a) Perform a DNS Query

- Use `nslookup` :

  Bash

  ```
  nslookup <hostname>
  ```

  - Replace `<hostname>` with the domain name or hostname you want to resolve
    (e.g., `www.google.com` , `example.com`).

    `nslookup` will query the DNS server and display the IP address(es) associated with the given
    hostname.
- Use `dig` :

  Bash

  ```
  dig <hostname>
  ```

  `dig` is a more powerful and flexible DNS query tool that provides more detailed information than
  `nslookup` .

b) Test Network Connectivity

- Use `ping` :

  Bash

  ```
  ping -c 4 <hostname_or_ip_address>
  ```

  - Replace `<hostname_or_ip_address>` with the hostname or IP address of the remote system.
  - `-c 4` specifies that the `ping` command should send 4 packets.

  If the `ping` command is successful, it indicates that a basic network connection can be established
  to the remote system. The output will display the Round Trip Time (RTT) for each packet, which can
  help assess the connection quality.
- Use `telnet` (for testing port connectivity):

  Bash

  ```
  telnet <hostname_or_ip_address> <port_number>
  ```

  - Replace `<hostname_or_ip_address>` with the hostname or IP address of the remote system.
  - Replace `<port_number>` with the port number you want to test (e.g., 22 for SSH, 80 for HTTP).

A successful `telnet` connection indicates that the port is open and accepting connections on the remote system.