```
sudo apt-get install bind9 bind9utils bind9-doc
```

Configuring Caching name server

Caching name server saves the DNS query results locally for a particular period of time. It reduces the DNS server's traffic by saving the queries locally, therefore it improves the performance and efficiency of the DNS server.

To configure Caching name server, edit **/etc/bind/named.conf.options** file:

```
sudo nano /etc/bind/named.conf.options
```

Uncomment the following lines. And then, add your ISP or Google public DNS server IP addresses.

```
forwarders {
 8.8.8.8;
 };
```

Save and close the file.

And then restart bind9 service to take effect the changes.

```
sudo systemctl restart bind9
```

We have successfully installed the caching name server.

Testing Caching name server

Now let us check if it is working or not using command:

```
dig -x 127.0.0.1
```

dig google.co.in

Part 2 : Install and configure Primary DNS server

```
sudo apt-get install bind9 bind9utils bind9-doc
```
All configuration file be will be available under **/etc/bind/** directory.

Let us edit bind9 configuration file

Edit **'/etc/bind/named.conf'** using any editor of your choice:

```
sudo nano /etc/bind/named.conf
```


This file should have the following lines in it. If the lines are not there, just add them.

```
include "/etc/bind/named.conf.options";
include "/etc/bind/named.conf.local";
include "/etc/bind/named.conf.default-zones";
```

Save the changes and exit the file.

We need to define the forward and reverse zone files.

To do so, edit **named.conf.local** file:

```
sudo nano /etc/bind/named.conf.local
```

Define the forward and reverse files as shown below.

```
zone "pdpu.lan" {
        type master;
        file "/etc/bind/for.pdpu.lan";
 };
zone "1.168.192.in-addr.arpa" {
        type master;
        file "/etc/bind/rev.pdpu.lan";
 };
```

Here, **for.pdpu.lan** is the forward zone file. **rev.pdpu.lan** is the reverse zone files.

Let us now create the zone files which we defined in the previous step.

First let us create forward zone file as shown below.

```
sudo nano /etc/bind/for.pdpu.lan
```

Add the following lines:

```
$TTL 86400
@   IN  SOA     pri.pdpu.lan. root.pdpu.lan. (
        2011071001  ;Serial
        3600        ;Refresh
        1800        ;Retry
        604800      ;Expire
        86400       ;Minimum TTL
)
@       IN  NS          pri.pdpu.lan.
@       IN  A           192.168.1.200
@       IN  A           192.168.1.202
pri     IN  A           192.168.1.200
client  IN  A           192.168.1.202
```

Similarly, you can add the other client records as defined in the above file.

Save and close the file. Next create reverse zone.

```
sudo nano /etc/bind/rev.pdpu.lan
```

Add the following lines:

```
$TTL 86400
@   IN  SOA     pri.pdpu.lan. root.pdpu.lan. (
        2011071002  ;Serial
        3600        ;Refresh
        1800        ;Retry
        604800      ;Expire
        86400       ;Minimum TTL
)
@       IN  NS          pri.pdpu.lan.
@       IN  NS          sec.pdpu.lan.
```

```
@       IN  PTR         pdpu.lan.
pri     IN  A           192.168.1.200
client  IN  A           192.168.1.202
200     IN  PTR         pri.pdpu.lan.
202     IN  PTR         client.pdpu.lan.
```

Save and close the file.

Set the proper permissions and ownership to the bind9 directory.

```
sudo chmod -R 755 /etc/bind
```

```
sudo chown -R bind:bind /etc/bind
```

Next, we need to verify the DNS configuration files and zone files.

Check the DNS configuration files with commands:

```
sudo named-checkconf /etc/bind/named.conf
```

```
sudo named-checkconf /etc/bind/named.conf.local
```

If the above commands returns nothing, it means DNS configuration is valid.

Next, check the zone files using commands:

```
sudo named-checkzone pdpu.lan /etc/bind/for.pdpu.lan
```

Check the reverse zone file:

```
sudo named-checkzone pdpu.lan /etc/bind/rev.pdpu.lan
```

```
sudo systemctl restart bind9
```

Testing primary DNS server

```
dig pri.pdpu.lan
```