Networks Lab

Week 8

DNS Client Server

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UDP :

Server :

```
import csv
import socket


def read_dns_database(filename):
    dns_database = {}
    with open(filename, "r") as file:
        reader = csv.reader(file)
        for row in reader:
            hostname, ip_address = row
            dns_database[hostname] = ip_address
    return dns_database


dns_database_filename = "dns_database.csv"
dns_port = 53
dns_socket = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
dns_socket.bind(("localhost", dns_port))
dns_database = read_dns_database(dns_database_filename)

print(f"DNS server is running on port {dns_port}...")
while True:

    query, client_address = dns_socket.recvfrom(1024)
    hostname = query.decode().strip()
    ip_address = dns_database.get(hostname, "Hostname not found")
    dns_socket.sendto(ip_address.encode(), client_address)
```

Client

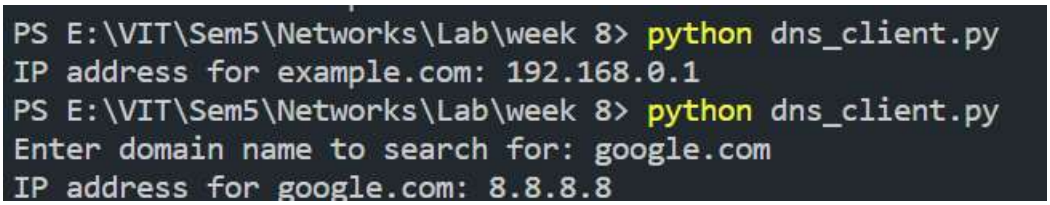
```
import socket

dns_server_address = "localhost"
dns_server_port = 53

hostname = input("Enter domain name to search for: ")
client_socket = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
client_socket.sendto(hostname.encode(), (dns_server_address, dns_server_port))

response, server_address = client_socket.recvfrom(1024)
print(f"IP address for {hostname}: {response.decode()}")

client_socket.close()
```



TCP :

Server :

```
import csv
import socket


def read_dns_database(filename):
    dns_database = {}
    with open(filename, "r") as file:
        reader = csv.reader(file)
        for row in reader:
            hostname, ip_address = row
            dns_database[hostname] = ip_address
    return dns_database

dns_database_filename = "dns_database.csv"
dns_port = 53

dns_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
dns_socket.bind(("localhost", dns_port))
dns_socket.listen(1)
dns_database = read_dns_database(dns_database_filename)
print(f"DNS server is running on port {dns_port}...")


while True:
    client_socket, client_address = dns_socket.accept()
    print(f"Connection established with {client_address[0]}:{client_address[1]}")
    query = client_socket.recv(1024).decode().strip()

    ip_address = dns_database.get(query, "Hostname not found")
    client_socket.send(ip_address.encode())
    client_socket.close()
```

Client

```
import socket

dns_server_address = "localhost"
dns_server_port = 53

hostname = input("Enter domain name to search for: ")

client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
client_socket.connect((dns_server_address, dns_server_port))
client_socket.send(hostname.encode())
response = client_socket.recv(1024).decode()
print(f"IP address for {hostname}: {response}")
client_socket.close()
```

```
PS E:\VIT\Sem5\Networks\Lab\week 8> python dns_client.py
Enter domain name to search for: google.com
IP address for google.com: 8.8.8.8
```