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1.

dns.c contine 2 functii: get_ip si get_name.

get_ip : se seteaza hint-urile. Se extrage adresa ip cu getaddrinfo(). Se itereaza prin adresele rezultat si se printeaza.

get name: Se seteaza adresa ip in structura de tip sockaddr in. Se foloseste functia getnameinfo() pentru a obtine numele si serviciul. Se printeaza.

2. a)

```
dig -t A -q single-v4.protocoale.club
```

```
; <<>> DiG 9.16.1-Ubuntu <<>> -t A -q single-v4.protocoale.club
```

;; global options: +cmd

;; Got answer:

;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 12342

;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:

; EDNS: version: 0, flags:; udp: 65494

;; QUESTION SECTION:

;single-v4.protocoale.club. IN Α

;; ANSWER SECTION:

single-v4.protocoale.club. 300 IN Α 127.0.0.1

;; Query time: 144 msec

;; SERVER: 127.0.0.53#53(127.0.0.53) ;; WHEN: Sun May 09 14:13:00 EEST 2021

;; MSG SIZE rcvd: 70

dig -t A -q single.protocoale.club

```
; <<>> DiG 9.16.1-Ubuntu <<>> -t A -q single.protocoale.club
```

;; global options: +cmd

;; Got answer:

;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 65245

;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:

; EDNS: version: 0, flags:; udp: 65494

;; QUESTION SECTION:

```
;single.protocoale.club.
                                 IN
                                        Α
;; ANSWER SECTION:
single.protocoale.club.
                           300
                                 IN
                                               127.0.0.1
                                        Α
;; Query time: 44 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:15:02 EEST 2021
;; MSG SIZE rcvd: 67
dig -t A -q multi-v4.protocoale.club
; <<>> DiG 9.16.1-Ubuntu <<>> -t A -q multi-v4.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 59665
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;multi-v4.protocoale.club.
                           IN
                                  Α
;; ANSWER SECTION:
multi-v4.protocoale.club. 300
                                 IN
                                        A
                                               127.3.3.3
multi-v4.protocoale.club. 300
                                  IN
                                        Α
                                               127.4.4.4
multi-v4.protocoale.club. 300
                                  ΙN
                                        Α
                                               127.1.1.1
multi-v4.protocoale.club. 300
                                 IN
                                        Α
                                               127.2.2.2
;; Query time: 52 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:15:33 EEST 2021
;; MSG SIZE rcvd: 117
dig -t A -q multi.protocoale.club
; <<>> DiG 9.16.1-Ubuntu <<>> -t A -q multi.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 44199
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;multi.protocoale.club.
                                 IN
                                        Α
;; ANSWER SECTION:
multi.protocoale.club.300
                           IN
                                        127.4.4.4
                                  Α
```

```
multi.protocoale.club.300
                                        127.2.2.2
                          IN
                                 Α
multi.protocoale.club.300
                          IN
                                 Α
                                        127.1.1.1
multi.protocoale.club.300
                                 Α
                                        127.3.3.3
                          IN
;; Query time: 48 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:16:00 EEST 2021
;; MSG SIZE rcvd: 114
dig -t A -q protocoale.protocoale.club
; <<>> DiG 9.16.1-Ubuntu <<>> -t A -q protocoale.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 59375
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;protocoale.protocoale.club. IN
;; ANSWER SECTION:
protocoale.protocoale.club. 300
                                 IN
                                        Α
                                               127.42.42.42
;; Query time: 92 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:16:27 EEST 2021
;; MSG SIZE rcvd: 71
b)
dig -t AAAA -q single-v6.protocoale.club
; <<>> DiG 9.16.1-Ubuntu <<>> -t AAAA -q single-v6.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 36601
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;single-v6.protocoale.club. IN
                                 AAAA
;; ANSWER SECTION:
single-v6.protocoale.club. 300
                                 ΙN
                                        AAAA::1
;; Query time: 48 msec
```

```
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:17:01 EEST 2021
;; MSG SIZE rcvd: 82
dig -t AAAA -q single.protocoale.club
; <<>> DiG 9.16.1-Ubuntu <<>> -t AAAA -q single.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 45427
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
:: OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
                                 IN
;single.protocoale.club.
                                        AAAA
;; ANSWER SECTION:
single.protocoale.club.
                          300
                                 IN
                                        AAAA::1
;; Query time: 48 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:17:47 EEST 2021
;; MSG SIZE rcvd: 79
dig -t AAAA -q multi-v6.protocoale.club
; <<>> DiG 9.16.1-Ubuntu <<>> -t AAAA -q multi-v6.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 15309
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1
:: OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;multi-v6.protocoale.club.
                          ΙN
                                 AAAA
;; ANSWER SECTION:
multi-v6.protocoale.club. 300
                                 IN
                                        AAAA::4
multi-v6.protocoale.club. 300
                                 IN
                                        AAAA::1
multi-v6.protocoale.club. 300
                                 IN
                                        AAAA::2
multi-v6.protocoale.club. 300
                                 IN
                                        AAAA::3
;; Query time: 48 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:18:16 EEST 2021
```

;; MSG SIZE rcvd: 165

```
; <<>> DiG 9.16.1-Ubuntu <<>> -t AAAA -q multi.protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 27867
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;multi.protocoale.club.
                                 IN
                                        AAAA
;; ANSWER SECTION:
multi.protocoale.club.300
                          ΙN
                                 AAAA::4
multi.protocoale.club.300
                          IN
                                 AAAA::2
multi.protocoale.club.300
                          IN
                                 AAAA::1
multi.protocoale.club.300
                          IN
                                 AAAA::3
;; Query time: 44 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:18:51 EEST 2021
;; MSG SIZE rcvd: 162
c)
dig -t MX -q protocoale.club
; <<>> DiG 9.16.1-Ubuntu <<>> -t MX -q protocoale.club
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 19347
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;protocoale.club.
                          IN
                                 MX
;; ANSWER SECTION:
                                        10 alt1.gmail-smtp-in.l.google.com.
protocoale.club.
                    300
                          IN
                                 MX
protocoale.club.
                    300
                          IN
                                 MX
                                        20 alt2.gmail-smtp-in.l.google.com.
                                        30 alt3.gmail-smtp-in.l.google.com.
protocoale.club.
                    300
                          IN
                                 MX
;; Query time: 47 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:19:32 EEST 2021
;; MSG SIZE rcvd: 133
```

```
d)
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```
dig -t A -q multi.protocoale.club +nocomments +noadditional +nostats +noanswer
; <<>> DiG 9.16.1-Ubuntu <<>> -t A -q multi.protocoale.club +nocomments +noadditional +nostats
+noanswer
;; global options: +cmd
;multi.protocoale.club.
                                 IN
                                       Α
e)
dig google.com@193.231.236.25 google.com
; <<>> DiG 9.16.1-Ubuntu <<>> google.com@193.231.236.25 google.com
;; global options: +cmd
:: Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 30232
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com\@193.231.236.25.
                                 ΙN
                                       Α
;; Query time: 8 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:45:21 EEST 2021
;; MSG SIZE rcvd: 54
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 5118
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.
                          IN
                                 Α
;; ANSWER SECTION:
google.com.
                          IN
                                 Α
                                       216.58.214.238
;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:45:21 EEST 2021
;; MSG SIZE rcvd: 55
dig google.com@86.120.141.140 google.com
; <<>> DiG 9.16.1-Ubuntu <<>> google.com@86.120.141.140 google.com
```

```
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 825
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
:: OUESTION SECTION:
;google.com\@86.120.141.140.
                                  IN
                                         Α
;; Query time: 12 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:51:40 EEST 2021
:; MSG SIZE rcvd: 54
:: Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 24498
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.
                           IN
                                  Α
;; ANSWER SECTION:
                           IN
                                  Α
                                         172.217.19.110
google.com.
                    241
;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun May 09 14:51:40 EEST 2021
;; MSG SIZE rcvd: 55
f)
dig -f bulk.txt +noall +answer
single-v4.protocoale.club. 145
                                  IN
                                         A
                                                127.0.0.1
single.protocoale.club.
                           145
                                  IN
                                         Α
                                                127.0.0.1
dorinel.protocoale.club. 146 IN
                                         127.42.0.0
                                  Α
multi-v4.protocoale.club. 146
                                  IN
                                         Α
                                                127.4.4.4
multi-v4.protocoale.club. 146
                                  IN
                                         Α
                                                127.2.2.2
multi-v4.protocoale.club. 146
                                  ΙN
                                         A
                                                127.3.3.3
multi-v4.protocoale.club. 146
                                  IN
                                         Α
                                               127.1.1.1
multi.protocoale.club.146
                                         127.2.2.2
                           IN
                                  Α
multi.protocoale.club.146
                           IN
                                  Α
                                         127.3.3.3
multi.protocoale.club.146
                           IN
                                  Α
                                         127.4.4.4
multi.protocoale.club.146
                           IN
                                         127.1.1.1
                                  Α
                                  CNAME
pc.protocoale.club.
                    146
                           IN
                                               pcom.protocoale.club.
pcom.protocoale.club.
                                                      protocoale.protocoale.club.
                           146
                                  IN
                                         CNAME
protocoale.protocoale.club. 146
                                  IN
                                                127.42.42.42
                                         Α
```

pcom.protocoale.club. 146 IN CNAME protocoale.protocoale.club. protocoale.protocoale.club. 146 IN A 127.42.42.42 protocoale.protocoale.club. 146 IN A 127.42.42.42

g)

sudo dig test.dorinel.protocoale.club +noall +answer +trace [sudo] password for vlad:

3659	IN	NS	k.root-servers.net.
3659	IN	NS	j.root-servers.net.
3659	IN	NS	h.root-servers.net.
3659	IN	NS	f.root-servers.net.
3659	IN	NS	c.root-servers.net.
3659	IN	NS	d.root-servers.net.
3659	IN	NS	b.root-servers.net.
3659	IN	NS	m.root-servers.net.
3659	IN	NS	a.root-servers.net.
3659	IN	NS	g.root-servers.net.
3659	IN	NS	e.root-servers.net.
3659	IN	NS	i.root-servers.net.
3659	IN	NS	l.root-servers.net.
_			

;; Received 262 bytes from 127.0.0.53#53(127.0.0.53) in 0 ms

De ce nu functioneaza?

```
h)
dig -x 208.65.153.238 +noall +answer
238.153.65.208.in-addr.arpa. 28800 IN PTR cache.google.com.
```

De ce arata invers? Pentru ca ierahia de adrese Ip este ordonata ierarhic, iar cel mai semnificativ octet este in stanga, Astfel incat cand se filtreaza in ierarhie se printeaza ce s-a gasit pana la acel punct, deci in reverse mod.

I)

