Lab Assignments

Data Communication and Networks

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Submitted to:
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Indian Institute of Information Technology, Bhopal

Department of Information Technology

Data Communiction and Network (IT-311)

Bachelor of Technology

3rd Year, 5th Semster

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ASSIGNMENT – 01

1) **Know the Basics of Cisco Packet Tracer.**
2) **Download and work with CPT.**

Solution:

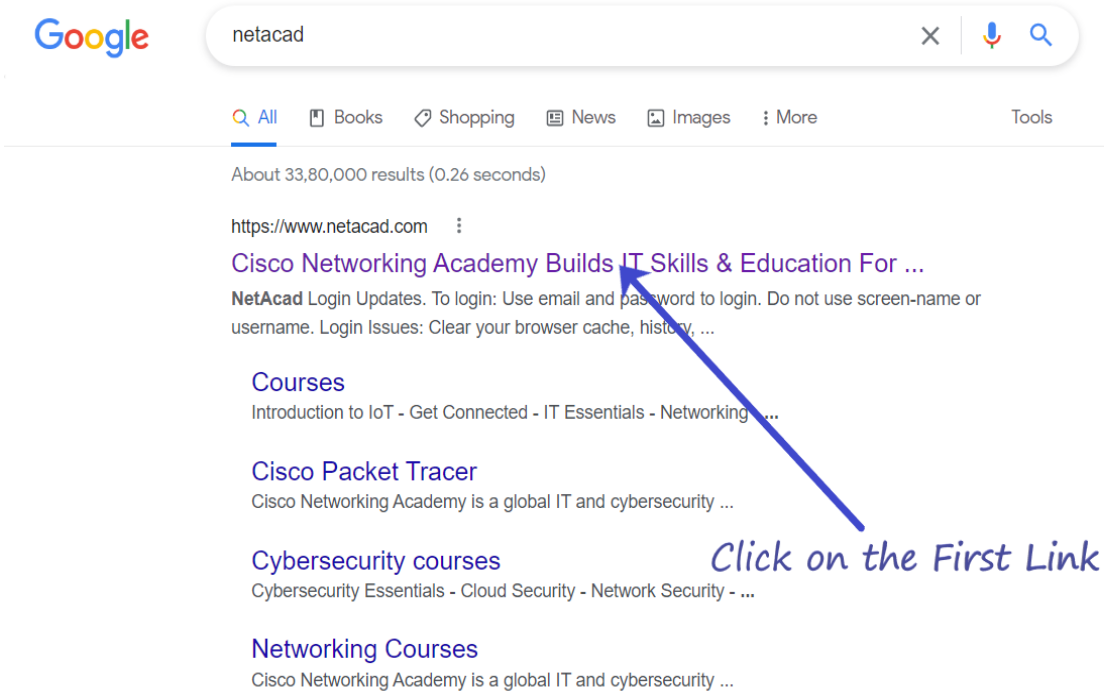
Cisco Packet Tracer:

Introduction –

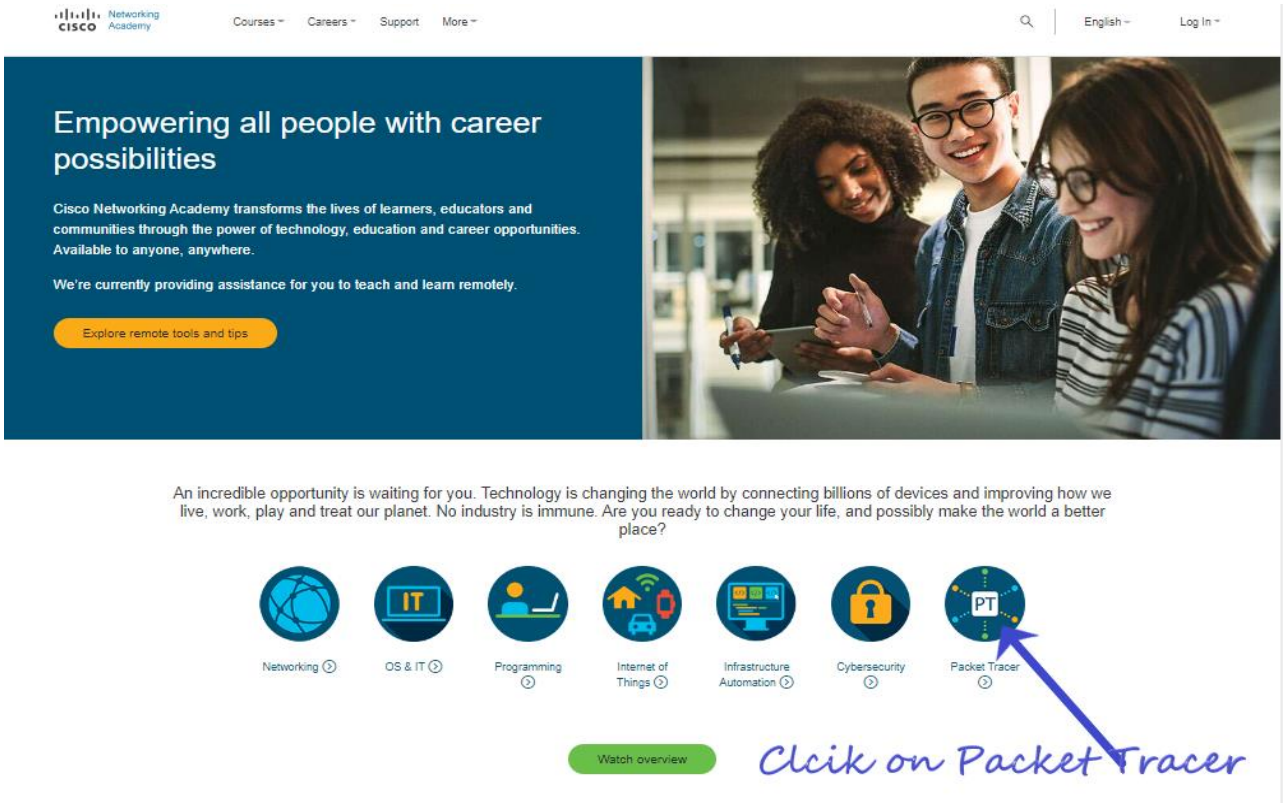
- The leaders in Networking.
- It is a cross-platform visual simulation tool designed by Cisco System that allows users to create network topologies and imitate modern computer networks.
- The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface.
- Platforms: Windows, Linux, Android, MacOS.
- An innovative and powerful networking simulation tool used for practice, discovery and, troubleshooting.
- Helps to understand network practically.

How To Download Cisco Packet Tracer…

***Step 1* –**


Google
netacad
All
Books
Shopping
News
Images
More
Tools
About 33,80,000 results (0.26 seconds)
https://www.netacad.com
Cisco Networking Academy Builds IT Skills & Education For ...
NetAcad Login Updates. To login: Use email and password to login. Do not use screen-name or username. Login Issues: Clear your browser cache, history, ...
Courses
Introduction to IoT - Get Connected - IT Essentials - Networking ...
Cisco Packet Tracer
Cisco Networking Academy is a global IT and cybersecurity ...
Cybersecurity courses
Cybersecurity Essentials - Cloud Security - Network Security - ...
Networking Courses
Cisco Networking Academy is a global IT and cybersecurity ...
Click on the First Link

Step 2 –


Networking Academy
Courses
Careers
Support
More
English
Log In
Empowering all people with career possibilities
Cisco Networking Academy transforms the lives of learners, educators and communities through the power of technology, education and career opportunities. Available to anyone, anywhere.
We're currently providing assistance for you to teach and learn remotely.
Explore remote tools and tips
An incredible opportunity is waiting for you. Technology is changing the world by connecting billions of devices and improving how we live, work, play and treat our planet. No industry is immune. Are you ready to change your life, and possibly make the world a better place?
Networking
OS & IT
Programming
Internet of Things
Infrastructure Automation
Cybersecurity
Packet Tracer
Watch overview
Clcik on Packet Tracer

Step 3 –

Step 4 –

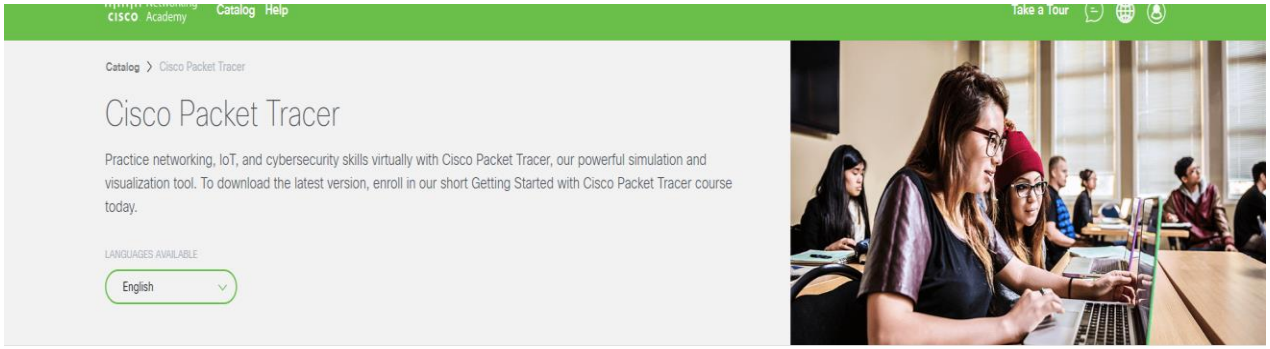
This course is now improved and available on a new website. Making it more engaging and efficient for you.

You will be redirected to the Skills For All with Cisco website. Once there, enroll in a Cisco Packet Tracer course to download the software and get started.

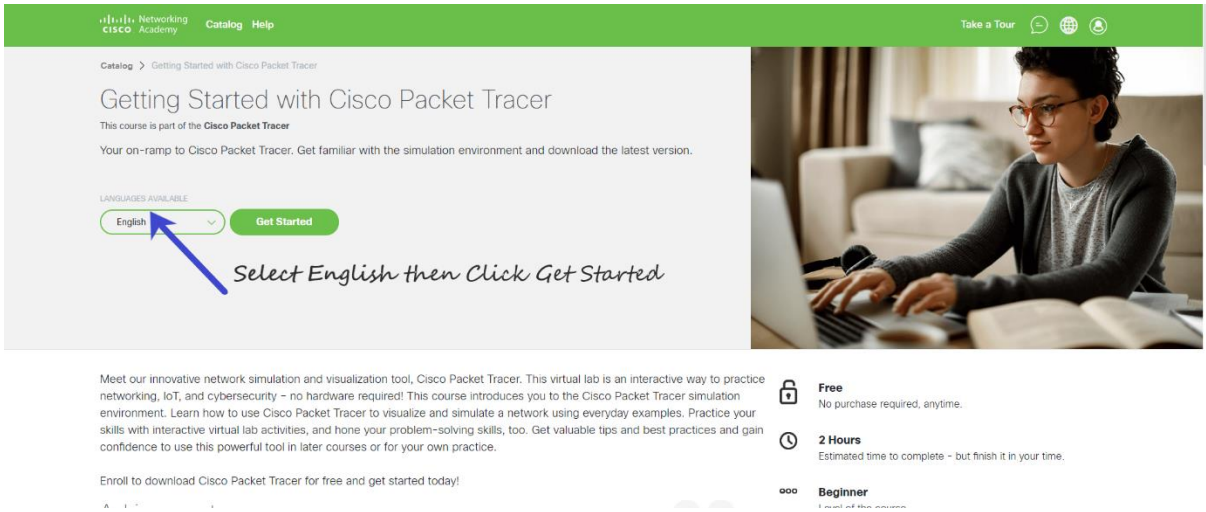
Click on Skills For All

If the window hasn't opened, select this link: Skills For All

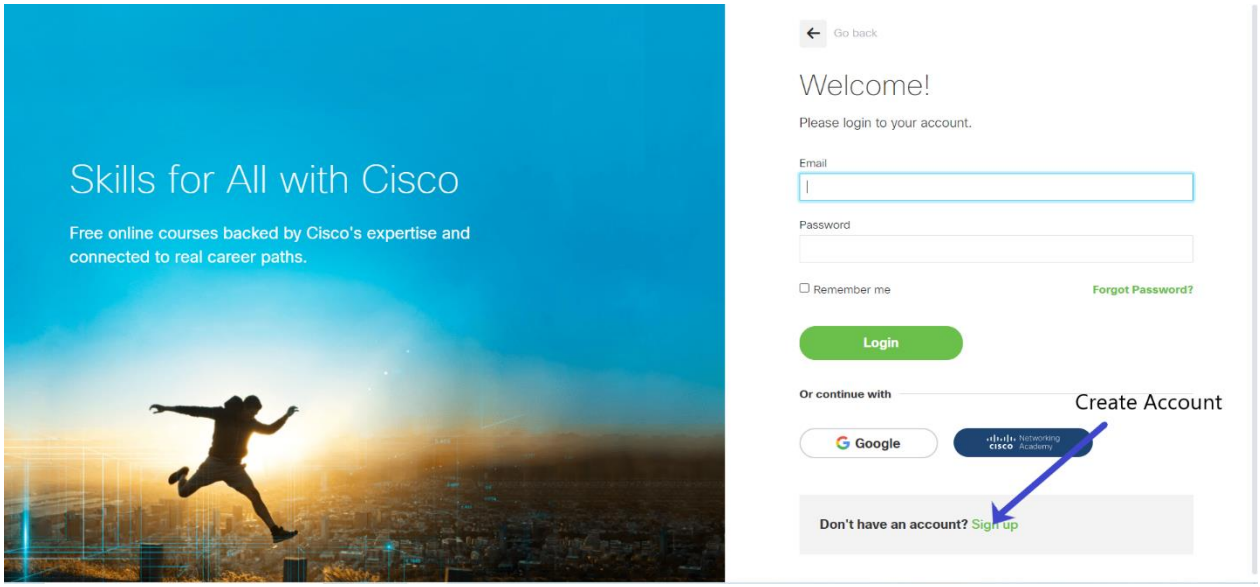
Step 5 –


Catalog Help
Take a Tour
Catalog > Cisco Packet Tracer
Cisco Packet Tracer
Practice networking, IoT, and cybersecurity skills virtually with Cisco Packet Tracer, our powerful simulation and visualization tool. To download the latest version, enroll in our short Getting Started with Cisco Packet Tracer course today.
LANGUAGES AVAILABLE
English
Practice Real Skills. Virtually.
Deepen your understanding of how a network works, and step into the virtual lab to build your own! With Cisco Packet Tracer, you can watch how data travels across your network using Simulation Mode, or practice setting up your own device rack and cables in Physical Mode. Once you are ready, expand your simulations to analyze network traffic, add Internet of Things (IoT) devices, integrate Python code, or practice network automation skills. New to networking? No problem. Cisco Packet Tracer enables a suite of tutored activities that give you hints along the way, if you want them. Packet Tracer Tutored Activities are currently available for select courses.
Click Here
With over a million users across the globe, you will find a vibrant community to share network designs, ideas, and more. Best of all, it's free!
Cisco Packet Tracer is a powerful tool – let us help you be successful with updated features, tips, and best practices. Enroll in our short Getting Started with Cisco Packet Tracer course to download the latest version.

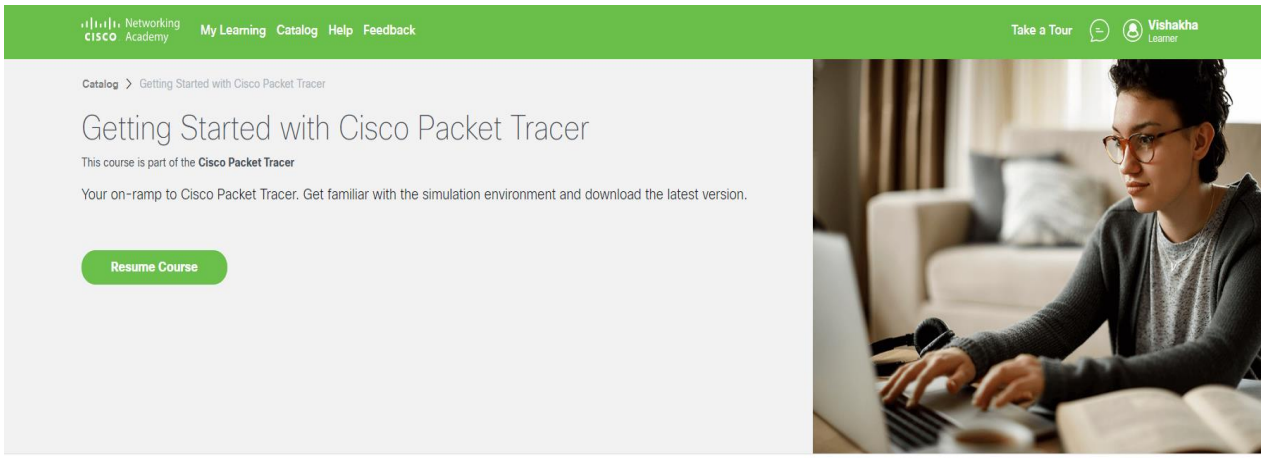
Step 7-


Networking Academy
Catalog Help
Take a Tour
Catalog > Getting Started with Cisco Packet Tracer
Getting Started with Cisco Packet Tracer
This course is part of the Cisco Packet Tracer
Your on-ramp to Cisco Packet Tracer. Get familiar with the simulation environment and download the latest version.
LANGUAGES AVAILABLE
English
Get Started
Select English then Click Get Started
Meet our innovative network simulation and visualization tool, Cisco Packet Tracer. This virtual lab is an interactive way to practice networking, IoT, and cybersecurity – no hardware required! This course introduces you to the Cisco Packet Tracer simulation environment. Learn how to use Cisco Packet Tracer to visualize and simulate a network using everyday examples. Practice your skills with interactive virtual lab activities, and hone your problem-solving skills, too. Get valuable tips and best practices and gain confidence to use this powerful tool in later courses or for your own practice.
Enroll to download Cisco Packet Tracer for free and get started today!
Free
No purchase required, anytime.
2 Hours
Estimated time to complete - but finish it in your time.
Beginner

Step 8 –



Step 9 –



Meet our innovative network simulation and visualization tool, Cisco Packet Tracer. This virtual lab is an interactive way to practice networking, IoT, and cybersecurity - no hardware required! This course introduces you to the Cisco Packet Tracer simulation environment. Learn how to use Cisco Packet Tracer to visualize and simulate a network using everyday examples. Practice your skills with interactive virtual lab activities, and hone your problem-solving skills, too. Get valuable tips and best practices and gain confidence to use this powerful tool in later courses or for your own practice.

Enroll to download Cisco Packet Tracer for free and get started today!

Achievements

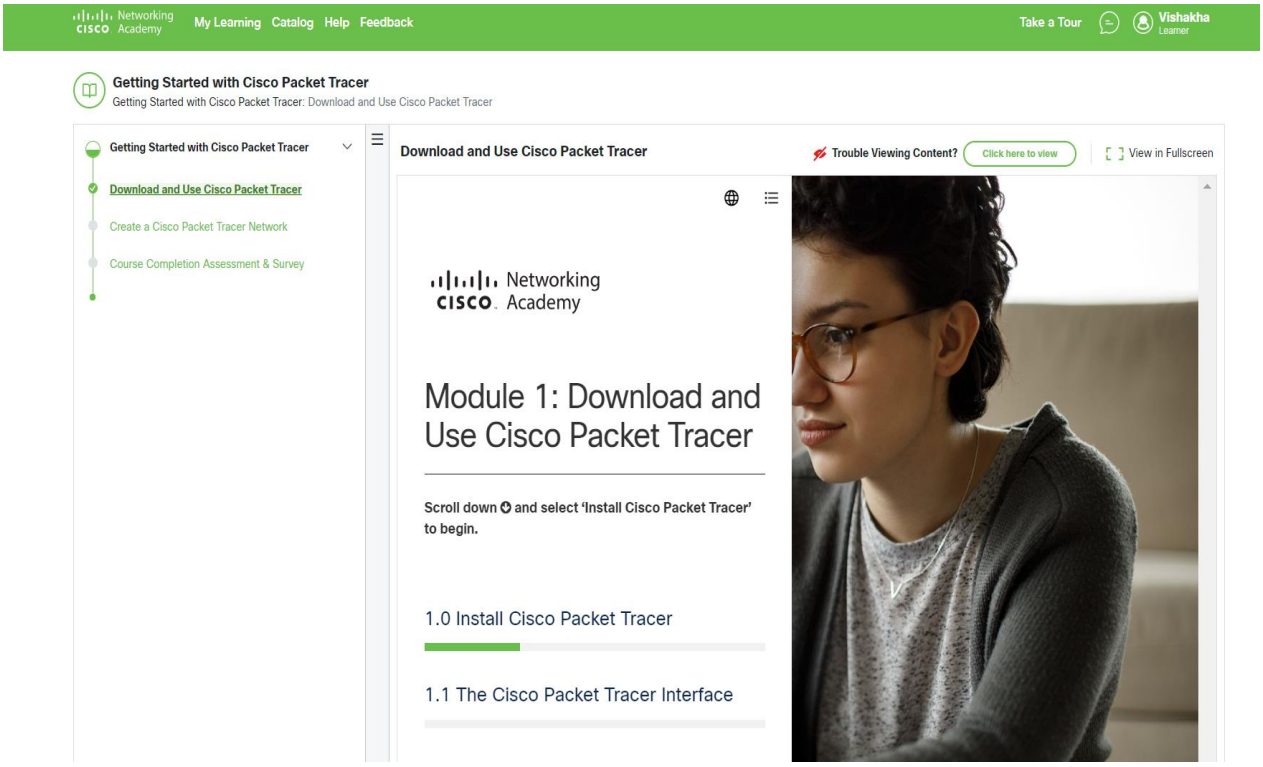
Free
No purchase required, anytime.

2 Hours
Estimated time to complete - but finish it in your time.

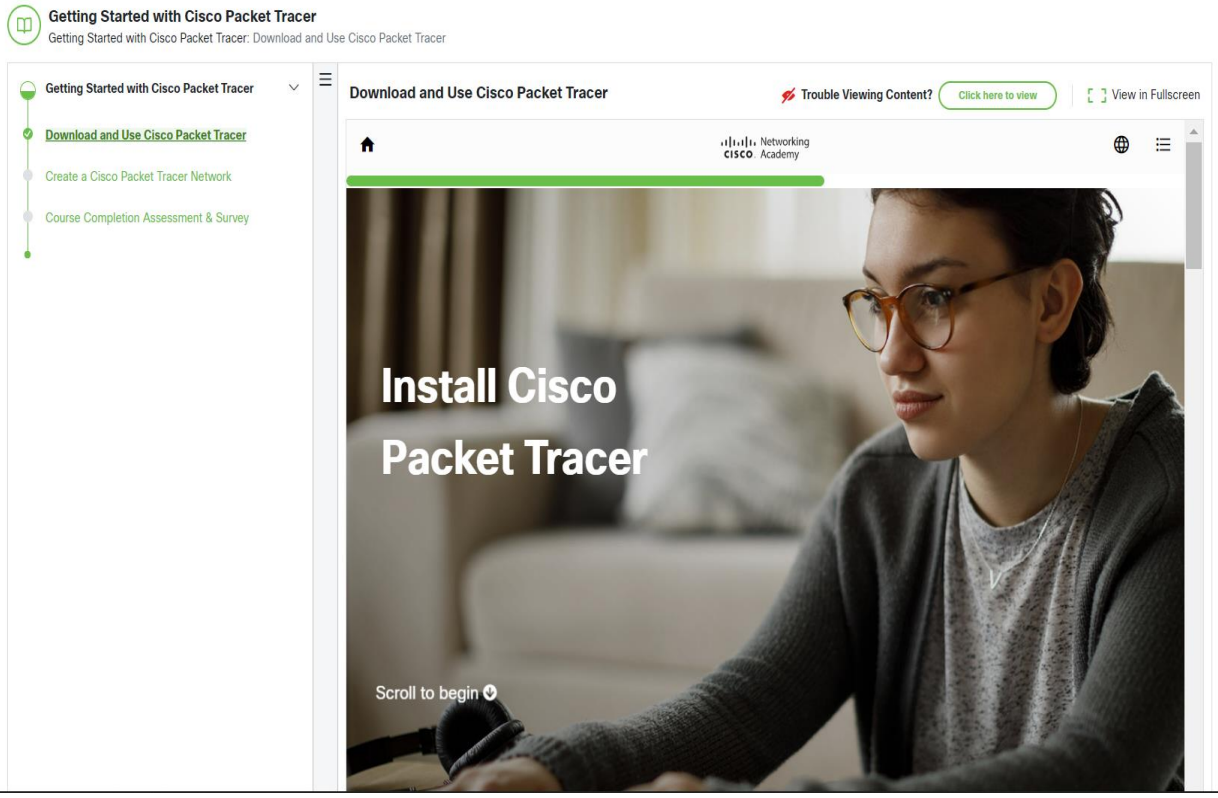
Beginner
Level of the course.

4 Languages
English, Español, Português, Français

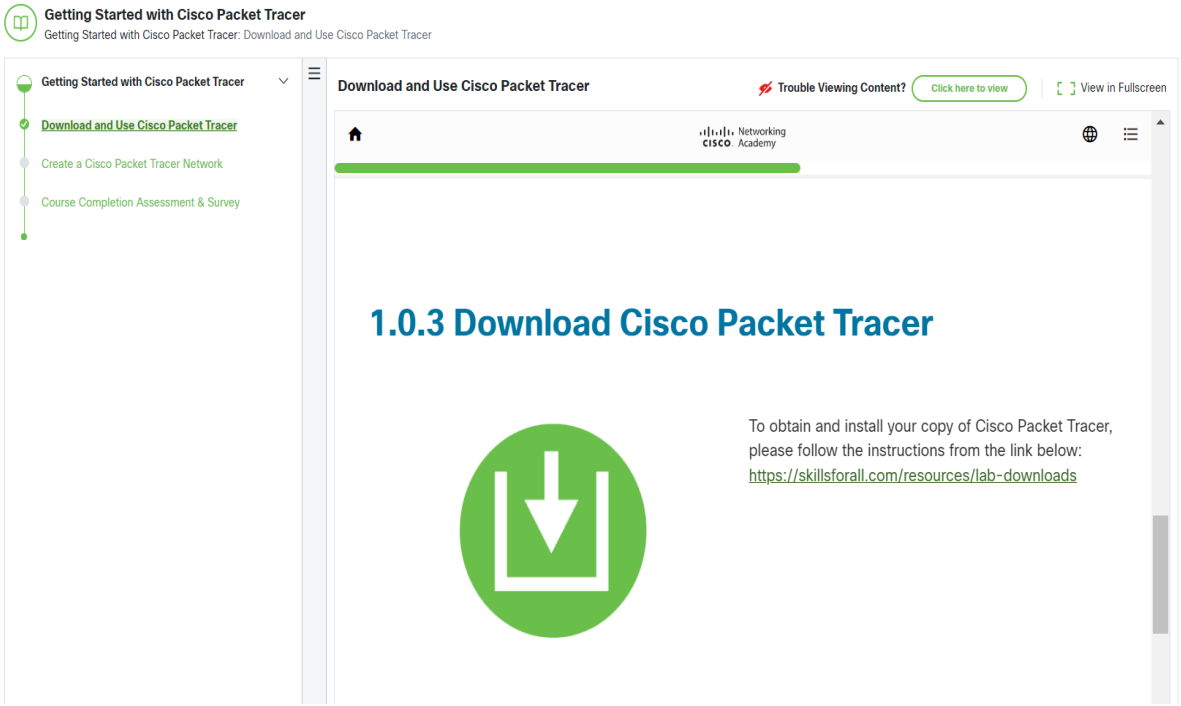
Step 10 –



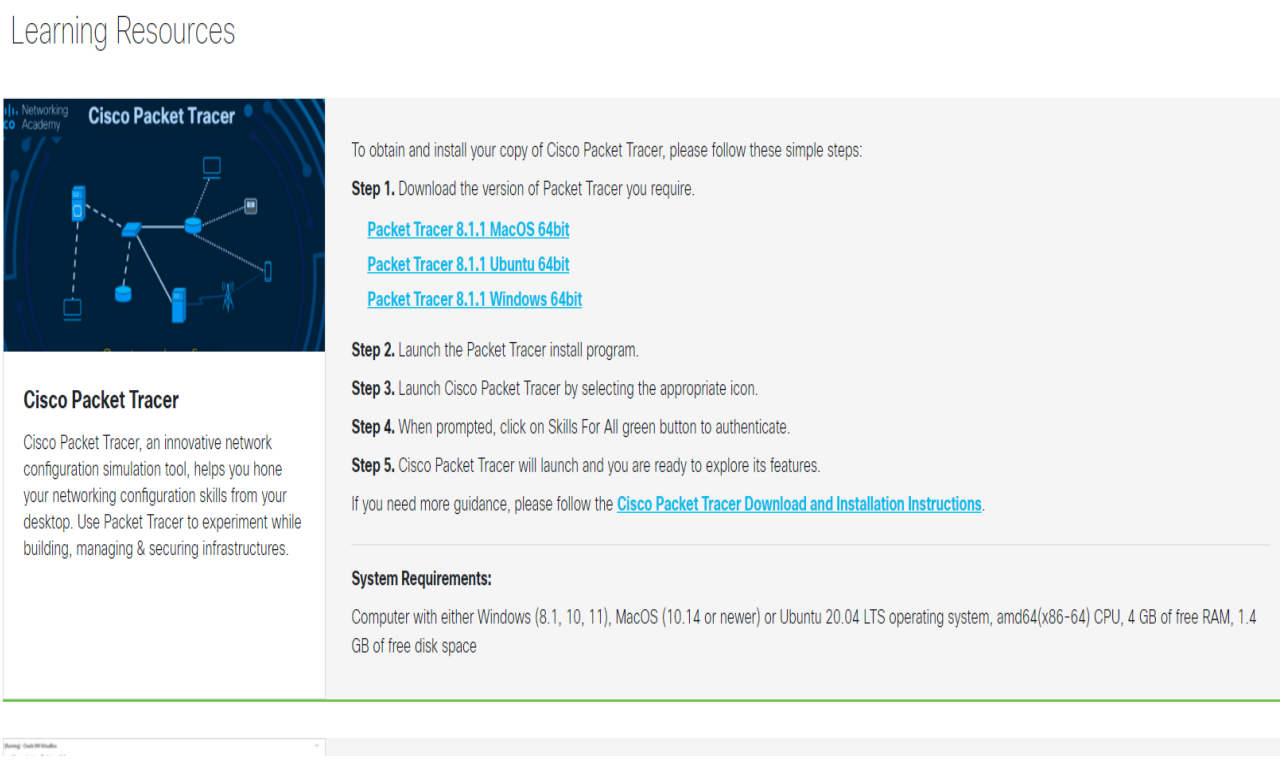
Step 11 –



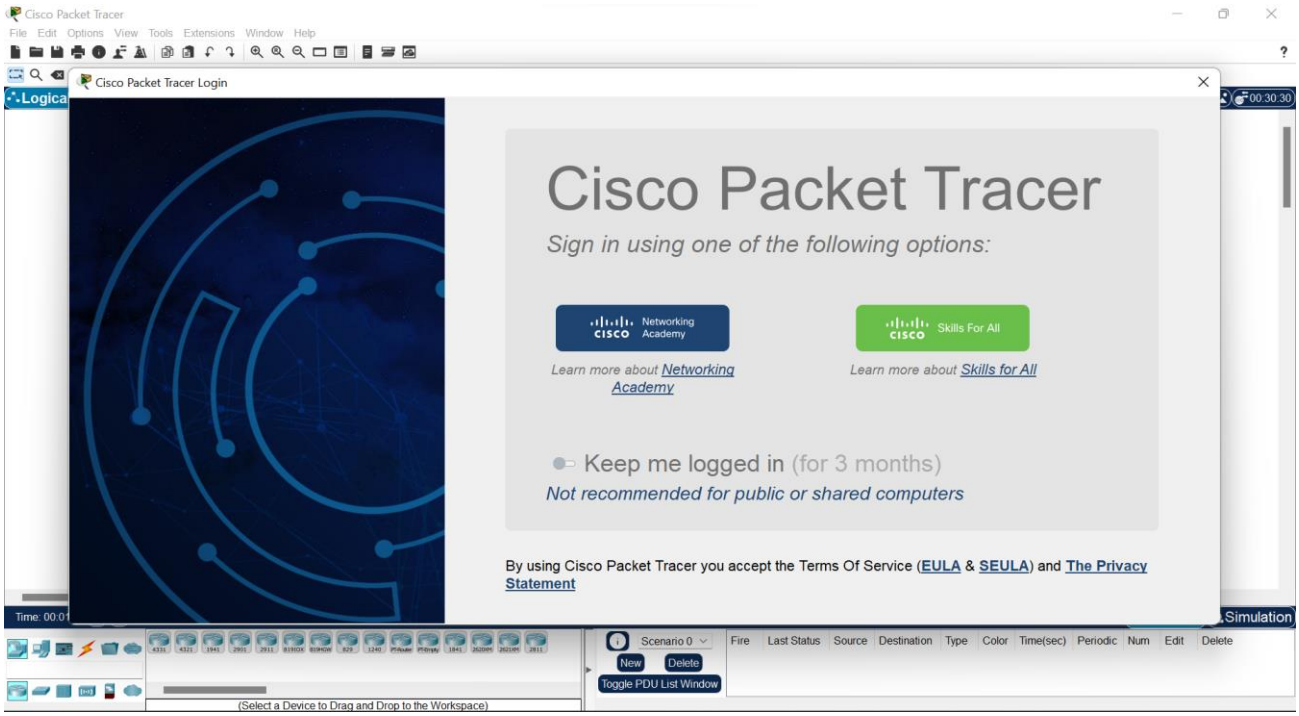
Step 12 –



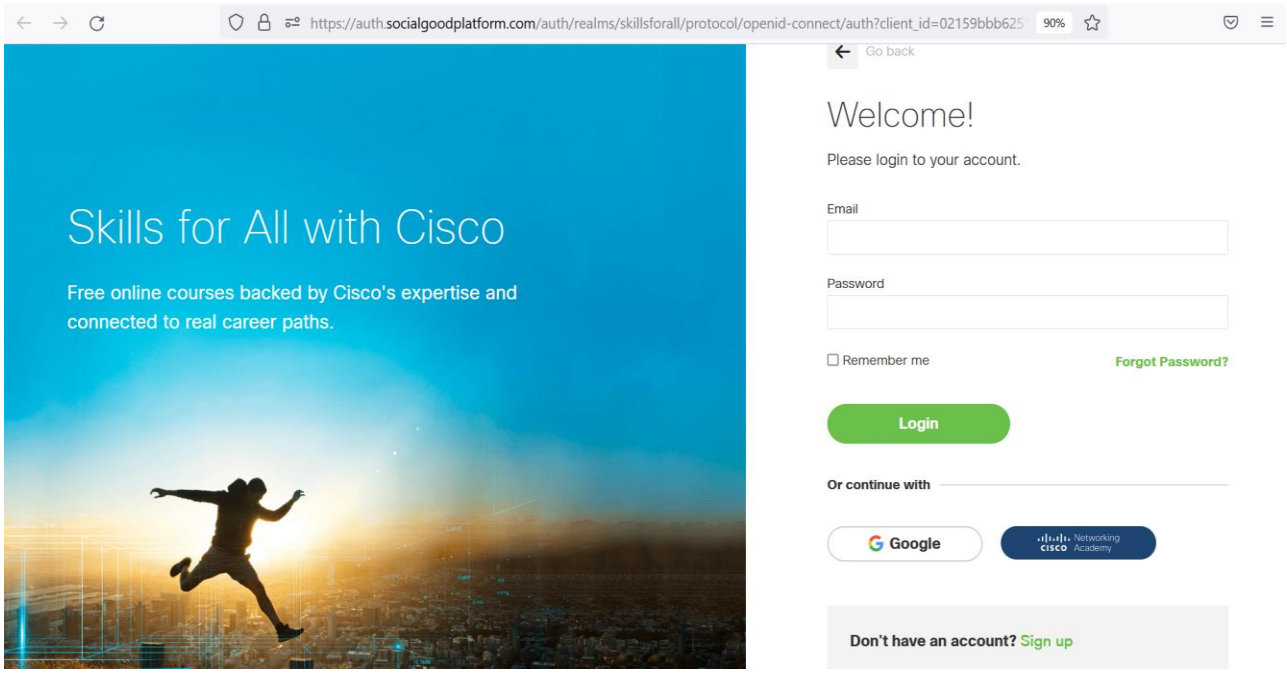
Step 13 –



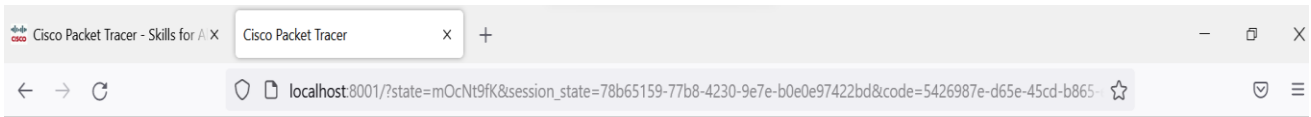
Step 14 –



Step 15 –



Step 16 –



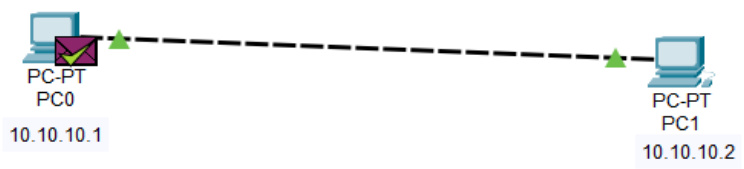
You have successfully logged in to Cisco Packet Tracer. You may close this tab.

ASSIGNMENT – 02

Establish pair to pair communication and show that delivery of packets is successful check MAC and PHY address of systems.

Solution:

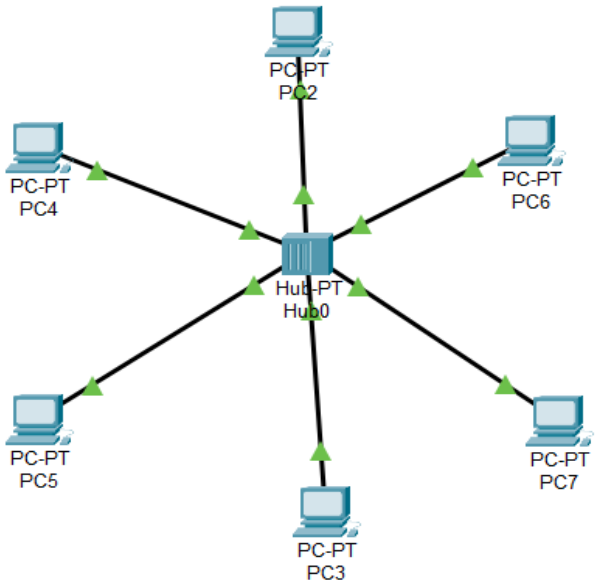

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::20A:41FF:FE5C:9360
   IPv6 Address.....: ::
   IPv4 Address.....: 10.10.10.1
   Subnet Mask.....: 255.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: ::
   IPv6 Address.....: ::
   IPv4 Address.....: 0.0.0.0
   Subnet Mask.....: 0.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

C:\>ping 10.10.10.2

Pinging 10.10.10.2 with 32 bytes of data:

Reply from 10.10.10.2: bytes=32 time=1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```



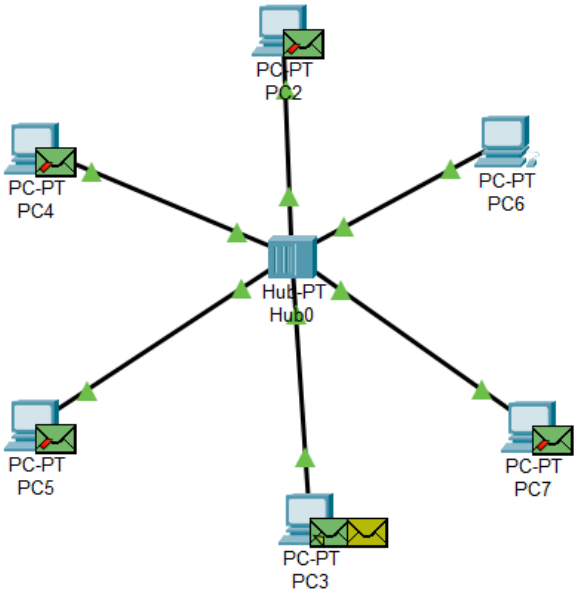
ASSIGNMENT – 03

Simulate LAN using HUB after setting show packet movement through simulation.

Solution:



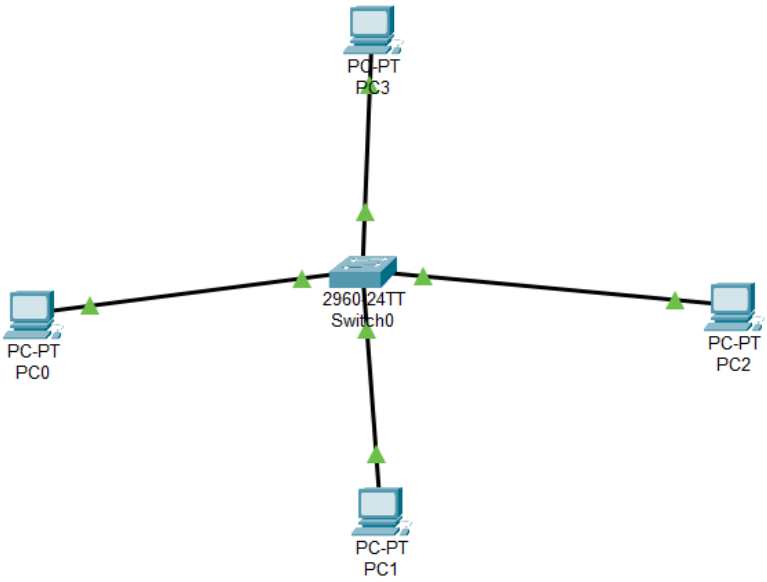

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::202:16FF:FE80:797A
   IPv6 Address.....: ::
   IPv4 Address.....: 10.10.10.3
   Subnet Mask.....: 255.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: ::
   IPv6 Address.....: ::
   IPv4 Address.....: 0.0.0.0
   Subnet Mask.....: 0.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

C:\>ping 10.10.10.6

Pinging 10.10.10.6 with 32 bytes of data:

Reply from 10.10.10.6: bytes=32 time<1ms TTL=128
Reply from 10.10.10.6: bytes=32 time<1ms TTL=128
Reply from 10.10.10.6: bytes=32 time<1ms TTL=128
Reply from 10.10.10.6: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```


PC-PT
PC2
PC-PT
PC4
PC-PT
PC6
Hub-PT
Hub0
PC-PT
PC5
PC-PT
PC7
PC-PT
PC3

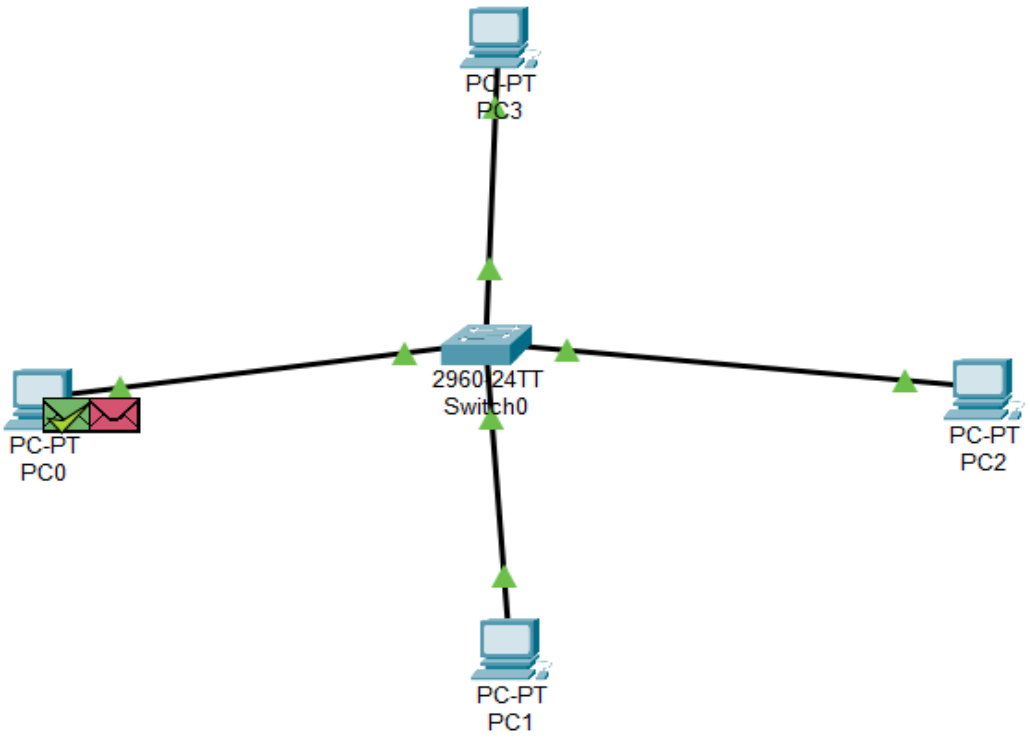
ASSIGNMENT – 04

Question: Demonstrate the use of the switch and show through stimulation the working of the same.

Solution:



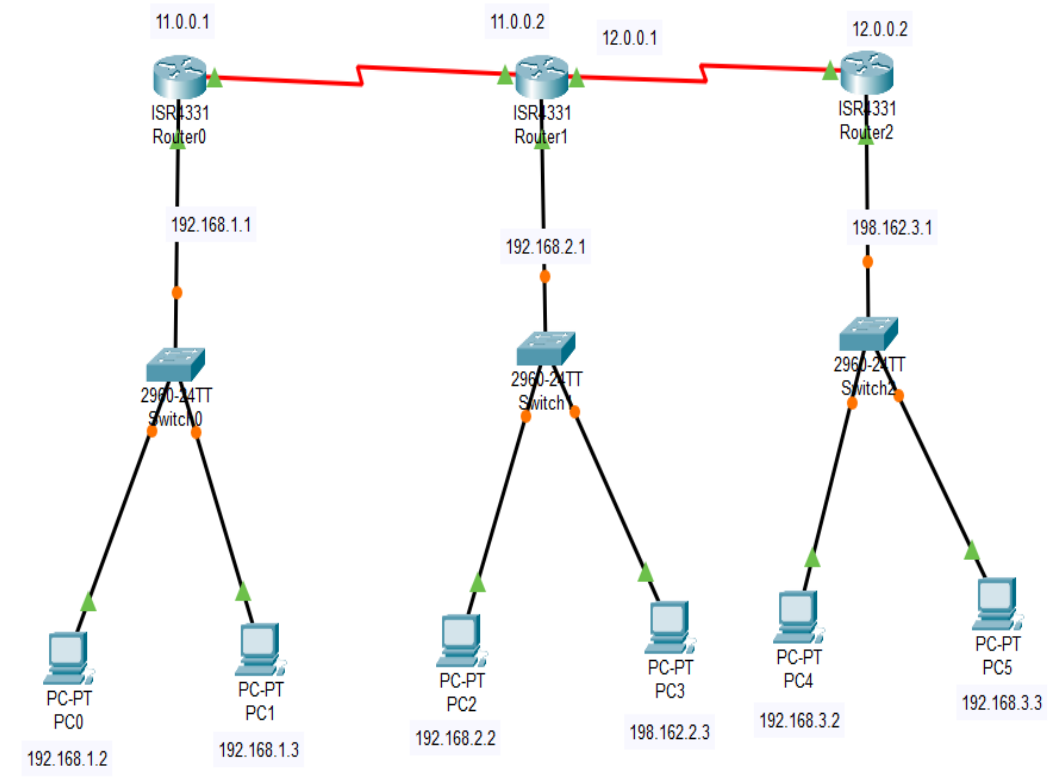

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::210:11FF:FEAC:C73D
   IPv6 Address.....: ::
   IPv4 Address.....: 10.10.10.0
   Subnet Mask.....: 255.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: ::
   IPv6 Address.....: ::
   IPv4 Address.....: 0.0.0.0
   Subnet Mask.....: 0.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

C:\>ping 10.10.10.2

Pinging 10.10.10.2 with 32 bytes of data:

Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

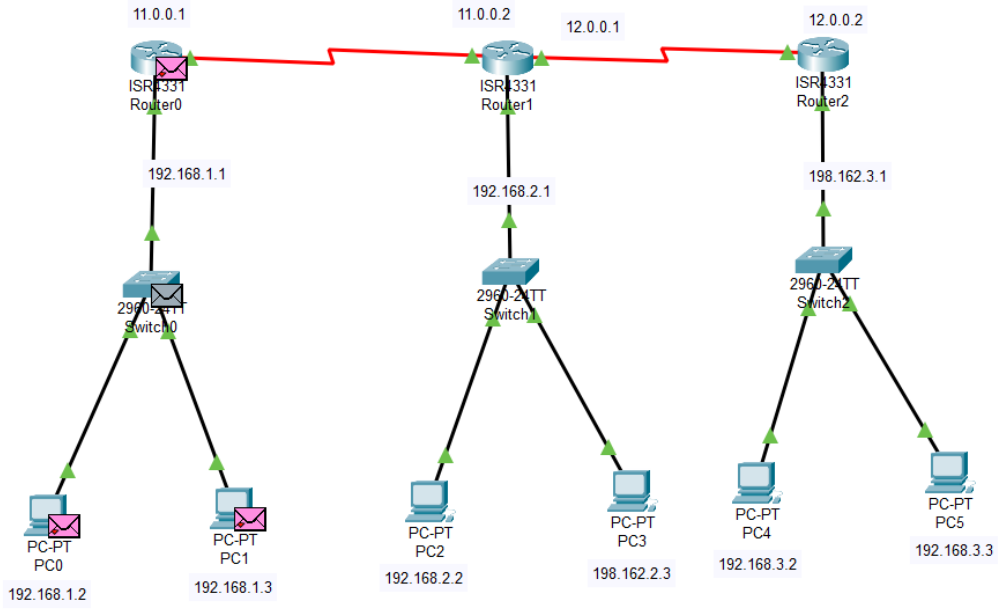

PC-PT
PC3
2960-24TT
Switch0
PC-PT
PC0
PC-PT
PC2
PC-PT
PC1

ASSIGNMENT – 05

Question: Demonstrate static routing with the use of the router to establish communication between two different LANs.

Solution:





```
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: FE80::210:11FF:FEAC:C73D
   IPv6 Address.....: ::
   IPv4 Address.....: 10.10.10.0
   Subnet Mask.....: 255.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Link-local IPv6 Address.....: ::
   IPv6 Address.....: ::
   IPv4 Address.....: 0.0.0.0
   Subnet Mask.....: 0.0.0.0
   Default Gateway.....: ::
                                 0.0.0.0

C:\>ping 10.10.10.2

Pinging 10.10.10.2 with 32 bytes of data:

Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```