LAPORAN KOMUNIKASI DATA

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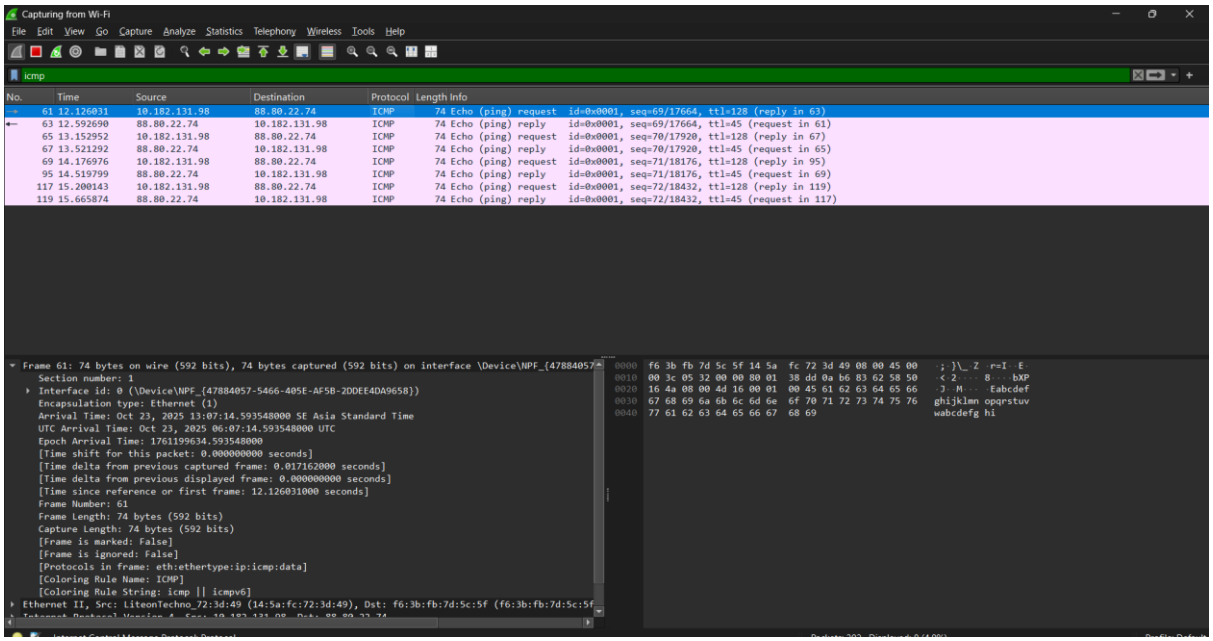
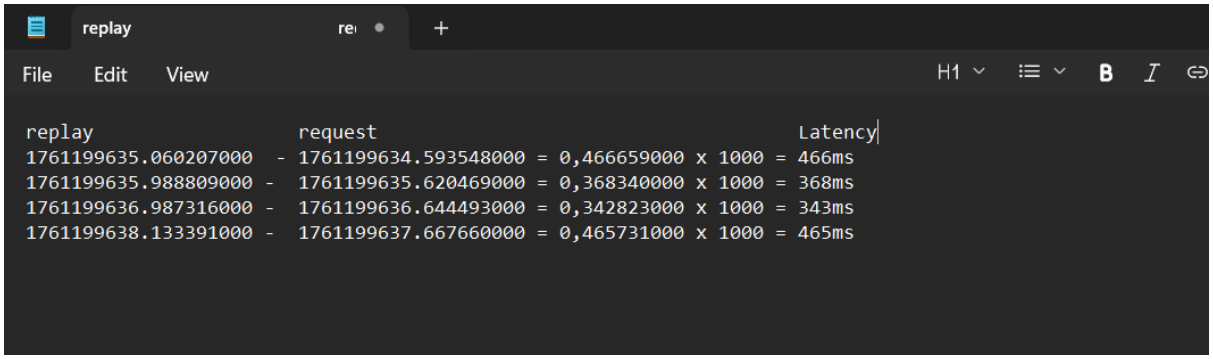
Tugas Praktikum

1. Menghitung Latency Dan Throughput (Download Data>5MB)

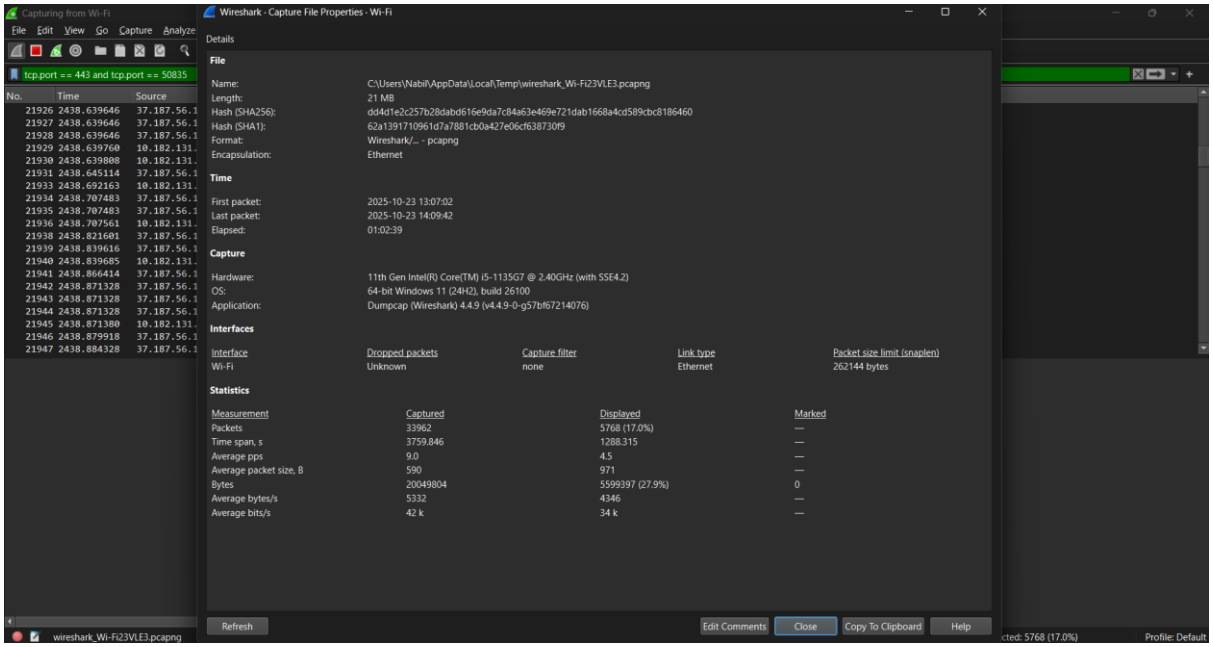


Menghitung Latency :

Melakukan ping pada web y2mate.nu lalu menggunakan Epoch arrival time (Replay) – Epoch Arrival time (Request) = Latency



Menghitung Throughput (Download Data>5MB) :



Menghitung throughput dengan byte :

Dengan Nilai Hasil Throughput = Total Paket / waktu

Throughput (AVR) = Nilai Hasil Throughput / 10^6

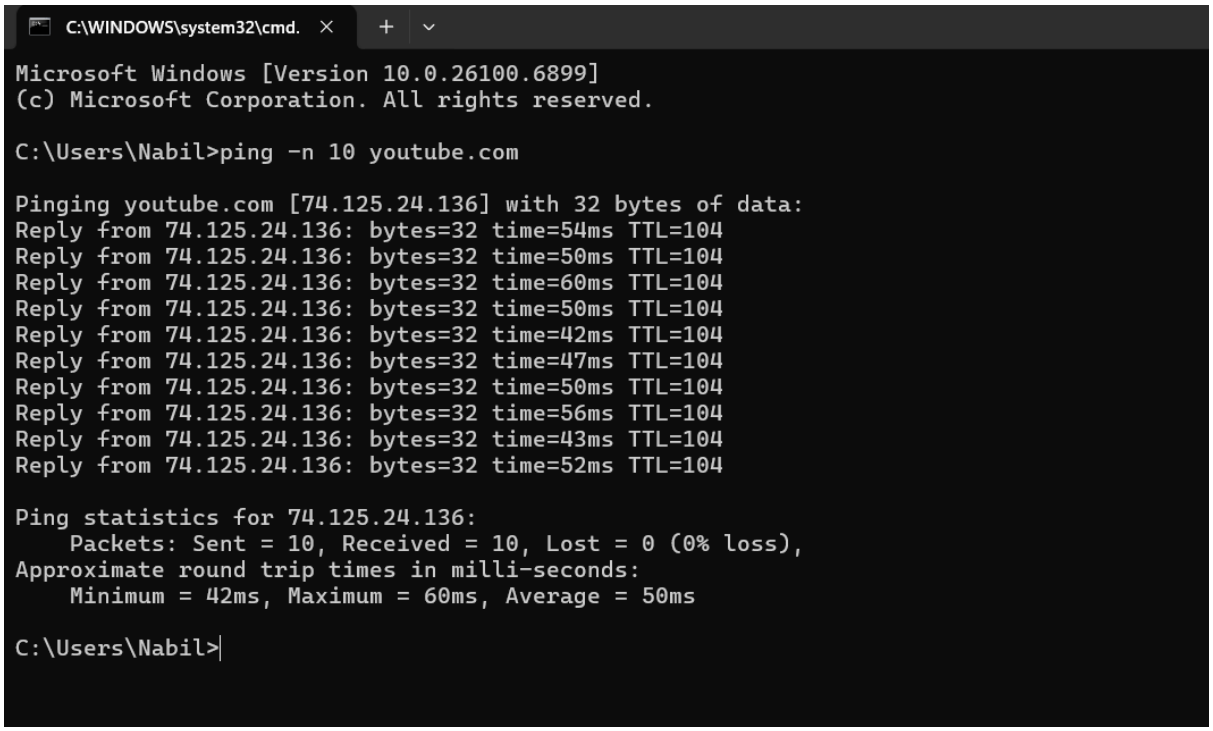
Menghitung Throughput :

Bytes/Time Span

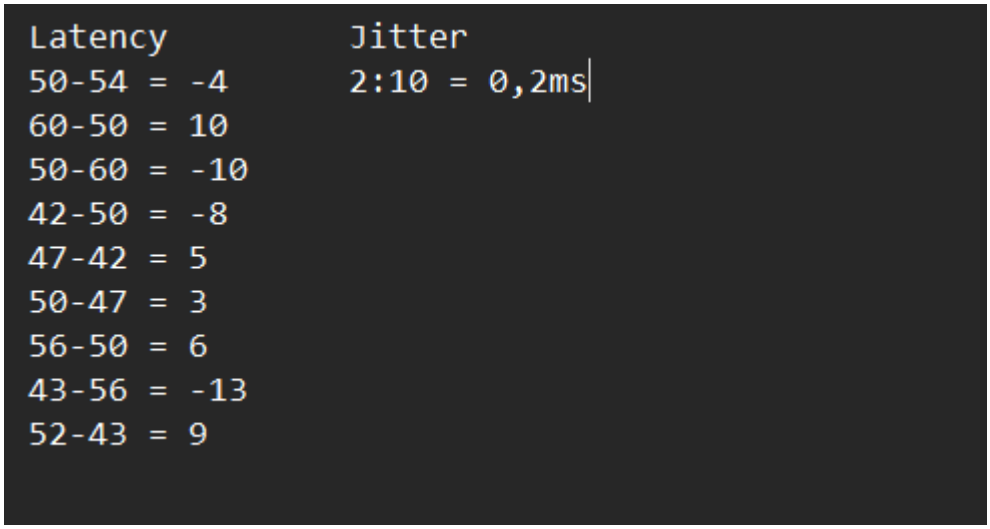
Nilai Hasil Throughput : 20049804/3759.846 = 426609,0
Throughput (average) = 426609/10^6 = 426Kbps

2. Ambil 3 sample web masing masing 10x pengujian dan dapatkan jitternya.

Melakukan ping pada web Youtube.com.



Menghitung Jitter :



Melakukan ping pada web Instagram.com

```
C:\Users\Nabil>ping -n 10 instagram.com

Pinging instagram.com [57.144.192.34] with 32 bytes of data:
Reply from 57.144.192.34: bytes=32 time=58ms TTL=52
Reply from 57.144.192.34: bytes=32 time=28ms TTL=52
Reply from 57.144.192.34: bytes=32 time=42ms TTL=52
Reply from 57.144.192.34: bytes=32 time=42ms TTL=52
Reply from 57.144.192.34: bytes=32 time=45ms TTL=52
Reply from 57.144.192.34: bytes=32 time=31ms TTL=52
Reply from 57.144.192.34: bytes=32 time=38ms TTL=52
Reply from 57.144.192.34: bytes=32 time=46ms TTL=52
Reply from 57.144.192.34: bytes=32 time=31ms TTL=52
Reply from 57.144.192.34: bytes=32 time=44ms TTL=52

Ping statistics for 57.144.192.34:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 28ms, Maximum = 58ms, Average = 40ms

C:\Users\Nabil>
```

Menghitung Jitter :

```
Latency          jitter
28-58 = -30      14/10 = 1.4ms
42-28 = 14
42-42 = 0
45-42 = 3
31-45 = -14
38-31 = 7
46-38 = 8
31-46 = -15
44-31 = 13
```

Melakukan ping id.pinterest.com

```
Pinging prod.pinterest.global.map.fastly.net [146.75.44.84] with 32 bytes of data:
Reply from 146.75.44.84: bytes=32 time=54ms TTL=54
Reply from 146.75.44.84: bytes=32 time=80ms TTL=54
Reply from 146.75.44.84: bytes=32 time=64ms TTL=54
Reply from 146.75.44.84: bytes=32 time=66ms TTL=54
Reply from 146.75.44.84: bytes=32 time=42ms TTL=54
Reply from 146.75.44.84: bytes=32 time=61ms TTL=54
Reply from 146.75.44.84: bytes=32 time=61ms TTL=54
Reply from 146.75.44.84: bytes=32 time=41ms TTL=54
Reply from 146.75.44.84: bytes=32 time=40ms TTL=54
Reply from 146.75.44.84: bytes=32 time=56ms TTL=54

Ping statistics for 146.75.44.84:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 40ms, Maximum = 80ms, Average = 56ms

C:\Users\Nabil>
```

Menghitung Jitter :

```
Latency          jitter
80-54 = 26       12:10 = 1.2ms
64-80 = -16
66-64 = 2
42-66 = -24
61-42 = 19
61-61 = 0
41-61 = -10
40-41 = -1
56-40 = 16
```