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31124
TE 01

Assignment 09

Title: DNS lookup

Problem statement: Write a program for DNS lookup. Given an IP address input, it should return URL and vice versa (python)

Prerequisites:

1. Application layer protocols
2. ~~Java~~ Python programming

learning Objectives:

Students will be able to understand:

1. Working of DNS protocol.

Theory:-

DNS:

Domain name system (DNS) is default name resolution service in MS windows server 2003 network.

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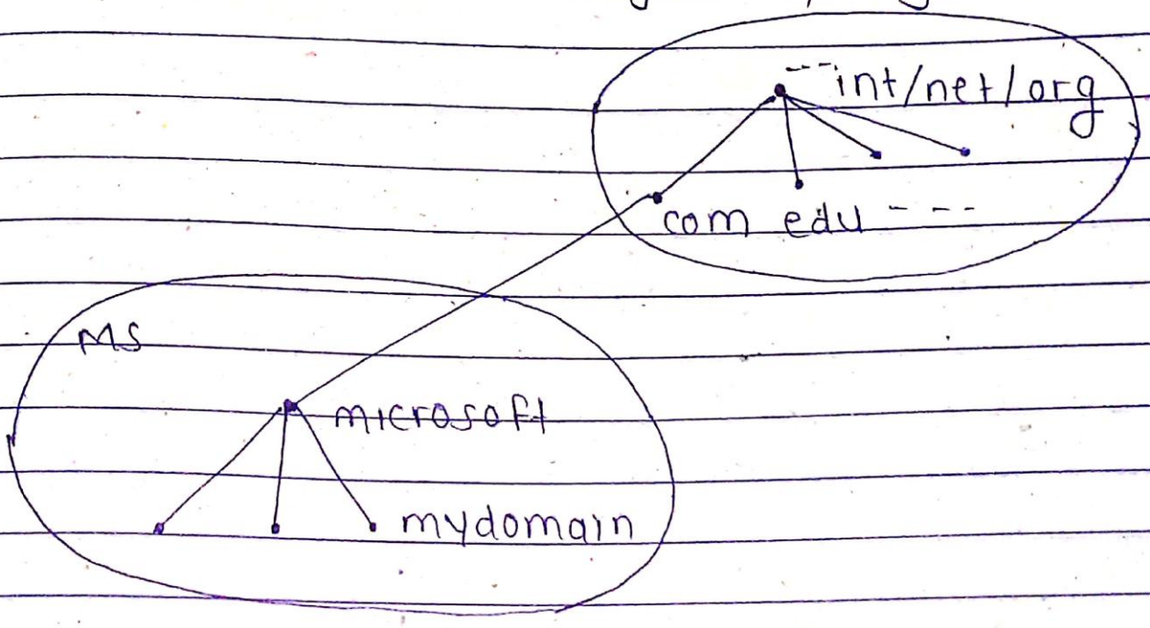
DNS domain name Hierarchy:



Types of DNS names

Types:

1. Root domain
2. Top level domain:
   eg. ".com"
3. Second level domain
   eg: "microsoft.com"
4. subdomain:
   eg "example.microsoft.com

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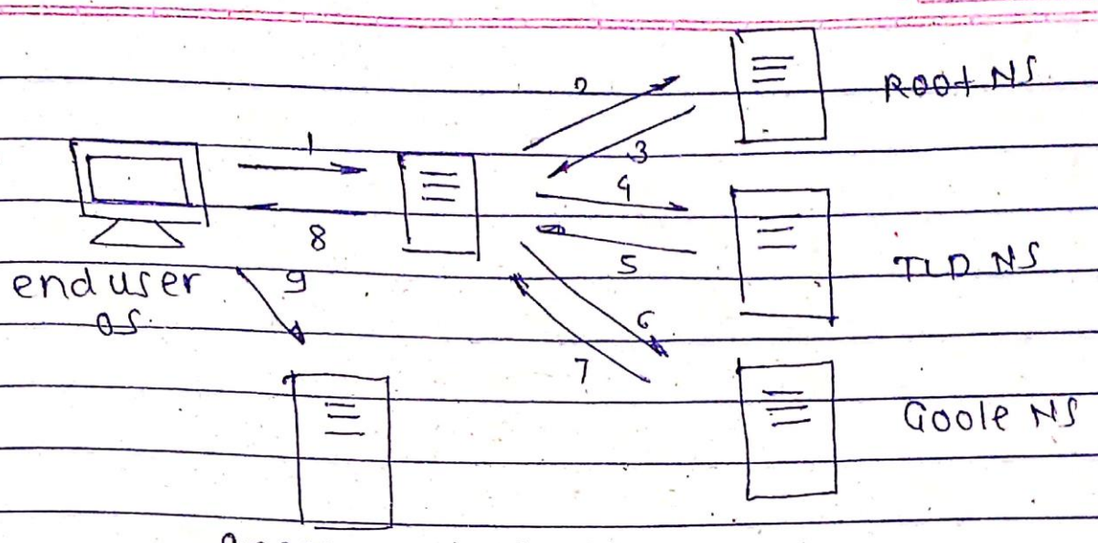

Working of DNS lookup steps:

1. OS Recursive Query to Resolver
2. DNS resolver iterative Query to root server
3. Root server response
4. DNS resolver iterative Query to TLD server
5. TLD server response
6. DNS resolver iterative Query to Google.com NS
7. Google.com NS response
8. DNS resolver response to OS
9. Browser starts TCP handshake

Conclusion:

DNS lookup was successfully implemented and tested in python programming language. DNS protocol studied.

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Code

```
(dns) PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 09> py 311
24_Rupesh_CNSL_Assignment_09.py
Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
1
Enter the domain: www.google.com
IP Address corrosponding to the domain is/are:
142.250.183.196

Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
2
Enter an IP Address: 142.250.183.196
Domain name corrosponding to the ip address is/are:
bom07s33-in-f4.1e100.net.

Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
```

Code

```
24_Rupesh_CNSL_Assignment_09.py
Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
1
Enter the domain: geeksforgeeks.org
IP Address corrosponding to the domain is/are:
34.218.62.116

Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
2
Enter an IP Address: 34.218.62.116
Domain name corrosponding to the ip address is/are:
ec2-34-218-62-116.us-west-2.compute.amazonaws.com.

Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
3
Thank you
(dns) PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 09>
```

Code

```
(dns) PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 09> py 311
24_Rupesh_CNSL_Assignment_09.py
Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
1
Enter the domain: flipkart.com
IP Address corrosponding to the domain is/are:
163.53.78.110

Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
2
Enter an IP Address: 163.53.78.110
ERROR Retreiving information.
Which lookup do you want to perform?
    1. Domain to IP Address
    2. IP Address to Domain
    3. Exit
3
Thank you
(dns) PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 09>
```