenario 0
Fire
Last Status
Source
Destination


PDU Information at Device: Router2
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
Ethernet II
PREAMBLE: 101010...1011
DEST MAC: 000C.85A4.A03A
SRC MAC: 00D0.BA70.CDA9
TYPE: 0x800
DATA (VARIABLE LENGTH)
FCS: 0x0
IP
4
IHL
DSCP: 0x0
TL: 28
ID: 0x4
0x0
0x0
TTL: 252
PRO: 0x1
CHKSUM
SRC IP: 10.0.0.10
DST IP: 40.0.0.10
OPT: 0x0
0x0
DATA (VARIABLE LENGTH)
ICMP
TYPE: 0x8
CODE: 0x0
CHECKSUM
ID: 0x5
SEQ NUMBER: 4
Se2/0
Router2
Fa0/0
Fa0
PC-PT
PC3
Capture / Forward
Scenario 0