Practice_5

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Основы обработки данных с помощью R

Практическое задание №5

Цель работы

1. Закрепить практические навыки использования языка программирования R для обработки данных

2. Закрепить знания основных функций обработки данных экосистемы tidyverse языка R

3. Закрепить навыки исследования метаданных DNS трафика

Общая ситуация

Вы исследуете подозрительную сетевую активность во внутренней сети Доброй Организации. Вам в руки попали метаданные о DNS трафике в исследуемой сети. Исследуйте файлы, восстановите данные, подготовьте их к анализу и дайте обоснованные ответы на поставленные вопросы исследования.

Задание

Подготовка данных

Задание 1

1. Импортируйте данные DNS

```
library(dplyr)
```

```
##
## Присоединяю пакет: 'dplyr'
```

```
## Следующие объекты скрыты от 'package:stats':
##
##     filter, lag
```

```
## Следующие объекты скрыты от 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
log_data = read.csv("dns.log", header = FALSE,sep = "\t",encoding = "UTF-8")
```

Задание 2

2. Добавьте пропущенные данные о структуре данных (назначении столбцов)

```
head=read.csv("header.csv", header = TRUE)
field<-head[,1]
log_data = read.csv("dns.log", header = FALSE,sep = "\t",encoding = "UTF-8")
names(log_data)<-field
log_data%>%glimpse()
```

```
## Rows: 427,935
## Columns: 23
## $ `ts `          <dbl> 1331901006, 1331901015, 1331901016, 1331901017, 1331901…
## $ `uid `         <chr> "CWGtK431H9XuaTN4fi", "C36a282Jljz7BsbGH", "C36a282Jljz…
## $ `orig_ip `     <chr> "192.168.202.100", "192.168.202.76", "192.168.202.76", …
## $ `orig_port `   <int> 45658, 137, 137, 137, 137, 137, 137, 137, 137, 137, 137…
## $ `resp_ip `     <chr> "192.168.27.203", "192.168.202.255", "192.168.202.255",…
## $ `resp_port `   <int> 137, 137, 137, 137, 137, 137, 137, 137, 137, 137, 137, …
## $ `proto `       <chr> "udp", "udp", "udp", "udp", "udp", "udp", "udp", "udp",…
## $ `trans_id `    <int> 33008, 57402, 57402, 57402, 57398, 57398, 57398, 62187,…
## $ `query `       <chr> "*\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x…
## $ `qclass `      <chr> "1", "1", "1", "1", "1", "1", "1", "1", "1", "1", "1",…
## $ `qclass_name ` <chr> "C_INTERNET", "C_INTERNET", "C_INTERNET", "C_INTERNET",…
## $ `qtype `       <chr> "33", "32", "32", "32", "32", "32", "32", "32", "32", "…
## $ `qtype_name `  <chr> "SRV", "NB", "NB", "NB", "NB", "NB", "NB", "NB", "NB", …
## $ `rcode `       <chr> "0", "-", "-", "-", "-", "-", "-", "-", "-", "-", "-", …
## $ `rcode_name `  <chr> "NOERROR", "-", "-", "-", "-", "-", "-", "-", "-", "-",…
## $ `QR `          <lgl> FALSE, FALSE, FALSE, FALSE, FALSE, FALSE, FALSE, FALSE,…
## $ `AA `          <lgl> FALSE, FALSE, FALSE, FALSE, FALSE, FALSE, FALSE, FALSE,…
## $ `TC RD `       <lgl> FALSE, TRUE, TRUE, TRUE, TRUE, TRUE, TRUE, TRUE, TRUE, …
## $ `RA `          <lgl> FALSE, FALSE, FALSE, FALSE, FALSE, FALSE, FALSE, FALSE,…
## $ `Z `           <int> 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 1, 1, 1, 1…
## $ `answers `     <chr> "-", "-", "-", "-", "-", "-", "-", "-", "-", "-", "-", …
## $ `TTLs `        <chr> "-", "-", "-", "-", "-", "-", "-", "-", "-", "-", "-", …
## $ `rejected `    <lgl> FALSE, FALSE, FALSE, FALSE, FALSE, FALSE, FALSE, FALSE,…
```

Задание 3

3. Преобразуйте данные в столбцах в нужный формат

Анализ

Задание 4

Анализ 4. Сколько участников информационного обмена в сети Доброй Организации?

```
orig_ip<-unique(log_data$`orig_ip `)
resp_ip<-unique(log_data$`resp_ip `)
all_ip<-merge(orig_ip,resp_ip)
NROW(unique(all_ip$`x`))
```

```
## [1] 253
```

Задание 5

5. Какое соотношение участников обмена внутри сети и участников обращений к внешним ресурсам?

```
point51<-unique(log_data$`orig_ip `,sort=TRUE)
point52<-unique(log_data$`resp_ip `,sort=TRUE)
collect <- c(point51, point52)
collect<-collect[!duplicated(collect)]
lall=length(collect)
toMatch <- c("(192.168.)([0-9]{1,3}[.])[0-9]{1,3}","(10.0.)([0-9]{1,3}[.])[0-9]{1,3}","(100.64.)([0-9]{1,3}[.])[0
-9]{1,3}","(172.16.)([0-9]{1,3}[.])[0-9]{1,3}")
l1=length(unique(grep(paste(toMatch,collapse="|"),
                      collect, value=TRUE)))
l2=lall-l1
res=l1/l2
res
```

```
## [1] 11.94286
```

Задание 6

6. Найдите топ-10 участников сети, проявляющих наибольшую сетевую активность.

```
point1<-log_data%>%
count(log_data$`orig_ip `,sort=TRUE)
colnames(point1) <- c("Person", "count")
point2<-log_data%>%
count(log_data$`resp_ip `,sort=TRUE)
colnames(point2) <- c("Person", "count")
point_inf<-rbind(point1,point2)
point_inf<-point_inf %>%
  group_by(Person) %>%
  summarise(count)
```

```
## `summarise()` has grouped output by 'Person'. You can override using the
## `.groups` argument.
```

```
point_inf<-point_inf[order(point_inf$Person, decreasing = TRUE), ]
knitr::kable(point_inf, "pipe")
```

Person	count
ff02::fb	3298
ff02::1:3	14411
fec0:0:0:ffff::3	44
fec0:0:0:ffff::2	47
fec0:0:0:ffff::1	47
fe80::f2de:f1ff:fe9b:ad6a	30
fe80::d840:5635:ef48:b032	276
fe80::d69a:20ff:fef9:b49c	141
fe80::d69a:20ff:fef9:b49c	2
fe80::c62c:3ff:fe37:efc	126
fe80::c62c:3ff:fe30:7333	186
fe80::c62c:3ff:fe30:7333	2
fe80::bc5c:15c1:ec81:1e08	8669
fe80::ba8d:12ff:fe53:a8d8	252
fe80::ba8d:12ff:fe53:a8d8	2
fe80::ba8d:12ff:fe12:3f90	16
fe80::ba8d:12ff:fe12:3f90	2
fe80::a800:4ff:fe00:a04	429
fe80::9c8a:5786:bbb0:3db8	240
fe80::88f4:9f4d:feec:8072	48
fe80::65ca:c6cd:7ae0:ac8c	528
fe80::62fb:42ff:feef:5440	73
fe80::62c5:47ff:fe93:381e	5
fe80::4c9b:aad8:8a6a:7bb0	268
fe80::4c3a:e571:4cfc:b70c	412
fe80::423c:fcff:fe06:98a4	1
fe80::4172:3555:4717:3e0c	873
fe80::3ed0:f8ff:fe34:4765	11
fe80::3e07:54ff:fe41:3ed3	82
fe80::3e07:54ff:fe1c:a665	724
fe80::223:dfff:fe97:4e12	74
fe80::216:d3ff:fe4b:70d	11
fe80::20c:29ff:fe93:571e	7
fe80::20c:29ff:fe41:4be7	6

fe80::11a:f507:d853:a03d	3097
8.8.8.8	506
8.8.4.4	304
8.26.56.26	5974
72.14.204.97	3
72.14.204.120	3
72.14.204.100	3
68.87.75.198	4171
68.87.64.150	4838
64.134.255.2	477
64.134.255.10	483
64.102.255.44	65
255.255.255.255	1
224.0.0.251	24
208.67.222.222	65
208.67.220.220	65
2001:dbb:c18:855:5894:e447:d5c5:3d0c	159
2001:dbb:c18:855::25	148
2001:dbb:c18:755:f80b:a003:fa7a:9852	152
2001:dbb:c18:755::25	146
2001:dbb:c18:655:391c:d28f:fa5d:495	157
2001:dbb:c18:655:20c:29ff:fe47:e982	102
2001:dbb:c18:655:20c:29ff:fe28:6955	99
2001:dbb:c18:655:20c:29ff:fe1f:96f2	109
2001:dbb:c18:655:190:45fb:a92c:ba4f	7
2001:dbb:c18:655::25	7
2001:dbb:c18:555:f8d9:a1ea:b86e:10ad	836
2001:dbb:c18:555:c814:8f50:bbf5:ea5b	4
2001:dbb:c18:555::25	841
2001:dbb:c18:555::103	4
2001:dbb:c18:204:a800:4ff:fe00:a04	763
2001:dbb:c18:203:226:18ff:fef9:be98	9
2001:dbb:c18:202:f2de:f1ff:fe9b:ad6a	214
2001:dbb:c18:202:d557:eac5:3728:41ee	18
2001:dbb:c18:202:d4bc:e39f:84ad:5001	63
2001:dbb:c18:202:bc5c:15c1:ec81:1e08	12
2001:dbb:c18:202:b9ac:6976:ae1c:e10b	2
2001:dbb:c18:202:a800:4ff:fe00:a04	73
2001:dbb:c18:202:a1dd:6355:28ae:da1e	9
2001:dbb:c18:202:9c6b:be4e:1289:2663	15
2001:dbb:c18:202:71f3:e219:3f6a:4311	7
2001:dbb:c18:202:6128:bec8:28c6:8c7b	24
2001:dbb:c18:202:4c3a:e571:4cfc:b70c	5
2001:dbb:c18:202:4172:3555:4717:3e0c	12
2001:dbb:c18:202:216:d3ff:fe4b:70d	19
2001:dbb:c18:202:20c:29ff:fe93:571e	1392

2001:dbb:c18:202:20c:29ff:fe78:1023	25
2001:dbb:c18:202:20c:29ff:fe41:4be7	1379
198.153.194.1	10
198.153.192.1	10
192.168.95.255	18
192.168.95.166	18
192.168.94.36	3
192.168.51.38	74
192.168.51.255	74
192.168.28.99	1
192.168.28.98	1
192.168.28.97	1
192.168.28.96	1
192.168.28.95	1
192.168.28.94	1
192.168.28.93	1
192.168.28.92	1
192.168.28.91	1
192.168.28.90	1
192.168.28.9	1
192.168.28.89	1
192.168.28.88	1
192.168.28.87	1
192.168.28.86	1
192.168.28.85	1
192.168.28.84	1
192.168.28.83	1
192.168.28.82	1
192.168.28.81	1
192.168.28.80	1
192.168.28.8	1
192.168.28.79	1
192.168.28.78	1
192.168.28.77	1
192.168.28.76	1
192.168.28.75	1
192.168.28.74	1
192.168.28.73	1
192.168.28.72	1
192.168.28.71	1
192.168.28.70	1
192.168.28.7	1
192.168.28.69	1
192.168.28.68	1
192.168.28.67	1
192.168.28.66	1

192.168.28.65	1
192.168.28.64	1
192.168.28.63	1
192.168.28.62	1
192.168.28.61	1
192.168.28.60	1
192.168.28.6	1
192.168.28.59	1
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192.168.28.57	1
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192.168.28.47	1
192.168.28.46	1
192.168.28.45	1
192.168.28.44	1
192.168.28.43	1
192.168.28.42	1
192.168.28.41	1
192.168.28.40	1
192.168.28.4	1
192.168.28.39	1
192.168.28.38	1
192.168.28.37	1
192.168.28.36	1
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192.168.28.34	1
192.168.28.33	1
192.168.28.32	1
192.168.28.31	1
192.168.28.30	1
192.168.28.3	1
192.168.28.29	1
192.168.28.28	1
192.168.28.27	1
192.168.28.26	1
192.168.28.254	6
192.168.28.254	47

192.168.28.253	3
192.168.28.253	36
192.168.28.252	24
192.168.28.251	1
192.168.28.250	1
192.168.28.25	1599
192.168.28.25	205
192.168.28.249	1
192.168.28.248	1
192.168.28.247	1
192.168.28.246	1
192.168.28.245	1
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192.168.28.208	1
192.168.28.207	1
192.168.28.206	1
192.168.28.205	1
192.168.28.204	1
192.168.28.203	64
192.168.28.202	6
192.168.28.202	80
192.168.28.201	1
192.168.28.200	1
192.168.28.20	1
192.168.28.2	1
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192.168.28.197	1
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192.168.28.153	1
192.168.28.152	34
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192.168.28.110	1
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192.168.28.109	1
192.168.28.108	1
192.168.28.107	1
192.168.28.106	1
192.168.28.105	1
192.168.28.104	1
192.168.28.103	23
192.168.28.103	33
192.168.28.102	6
192.168.28.102	97
192.168.28.101	6
192.168.28.101	16
192.168.28.100	21
192.168.28.10	1
192.168.28.1	12
192.168.28.1	42
192.168.28.0	1
192.168.27.99	1
192.168.27.98	1
192.168.27.97	1

192.168.27.96	1
192.168.27.95	1
192.168.27.94	1
192.168.27.93	1
192.168.27.92	1
192.168.27.91	1
192.168.27.90	1
192.168.27.9	2
192.168.27.89	1
192.168.27.88	1
192.168.27.87	1
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192.168.27.85	1
192.168.27.84	1
192.168.27.83	1
192.168.27.82	1
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192.168.27.74	1
192.168.27.73	1
192.168.27.72	1
192.168.27.71	1
192.168.27.70	1
192.168.27.7	1
192.168.27.69	1
192.168.27.68	1
192.168.27.67	1
192.168.27.66	1
192.168.27.65	1
192.168.27.64	1
192.168.27.63	1
192.168.27.62	1
192.168.27.61	1
192.168.27.60	1
192.168.27.6	1
192.168.27.59	1
192.168.27.58	1
192.168.27.57	1
192.168.27.56	1
192.168.27.55	1

192.168.27.54	1
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192.168.27.52	1
192.168.27.51	1
192.168.27.50	1
192.168.27.5	1
192.168.27.49	1
192.168.27.48	1
192.168.27.47	1
192.168.27.46	1
192.168.27.45	1
192.168.27.44	1
192.168.27.43	1
192.168.27.42	1
192.168.27.41	1
192.168.27.40	1
192.168.27.4	1
192.168.27.39	1
192.168.27.38	1
192.168.27.37	1
192.168.27.36	1
192.168.27.35	1
192.168.27.34	1
192.168.27.33	1
192.168.27.32	1
192.168.27.31	1
192.168.27.30	1
192.168.27.3	1
192.168.27.29	1
192.168.27.28	1
192.168.27.27	1
192.168.27.26	1
192.168.27.254	20
192.168.27.254	59
192.168.27.253	7
192.168.27.253	40
192.168.27.252	17
192.168.27.251	1
192.168.27.250	1
192.168.27.25	534
192.168.27.25	181
192.168.27.249	1
192.168.27.248	1
192.168.27.247	1
192.168.27.246	1
192.168.27.245	1

192.168.27.244	1
192.168.27.243	1
192.168.27.242	1
192.168.27.241	1
192.168.27.240	1
192.168.27.24	1
192.168.27.239	1
192.168.27.238	1
192.168.27.237	1
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192.168.27.234	1
192.168.27.233	1
192.168.27.232	1
192.168.27.231	1
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192.168.21.168	1
192.168.21.167	1
192.168.21.166	1
192.168.21.165	1
192.168.21.164	1
192.168.21.163	1
192.168.21.162	1
192.168.21.161	1
192.168.21.160	1
192.168.21.16	1
192.168.21.159	1
192.168.21.158	1
192.168.21.157	1
192.168.21.156	1
192.168.21.155	1
192.168.21.154	1
192.168.21.153	1
192.168.21.152	773
192.168.21.152	55
192.168.21.151	1
192.168.21.150	1
192.168.21.15	1
192.168.21.149	1
192.168.21.148	1
192.168.21.147	1
192.168.21.146	1

192.168.21.145	1
192.168.21.144	1
192.168.21.143	1
192.168.21.142	1
192.168.21.141	1
192.168.21.140	1
192.168.21.14	1
192.168.21.139	1
192.168.21.138	1
192.168.21.137	1
192.168.21.136	1
192.168.21.135	1
192.168.21.134	1
192.168.21.133	1
192.168.21.132	1
192.168.21.131	1
192.168.21.130	1
192.168.21.13	1
192.168.21.129	1
192.168.21.128	1
192.168.21.127	1
192.168.21.126	1
192.168.21.125	1
192.168.21.124	1
192.168.21.123	1
192.168.21.122	1
192.168.21.121	1
192.168.21.120	1
192.168.21.12	1
192.168.21.119	1
192.168.21.118	1
192.168.21.117	1
192.168.21.116	1
192.168.21.115	1
192.168.21.114	1
192.168.21.113	1
192.168.21.112	1
192.168.21.111	1
192.168.21.110	1
192.168.21.11	1
192.168.21.109	1
192.168.21.108	1
192.168.21.107	1
192.168.21.106	1
192.168.21.105	1
192.168.21.104	1

192.168.21.103	2159
192.168.21.103	66
192.168.21.102	18
192.168.21.102	142
192.168.21.101	5
192.168.21.100	12
192.168.21.100	55
192.168.21.10	1
192.168.21.1	20
192.168.21.1	59
192.168.21.0	1
192.168.208.18	12
192.168.207.58	1
192.168.207.4	85
192.168.207.4	266542
192.168.206.44	1852
192.168.205.253	422
192.168.205.1	16
192.168.204.72	68
192.168.204.71	50
192.168.204.70	4899
192.168.204.69	11
192.168.204.60	3452
192.168.204.59	1583
192.168.204.45	1727
192.168.204.45	51
192.168.204.255	1434
192.168.203.66	120
192.168.203.64	2413
192.168.203.64	18
192.168.203.63	12148
192.168.203.62	742
192.168.203.61	589
192.168.203.45	1478
192.168.203.45	108
192.168.203.255	74
192.168.202.98	440
192.168.202.98	15
192.168.202.97	16176
192.168.202.96	133
192.168.202.96	24
192.168.202.95	682
192.168.202.94	3040
192.168.202.94	21
192.168.202.93	26522
192.168.202.92	213

192.168.202.91	1301
192.168.202.90	1584
192.168.202.89	2088
192.168.202.88	4169
192.168.202.87	5122
192.168.202.86	5
192.168.202.85	5227
192.168.202.84	8244
192.168.202.83	10685
192.168.202.81	65
192.168.202.80	4961
192.168.202.80	6
192.168.202.79	10580
192.168.202.79	908
192.168.202.78	965
192.168.202.78	1
192.168.202.77	3834
192.168.202.76	16978
192.168.202.75	6840
192.168.202.75	5
192.168.202.74	18
192.168.202.73	282
192.168.202.71	7375
192.168.202.68	43
192.168.202.68	15
192.168.202.67	5
192.168.202.65	1782
192.168.202.64	722
192.168.202.64	33
192.168.202.63	790
192.168.202.63	21
192.168.202.62	1441
192.168.202.49	3402
192.168.202.4	34
192.168.202.4	303
192.168.202.33	172
192.168.202.255	68720
192.168.202.253	68
192.168.202.240	1217
192.168.202.222	144
192.168.202.157	1491
192.168.202.156	7
192.168.202.155	180
192.168.202.154	63
192.168.202.153	100
192.168.202.152	691

192.168.202.152	51
192.168.202.151	96
192.168.202.150	951
192.168.202.149	232
192.168.202.148	8
192.168.202.147	72
192.168.202.146	28
192.168.202.145	712
192.168.202.144	257
192.168.202.144	6
192.168.202.143	257
192.168.202.141	14967
192.168.202.141	9
192.168.202.140	5021
192.168.202.140	863
192.168.202.139	785
192.168.202.138	5022
192.168.202.138	496
192.168.202.137	1749
192.168.202.136	452
192.168.202.136	69
192.168.202.135	239
192.168.202.135	1
192.168.202.134	104
192.168.202.133	829
192.168.202.132	96
192.168.202.131	174
192.168.202.130	249
192.168.202.129	290
192.168.202.128	94
192.168.202.126	152
192.168.202.125	186
192.168.202.124	16
192.168.202.123	1511
192.168.202.122	254
192.168.202.122	6
192.168.202.121	983
192.168.202.120	993
192.168.202.119	39
192.168.202.119	36
192.168.202.118	648
192.168.202.118	249
192.168.202.117	184
192.168.202.116	6
192.168.202.115	5039
192.168.202.115	12

192.168.202.113	3863
192.168.202.112	3595
192.168.202.112	6
192.168.202.110	13372
192.168.202.110	1121
192.168.202.109	315
192.168.202.108	2259
192.168.202.108	48
192.168.202.107	141
192.168.202.106	10784
192.168.202.103	18121
192.168.202.102	7565
192.168.202.102	199
192.168.202.101	947
192.168.202.101	93
192.168.202.100	1367
192.168.202.100	30
192.168.202.1	122
192.168.2.100	9
192.168.169.2	8
192.168.100.255	486
192.168.100.130	6
192.168.1.255	712
192.168.1.1	2
192.168.0.3	266
192.168.0.255	270
192.168.0.199	4
192.168.0.1	2
184.49.188.129	486
173.194.73.106	3
172.19.1.100	25481
172.16.8.25	6
172.16.8.102	7
172.16.7.100	3
172.16.6.57	2
172.16.6.25	3
172.16.5.25	33
172.16.48.159	2
172.16.42.42	4962
172.16.42.255	4962
172.16.4.25	4
172.16.4.102	4
172.16.3.100	3
172.16.2.25	3
172.16.10.2	1
172.16.10.130	1

172.16.1.254	1
169.254.255.255	29
169.254.228.26	24
169.254.109.123	4
156.154.70.22	5821
128.244.37.255	31
128.244.37.196	31
128.244.177.34	7
128.244.177.18	6
128.244.172.252	1
110.209.6.25	9
10.7.137.108	243
10.7.136.63	237
10.7.136.159	246
10.7.136.109	240
10.255.255.255	69
10.133.20.11	1
10.105.2.72	3
10.10.7.253	1
10.10.117.210	75943
10.10.117.209	14222
10.10.10.10	69
10.10.0.7	9

Задание 7

7. Найдите топ-10 доменов, к которым обращаются пользователи сети и соответственное количество обращений

```
point_7<-log_data%>%
count(log_data$`query `,sort=TRUE)
point_7_head<-point_7%>%
head(10)
point_7_head
```

```
##                                         log_data$`query `
## 1                           teredo.ipv6.microsoft.com
## 2                                     tools.google.com
## 3                                        www.apple.com
## 4                                       time.apple.com
## 5                        safebrowsing.clients.google.com
## 6  *\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00
## 7                                                 WPAD
## 8                             44.206.168.192.in-addr.arpa
## 9                                             HPE8AA67
## 10                                              ISATAP
##        n
## 1  39273
## 2  14057
## 3  13390
## 4  13109
## 5  11658
## 6  10401
## 7   9134
## 8   7248
## 9   6929
## 10  6569
```

Задание 8

8. Определите базовые статистические характеристики (функция summary()) интервала времени между последовательным обращениями к топ-10 доменам.

```
point_7_head%>%summary()
```

```
##  log_data$`query `         n
##  Length:10         Min.   : 6569
##  Class :character  1st Qu.: 7720
##  Mode  :character  Median :11030
##                    Mean   :13177
##                    3rd Qu.:13320
##                    Max.   :39273
```

Задание 9

9. Часто вредоносное программное обеспечение использует DNS канал в качестве канала управления, периодически отправляя запросы на подконтрольный злоумышленникам DNS сервер. По периодическим запросам на один и тот же домен можно выявить скрытый DNS канал. Есть ли такие IP адреса в исследуемом датасете?

```
point_9s<-log_data[,c("orig_ip ","query ")]
point_8<-point_9s
point_8%>%group_by(point_8$`query `)
```

```
## # A tibble: 427,935 × 3
## # Groups:   point_8$`query ` [5,178]
##    `orig_ip `    `query `                                      point…¹
##    <chr>         <chr>                                         <chr>
##  1 192.168.202.100 "*\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00\\x00… "*\\x0…
##  2 192.168.202.76  "HPE8AA67"                                  "HPE8A…
##  3 192.168.202.76  "HPE8AA67"                                  "HPE8A…
##  4 192.168.202.76  "HPE8AA67"                                  "HPE8A…
##  5 192.168.202.76  "WPAD"                                      "WPAD"
##  6 192.168.202.76  "WPAD"                                      "WPAD"
##  7 192.168.202.76  "WPAD"                                      "WPAD"
##  8 192.168.202.89  "EWREP1"                                    "EWREP…
##  9 192.168.202.89  "EWREP1"                                    "EWREP…
## 10 192.168.202.89  "EWREP1"                                    "EWREP…
## # … with 427,925 more rows, and abbreviated variable name ¹`point_8$\`query \``
```

```
point_8<-point_8%>%group_by(point_8$orig_ip ) %>%count(point_8$`query `,sort=TRUE)
point_8<-point_8%>%count(point_8$`point_8$orig_ip`,)
point_8<-point_8[which(point_8$n==1),]
knitr::kable(point_8[,c('point_8$orig_ip')], "pipe")
```

point_8$orig_ip
128.244.172.252
172.16.10.130
192.168.100.130
192.168.202.116
192.168.207.58
192.168.208.18
192.168.21.1
192.168.21.100
192.168.21.102
192.168.21.202
192.168.21.203
192.168.21.252
192.168.21.253
192.168.21.254
192.168.22.1
192.168.22.100

192.168.22.101
192.168.22.102
192.168.22.202
192.168.22.203
192.168.22.252
192.168.22.253
192.168.229.1
192.168.229.101
192.168.229.153
192.168.229.156
192.168.229.251
192.168.229.254
192.168.23.1
192.168.23.100
192.168.23.101
192.168.23.102
192.168.23.103
192.168.23.202
192.168.23.203
192.168.23.252
192.168.23.253
192.168.24.1
192.168.24.102
192.168.24.103
192.168.24.202
192.168.24.203
192.168.24.252
192.168.24.253
192.168.24.254
192.168.25.1
192.168.25.100
192.168.25.101
192.168.25.102
192.168.25.103
192.168.25.152
192.168.25.202
192.168.25.203
192.168.25.253
192.168.26.1
192.168.26.103
192.168.26.152
192.168.26.254
192.168.27.1
192.168.27.100
192.168.27.101
192.168.27.102

| 192.168.27.202 |
| 192.168.27.203 |
| 192.168.27.253 |
| 192.168.28.1 |
| 192.168.28.101 |
| 192.168.28.102 |
| 192.168.28.103 |
| 192.168.28.152 |
| 192.168.28.202 |
| 192.168.28.253 |
| 192.168.28.254 |
| 2001:dbb:c18:202:71f3:e219:3f6a:4311 |
| 2001:dbb:c18:202:9c6b:be4e:1289:2663 |
| 2001:dbb:c18:202:a1dd:6355:28ae:da1e |
| 2001:dbb:c18:202:b9ac:6976:ae1c:e10b |
| fe80::423c:fcff:fe06:98a4 |

Обогащение данных

Задание 10

10. Определите местоположение (страну, город) и организацию-провайдера для топ-10 доменов. Для этого можно использовать сторонние сервисы, например https://v4.ifconfig.co/ (https://v4.ifconfig.co/).