**Department of Computer Science and Information Technology**

**TELECOM NETWORK MANAGMENT: CSIWZG582**

**Laboratory Work Sheet -I**

1. **Objective:**

At the end of this laboratory session students will be:

* To gain familiarity with the Network monitoring and traffic monitoring utilities in Linux and Windows.

1. **Pre-requisite:**
2. Knowledge of Linux and command line usage
3. Understanding of Networking Protocols
4. Knowledge of IPv4 and IPv6 addressing,
5. **Important Instructions:**
   1. Experiment should be conducted on the BITS Nuvepro Cloud laboratory only. **Experiments conducted outside this laboratory platform will not be evaluated.**
   2. Instructions on howto access and use the Nuvepro Cloud lab platform is available in the document “Steps to access cloud based CS/IS virtual lab.pdf”.
   3. While using the Nuvepro Cloud, save all your work in **Persistent folder** which is available on the desktop.
   4. Completed worksheet should be **uploaded in Taxila (e-learn) portal only**. Last date for uploading the document is **06-11-2024**.
   5. This laboratory activity carries 6% of weightage
   6. **Refrain from copying or sharing documents with others. Any evidence of such practice will attract severe penalty**.
   7. Any queries related to LAB Activities should be sent to <srikanthp@wilp.bits-pilani.ac.in > and [w.lab@wilp.bits-pilani.ac.in](mailto:w.lab@wilp.bits-pilani.ac.in)
   8. Attach the screenshot of the output in line with the question or at the end of the document mentioning proper question number.
6. **Lab Exercise:**

**Problem Statement:**

Open the linux terminal and execute the following basic networking tools and utilities. Make your observations and record the output of each command.

**Steps to be followed: Open the terminal in Linux and execute the following commands:**

1. **ifconfig**

**Observe the details that are displayed and record**

* + Number of interfaces that are shown.
  + IP address and MAC address of the respective interfaces.
  + Other statistical information.
  + What is Subnet Mask of each interface and its significance.

1. **ping x.x.x.x or ping <some\_domain\_name>**

**(x.x.x.x – represents some IP address of the node)**

* + What is the use of **ping** utility in computer networks?
  + Observe the different details that are displayed like time for icmp echo request and replies, number of bytes sent etc.
  + Also try to ping an IP address or domain name that does not exist and record your observations.

1. **nslookup www.abc.com (or any other website)**
   * What is the purpose of **nslookup** utility in computer networks?
   * Make a query to obtain the IP address of some website using nslookup utility and record the same.
   * Observe the type A, server, non-authoritative or other type information that are displayed for the ip addresses and record the same.
2. **dig www.abc.com (or any other website)**
   * What does “dig” stand for and why it being used in networking?
   * Make a query for one website and record the output of the command such as IP addresses, query time etc.
   * Observe for any other additional details.
3. **host www.abc.com (or any other website)**
   * Observe the details that are displayed containing various ip addresses of the server queried.
4. **netstat**
   * Observe the details displayed like the list of open connections.
5. **netstat –i**
   * Observe the details of the networking interfaces.
6. **netstat –r**
   * Observe the details of the routing table
7. **arp –a**
   * What does “arp” stands for and what is the purpose of the arp utility?
   * Observe the details on the entries in ARP table and record the same.

**Submission guidelines:**

The student should be instructed to take a snapshot of the screen to showcase their usage of the Nuvepro lab portal along with the required codebase and other needed information.

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| --- | --- |
| Screen shot for 1. |  |
| Screen shot for 2. |  |
| Screen shot for 3. |  |
| Screen shot for 4. |  |
| Screen shot for 5. |  |
| Screen shot for 6. |  |
| Screen shot for 7. |  |
| Screen shot for 8. |  |
| Screen shot for 9. |  |

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