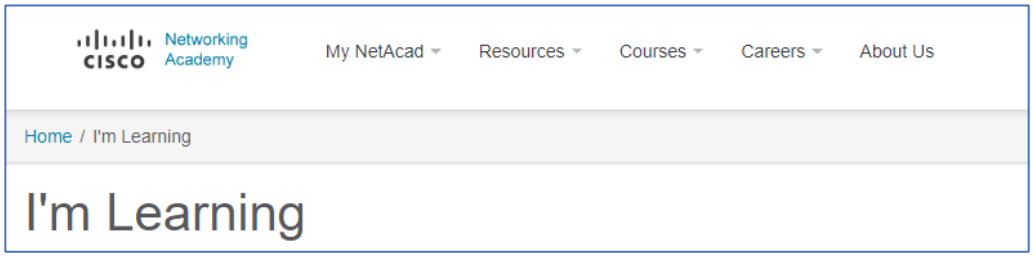
Computer Networks - Assignment III

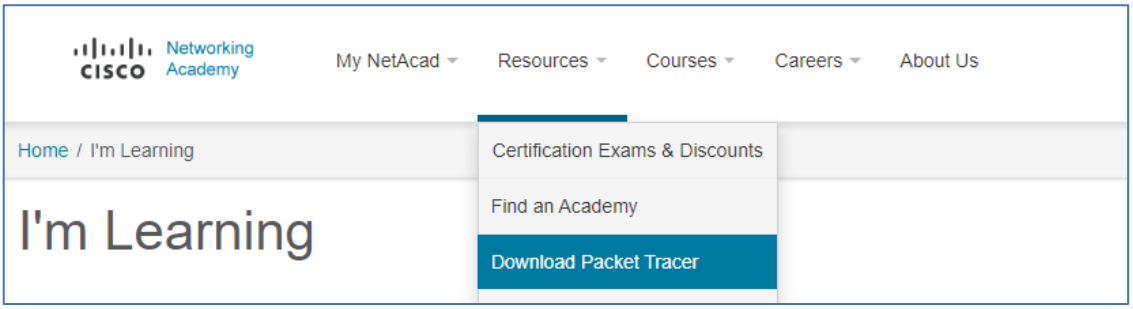
This goal of this assignment is to introduce one of the network simulators that can be used to design computer networks. We will use the *Packet tracer*, a network simulator by CISCO, to create simple networks with a set of devices (e.g., routers, switches, computers), configure such devices, and simulate packet routing and movement.

Step 1 - Installing the packet tracer:

- Check https://www.netacad.com/courses/packet-tracer/introduction-packet-tracer
- Scroll down, then click on "*Sign up today!*" to create a new account (you may use any personal email)
- After you create a new account, the site will forward you to *My NetAcad* page:



- From the top menu, check *Resources* and then click *Download Packet Tracer*



- Scroll down to the *download* sub-section and click on the download link according to your operating system (e.g., Windows, Linux).

- Unzip the downloaded file (using the tool you find appropriate, e.g., WinRAR) then install the tool.

Step 2 - Using the packet tracer:

Open the tool and ***follow the steps*** of the following short tutorials (This set of tutorials is provided by Neso Academy over YouTube). Listen to each tutorial carefully as some icons (e.g., the routers) in the installed version may be in a slightly different positions than the ones in the video. Note: you will hear "click RETURN", this is the "Enter" button on your keyboard.

- Tutorial1: Two computers are directly connected to each other (https://www.youtube.com/watch?v=frUQMHXhnvs)
- Tutorial2: Set of devices are connected through a physical layer device, called Hub (https://www.youtube.com/watch?v=FZ8hRDakHvI)
- Tutorial3: Replace the Hub with the data-link layer device, Switch (https://www.youtube.com/watch?v=eFY6mi3lmRQ)
- Tutorial4: Creating two small LANs and one router between them (https://www.youtube.com/watch?v=FnH1XUQsoD8)

Task Description:

Task 1 (**6 points**): for each tutorial of step2, take clear screenshot to the topology you created and other clear screenshot(s) to the packet(s) flowing between different devices.

Task 2 (4 points): RIP (Routing Information Protocol) is an early routing protocol used to route packets in small to medium sized networks. Do some ***search on the internet***, then use your own words and/or develop figure(s) to explain the work/algorithm of this routing protocol and clearly mention the difference between RIP and the link state routing protocol we discussed in class. You should cite (mention) the online articles/resources you used to answer these question – plagiarism (and copying from resources) will be checked and will receive ***zero***.

Submission:

1. This is an **individual assignment** -- Cheating/plagiarism will be checked and will receive zero.
2. Use the tool you find appropriate to develop your solutions (e.g., Microsoft word) – **DON'T submit handwritten solutions**.
3. Submit only **ONE PDF file** to the folder titled Assignment 3 under the D2L Assignments tab (*other formats will not be accepted*).
4. The assignment is due Wednesday **October 21st – 10:00pm**. You can submit your assignment, within 24 hours after this due date, to be graded out of 50% of the assignment's grade. After this grace period your late submission will not be accepted.