```
(base) iqra@iqra-Inspiron:~$ hostnamectl
   Static hostname: iqra-Inspiron
         Icon name: computer-laptop
           Chassis: laptop
        Machine ID: 07cfbe599ff34d118c568c7033d30242
           Boot ID: d765f073a0584f96b0f547cf9d265c36
  Operating System: Ubuntu 18.04 LTS
            Kernel: Linux 4.15.0-118-generic
      Architecture: x86-64
(base) iqra@iqra-Inspiron:~$
```

```
(base) iqra@iqra-Inspiron:~$ hostnamectl set-hostname iqra.example.com
(base) iqra@iqra-Inspiron:~$ hostnamectl
   Static hostname: iqra.example.com
         Icon name: computer-laptop
           Chassis: laptop
        Machine ID: 07cfbe599ff34d118c568c7033d30242
           Boot ID: d765f073a0584f96b0f547cf9d265c36
  Operating System: Ubuntu 18.04 LTS
            Kernel: Linux 4.15.0-118-generic
      Architecture: x86-64
(base) iqra@iqra-Inspiron:~$
```

```
(base) iqra@iqra-Inspiron:~$ ifconfig
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 4659  bytes 374459 (374.4 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4659  bytes 374459 (374.4 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlp7s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.0.123  netmask 255.255.255.0  broadcast 192.168.0.255
        inet6 fe80::e7b0:9c8a:7deb:8b6a  prefixlen 64  scopeid 0x20<link>
        ether e4:f8:9c:e7:65:c6  txqueuelen 1000  (Ethernet)
        RX packets 1519206  bytes 2023655471 (2.0 GB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 420818  bytes 72272861 (72.2 MB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

(base) iqra@iqra-Inspiron:~$
```

```
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                                  /etc/network/interfaces

# interfaces(5) file used by ifup(8) and ifdown(8)
auto lo
iface lo inet loopback
auto wlp7s0
iface wlp7s0 inet static
address 192.168.0.128
netmask 255.255.255.0
```

```
(base) iqra@iqra-Inspiron:~$ sudo systemctl restart networking
(base) iqra@iqra-Inspiron:~$
```

```
(base) iqra@iqra-Inspiron:~$ sudo apt-get install bind9 bind9utils
Reading package lists... Done
Building dependency tree
Reading state information... Done
bind9 is already the newest version (1:9.11.3+dfsg-1ubuntu1.13).
bind9utils is already the newest version (1:9.11.3+dfsg-1ubuntu1.13).
0 upgraded, 0 newly installed, 0 to remove and 366 not upgraded.
(base) iqra@iqra-Inspiron:~$
```

Main Configuration file of this DNS server

```
iqra@iqra-Inspiron: /etc/bind
File  Edit  View  Search  Terminal  Help
(base) iqra@iqra-Inspiron:~$ cd /etc/bind
(base) iqra@iqra-Inspiron:/etc/bind$ ls
bind.keys  db.127  db.empty  db.root     named.conf.default-zones  named.conf.options  zones.rfc1918
db.0       db.255  db.local  named.conf  named.conf.local          rndc.key
(base) iqra@iqra-Inspiron:/etc/bind$ cat /etc/bind/named.conf
// This is the primary configuration file for the BIND DNS server named.
//
// Please read /usr/share/doc/bind9/README.Debian.gz for information on the
// structure of BIND configuration files in Debian, *BEFORE* you customize
// this configuration file.
//
// If you are just adding zones, please do that in /etc/bind/named.conf.local

include "/etc/bind/named.conf.options";
include "/etc/bind/named.conf.local";
include "/etc/bind/named.conf.default-zones";
(base) iqra@iqra-Inspiron:/etc/bind$
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ sudo nano /etc/bind/named.conf.local
(base) iqra@iqra-Inspiron:/etc/bind$
```

here we will create zones, you will have to give the domain name for which you are creating the domain name server. Like: “example.com”
IN means Internet
type is master because we are creating master DNS server.
File for forward zone
must exist in etc/bind
In reverse zone give ip in reverse order no need to give host

```
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                                  /etc/bind/named.conf.local

//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "example.com" IN {
type master;
file "/etc/bind/forward.example.com";
};

zone "0.168.192.in-addr.arpa" IN {
type master;
file "/etc/bind/reverse.example.com";
};
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ ls
bind.keys  db.127  db.empty  db.root     named.conf.default-zones  named.conf.options  zones.rfc1918
db.0       db.255  db.local  named.conf  named.conf.local          rndc.key
(base) iqra@iqra-Inspiron:/etc/bind$
```

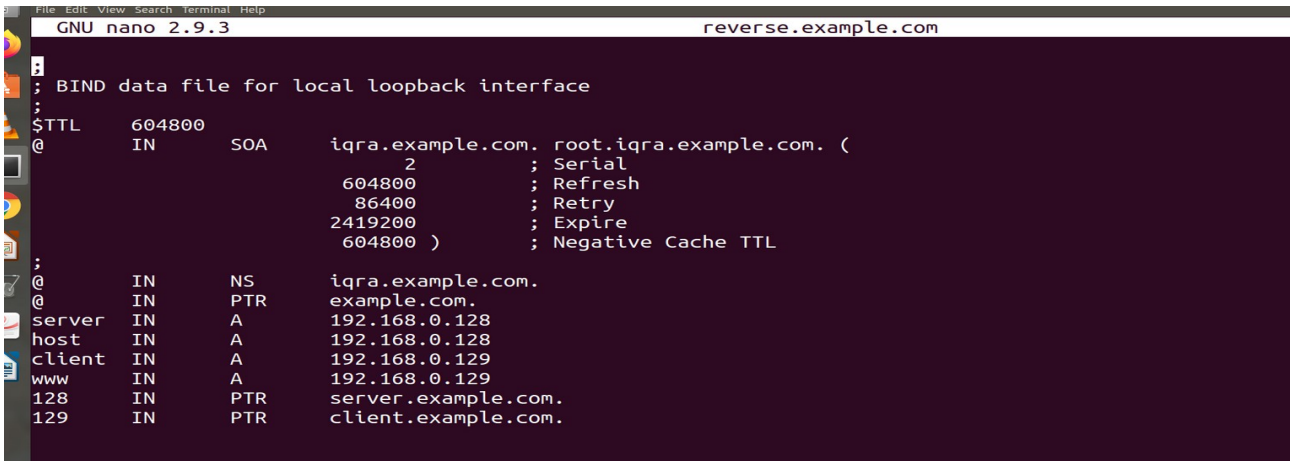
we will copy files db.local because we need similar configuration

```
(base) iqra@iqra-Inspiron:/etc/bind$ sudo cp db.local forward.example.com
(base) iqra@iqra-Inspiron:/etc/bind$ sudo nano /etc/bind/forward.example.com
(base) iqra@iqra-Inspiron:/etc/bind$
```

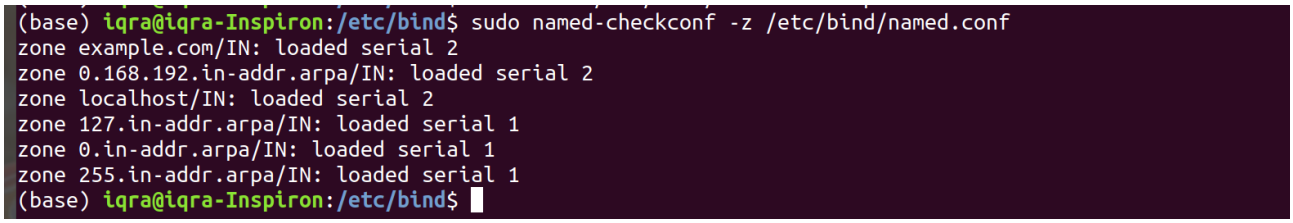
SOA=start of authority
after hostname place dot(.)
NS= NameServer
A is for Ipv4 Address
AAAA is for Ipv6 Address
given different names to same server

```
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                                  /etc/bind/forward.example.com

;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     iqra.example.com. root.iqra.example.com. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      iqra.example.com.
@       IN      A       192.168.0.128
server  IN      A       192.168.0.128
host    IN      A       192.168.0.128
client  IN      A       192.168.0.129
www     IN      A       192.168.0.129
```

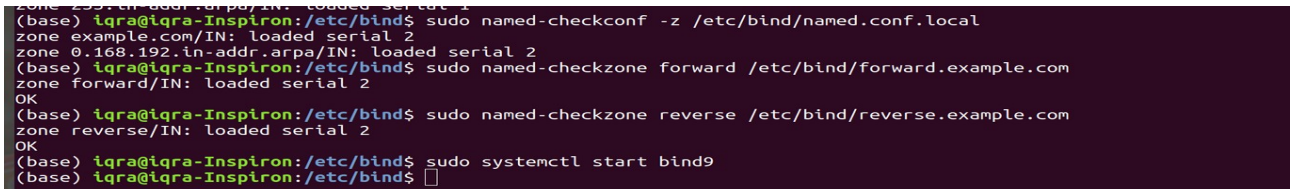
```
(base) iqra@iqra-Inspiron:/etc/bind$ sudo cp forward.example.com reverse.example.com
(base) iqra@iqra-Inspiron:/etc/bind$ sudo nano reverse.example.com
```



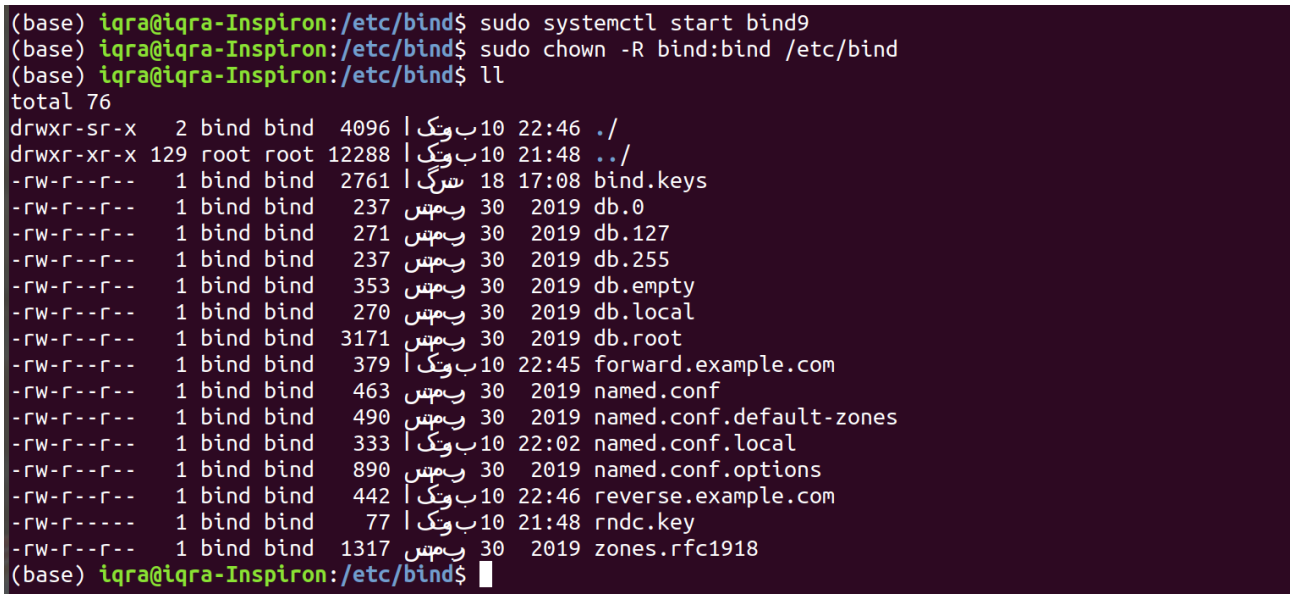
```
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                                    reverse.example.com

;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     iqra.example.com. root.iqra.example.com. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      iqra.example.com.
@       IN      PTR     example.com.
server  IN      A       192.168.0.128
host    IN      A       192.168.0.128
client  IN      A       192.168.0.129
www     IN      A       192.168.0.129
128     IN      PTR     server.example.com.
129     IN      PTR     client.example.com.
```



```
(base) iqra@iqra-Inspiron:/etc/bind$ sudo named-checkconf -z /etc/bind/named.conf
zone example.com/IN: loaded serial 2
zone 0.168.192.in-addr.arpa/IN: loaded serial 2
zone localhost/IN: loaded serial 2
zone 127.in-addr.arpa/IN: loaded serial 1
zone 0.in-addr.arpa/IN: loaded serial 1
zone 255.in-addr.arpa/IN: loaded serial 1
(base) iqra@iqra-Inspiron:/etc/bind$
```



```
(base) iqra@iqra-Inspiron:/etc/bind$ sudo named-checkconf -z /etc/bind/named.conf.local
zone example.com/IN: loaded serial 2
zone 0.168.192.in-addr.arpa/IN: loaded serial 2
(base) iqra@iqra-Inspiron:/etc/bind$ sudo named-checkzone forward /etc/bind/forward.example.com
zone forward/IN: loaded serial 2
OK
(base) iqra@iqra-Inspiron:/etc/bind$ sudo named-checkzone reverse /etc/bind/reverse.example.com
zone reverse/IN: loaded serial 2
OK
(base) iqra@iqra-Inspiron:/etc/bind$ sudo systemctl start bind9
(base) iqra@iqra-Inspiron:/etc/bind$
```



```
(base) iqra@iqra-Inspiron:/etc/bind$ sudo systemctl start bind9
(base) iqra@iqra-Inspiron:/etc/bind$ sudo chown -R bind:bind /etc/bind
(base) iqra@iqra-Inspiron:/etc/bind$ ll
total 76
drwxr-sr-x   2 bind bind  4096 ب وتک 10 22:46 ./
drwxr-xr-x 129 root root 12288 ب وتک 10 21:48 ../
-rw-r--r--   1 bind bind  2761 شرگ 18 17:08 bind.keys
-rw-r--r--   1 bind bind   237 ﭖ مپس 30  2019 db.0
-rw-r--r--   1 bind bind   271 ﭖ مپس 30  2019 db.127
-rw-r--r--   1 bind bind   237 ﭖ مپس 30  2019 db.255
-rw-r--r--   1 bind bind   353 ﭖ مپس 30  2019 db.empty
-rw-r--r--   1 bind bind   270 ﭖ مپس 30  2019 db.local
-rw-r--r--   1 bind bind  3171 ﭖ مپس 30  2019 db.root
-rw-r--r--   1 bind bind   379 ب وتک 10 22:45 forward.example.com
-rw-r--r--   1 bind bind   463 ﭖ مپس 30  2019 named.conf
-rw-r--r--   1 bind bind   490 ﭖ مپس 30  2019 named.conf.default-zones
-rw-r--r--   1 bind bind   333 ب وتک 10 22:02 named.conf.local
-rw-r--r--   1 bind bind   890 ﭖ مپس 30  2019 named.conf.options
-rw-r--r--   1 bind bind   442 ب وتک 10 22:46 reverse.example.com
-rw-r-----   1 bind bind    77 ب وتک 10 21:48 rndc.key
-rw-r--r--   1 bind bind  1317 ﭖ مپس 30  2019 zones.rfc1918
(base) iqra@iqra-Inspiron:/etc/bind$
```

```
-rw-r--r--   1 bind bind  1317 ربمهش 30  2019 zones.rfc1918
(base) iqra@iqra-Inspiron:/etc/bind$ sudo chmod -R 755 /etc/bind
(base) iqra@iqra-Inspiron:/etc/bind$ sudo systemctl restart bind9
(base) iqra@iqra-Inspiron:/etc/bind$
```

```
iqra@iqra-Inspiron: /etc/bind
File  Edit  View  Search  Terminal  Help
(base) iqra@iqra-Inspiron:/etc/bind$ sudo systemctl status bind9
● bind9.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/bind9.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2020-10-10 22:57:17 PKT; 2min 3s ago
     Docs: man:named(8)
 Main PID: 15814 (named)
    Tasks: 7 (limit: 4915)
   CGroup: /system.slice/bind9.service
           └─15814 /usr/sbin/named -f -u bind

ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAAA/IN': 199.7.91.13#
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAAA/IN': 2001:7fd::1#
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAAA/IN': 2001:500:84:
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAAA/IN': 198.41.0.4#5
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAAA/IN': 2001:7fd::1#
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAAA/IN': 2001:500:2::
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAAA/IN': 198.41.0.4#5
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAAA/IN': 2001:500:2f:
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAAA/IN': 2001:500:2::
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAAA/IN': 2001:500:2f:
...skipping...
● bind9.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/bind9.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2020-10-10 22:57:17 PKT; 2min 3s ago
     Docs: man:named(8)
 Main PID: 15814 (named)
    Tasks: 7 (limit: 4915)
   CGroup: /system.slice/bind9.service
           └─15814 /usr/sbin/named -f -u bind

ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAAA/IN': 199.7.91.13#
ربونک 10 22:57:17 iqra.example.com named[15814]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAAA/IN': 2001:7fd::1#
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ sudo systemctl enable bind9
Synchronizing state of bind9.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable bind9
(base) iqra@iqra-Inspiron:/etc/bind$ sudo nano /etc/network/interfaces
(base) iqra@iqra-Inspiron:/etc/bind$
```

```
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                          /etc/network/interfaces

# interfaces(5) file used by ifup(8) and ifdown(8)
auto lo
iface lo inet loopback
auto wlp7s0
iface wlp7s0 inet static
address 192.168.0.128
netmask 255.255.255.0
dns-search example.com
dns-nameserver 192.168.0.128
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ systemctl restart networking
(base) iqra@iqra-Inspiron:/etc/bind$ sudo nano/etc/resolve
sudo: nano/etc/resolve: command not found
(base) iqra@iqra-Inspiron:/etc/bind$ sudo nano /etc/resolve
(base) iqra@iqra-Inspiron:/etc/bind$ sudo nano /etc/resolve.conf
(base) iqra@iqra-Inspiron:/etc/bind$ sudo nano /etc/resolv.conf
```

```
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                                /etc/resolv.conf

# This file is managed by man:systemd-resolved(8). Do not edit.
#
# This is a dynamic resolv.conf file for connecting local clients to the
# internal DNS stub resolver of systemd-resolved. This file lists all
# configured search domains.
#
# Run "systemd-resolve --status" to see details about the uplink DNS servers
# currently in use.
#
# Third party programs must not access this file directly, but only through the
# symlink at /etc/resolv.conf. To manage man:resolv.conf(5) in a different way,
# replace this symlink by a static file or a different symlink.
#
# See man:systemd-resolved.service(8) for details about the supported modes of
# operation for /etc/resolv.conf.

nameserver 192.168.0.128
search example.com
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ systemctl restart networking
(base) iqra@iqra-Inspiron:/etc/bind$ systemctl restart NetworkManager
(base) iqra@iqra-Inspiron:/etc/bind$
```

```
iqra@iqra-Inspiron: /etc/bind
File  Edit  View  Search  Terminal  Help
(base) iqra@iqra-Inspiron:/etc/bind$ ping iqra
PING iqra.example.com (192.168.0.128) 56(84) bytes of data.
64 bytes from iqra.example.com (192.168.0.128): icmp_seq=1 ttl=64 time=0.014 ms
64 bytes from iqra.example.com (192.168.0.128): icmp_seq=2 ttl=64 time=0.056 ms
64 bytes from iqra.example.com (192.168.0.128): icmp_seq=3 ttl=64 time=0.055 ms
^X64 bytes from iqra.example.com (192.168.0.128): icmp_seq=4 ttl=64 time=0.043 ms
64 bytes from iqra.example.com (192.168.0.128): icmp_seq=5 ttl=64 time=0.054 ms
64 bytes from iqra.example.com (192.168.0.128): icmp_seq=6 ttl=64 time=0.055 ms
^C
--- iqra.example.com ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5111ms
rtt min/avg/max/mdev = 0.014/0.046/0.056/0.015 ms
(base) iqra@iqra-Inspiron:/etc/bind$ ping host
PING host.example.com (192.168.0.128) 56(84) bytes of data.
64 bytes from iqra.example.com (192.168.0.128): icmp_seq=1 ttl=64 time=0.048 ms
64 bytes from iqra.example.com (192.168.0.128): icmp_seq=2 ttl=64 time=0.053 ms
64 bytes from iqra.example.com (192.168.0.128): icmp_seq=3 ttl=64 time=0.054 ms
^C
--- host.example.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2025ms
rtt min/avg/max/mdev = 0.048/0.051/0.054/0.008 ms
(base) iqra@iqra-Inspiron:/etc/bind$
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ nslookup iqra
Server:         192.168.0.128
Address:        192.168.0.128#53

Name:   iqra.example.com
Address: 192.168.0.128

(base) iqra@iqra-Inspiron:/etc/bind$
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ nslookup host
Server:         192.168.0.128
Address:        192.168.0.128#53

Name:   host.example.com
Address: 192.168.0.128
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ nslookup client
Server:         192.168.0.128
Address:        192.168.0.128#53

Name:   client.example.com
Address: 192.168.0.129
```

```
(base) iqra@iqra:/etc/bind$ ping client
PING client.example.com (192.168.0.129) 56(84) bytes of data.
From iqra.example.com (192.168.0.128) icmp_seq=1 Destination Host Unreachable
From iqra.example.com (192.168.0.128) icmp_seq=2 Destination Host Unreachable
From iqra.example.com (192.168.0.128) icmp_seq=3 Destination Host Unreachable
From iqra.example.com (192.168.0.128) icmp_seq=4 Destination Host Unreachable
From iqra.example.com (192.168.0.128) icmp_seq=5 Destination Host Unreachable
From iqra.example.com (192.168.0.128) icmp_seq=6 Destination Host Unreachable
^X^C
--- client.example.com ping statistics ---
9 packets transmitted, 0 received, +6 errors, 100% packet loss, time 8173ms
pipe 4
```

```
(base) iqra@iqra-Inspiron:/etc/bind$ nslookup client2
Server:         192.168.0.128
Address:        192.168.0.128#53

** server can't find client2: SERVFAIL
```