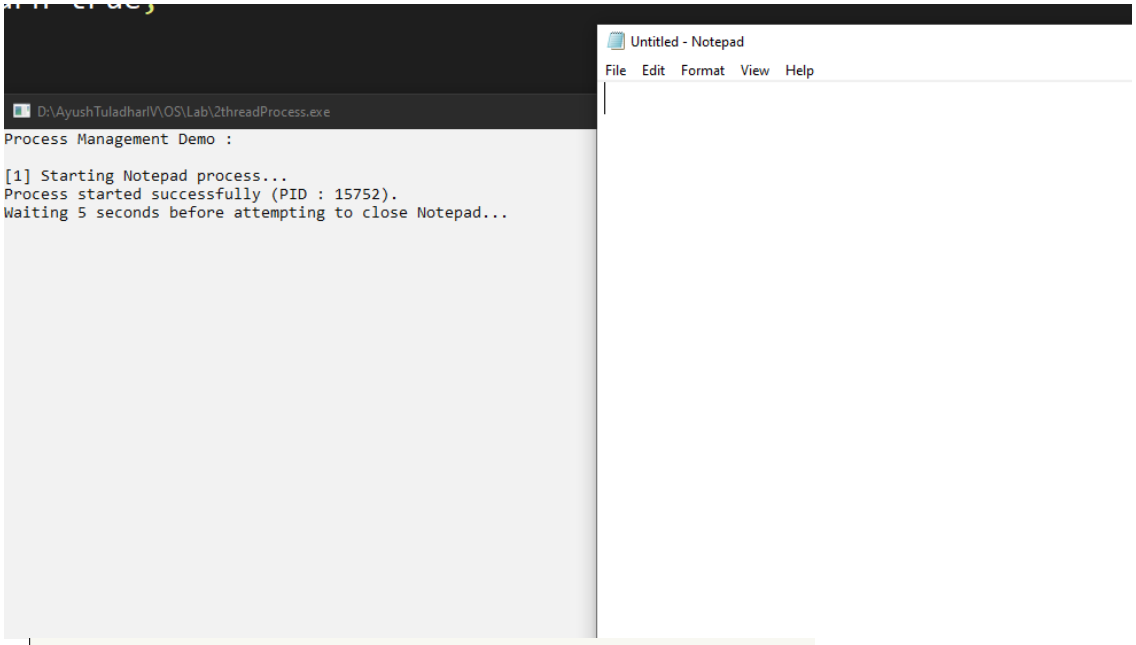



```
D:\Ayu\CSIT\IV\OS\Lab>4diningPhilosophersProblem.exe
Enter philosophers and meals per philosopher : 3 2

Philosophers : 3 | Meals : 2
----------------------------------------
Philosopher 2 eating meal 1
Philosopher 3 eating meal 1
Philosopher 1 eating meal 1
Philosopher 2 eating meal 2
Philosopher 3 eating meal 2
Philosopher 2 finished all meals
Philosopher 1 eating meal 2
Philosopher 3 finished all meals
Philosopher 1 finished all meals
----------------------------------------
All philosophers finished successfully.
```

```
D:\Ayu\CSIT\IV\OS\Lab>3producerConsumerProblem.exe
Enter buffer size, total items, producers, consumers : 3 8 2 2

Buffer : 3 | Items : 8 | Producers : 2 | Consumers : 2
--------------------------------------------------
[P0] produced 1 | Buffer : 1/3
[P1] produced 1001 | Buffer : 2/3
  [C0] consumed 1 | Buffer : 1/3
  [C1] consumed 1001 | Buffer : 0/3
[P0] produced 2 | Buffer : 1/3
[P1] produced 1002 | Buffer : 2/3
  [C1] consumed 2 | Buffer : 1/3
  [C0] consumed 1002 | Buffer : 0/3
[P0] produced 3 | Buffer : 1/3
[P1] produced 1003 | Buffer : 2/3
  [C0] consumed 3 | Buffer : 1/3
  [C1] consumed 1003 | Buffer : 0/3
[P1] produced 1004 | Buffer : 1/3
[P0] produced 4 | Buffer : 2/3
  [C0] consumed 1004 | Buffer : 1/3
  [C1] consumed 4 | Buffer : 0/3
--------------------------------------------------
Result : Produced = 8 Consumed = 8 [SUCCESS]
```

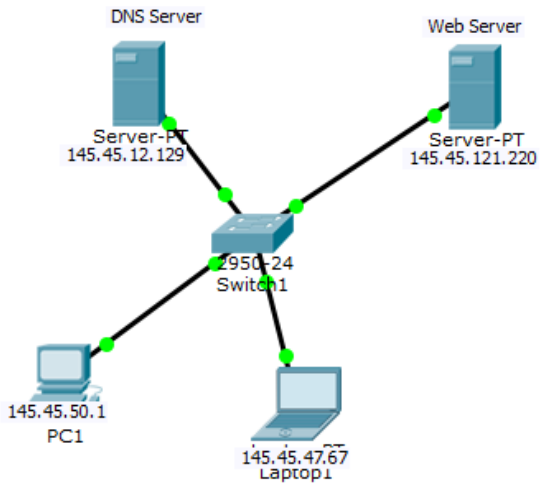
```
D:\AyushTuladharIV\OS\Lab\5nonPre-emptiveCPUScheduling\1fcfs.exe
Enter number of processes : 3
Enter name, arrival & burst time for following processes :
Process 1 : A 0 2
Process 2 : B 3 1
Process 3 : C 5 6

---FCFS CPU Scheduling Algorithm---

Gantt Chart :
|   A   |   -   |   B   |   -   |   C   |
0       2       3       4       5       11

+-----+--------+--------+--------+---------+--------+
| PID |   AT   |   BT   |   CT   |   TAT   |   WT   |
+-----+--------+--------+--------+---------+--------+
|  A  |   0.00 |   2.00 |   2.00 |    2.00 |   0.00 |
|  B  |   3.00 |   1.00 |   4.00 |    1.00 |   0.00 |
|  C  |   5.00 |   6.00 |  11.00 |    6.00 |   0.00 |
+-----+--------+--------+--------+---------+--------+

Average Turnaround Time = 3.00
Average Waiting Time = 0.00
```

```
Need Matrix :
     A B C
P1 [ 7 4 3 ]
P2 [ 1 2 2 ]
P3 [ 6 0 0 ]
P4 [ 0 1 1 ]
P5 [ 4 3 1 ]

Safe sequence : P2 -> P4 -> P1 -> P3 -> P5

Result : System is in SAFE state.
```

```
D:\Ayu\CSIT\IV\OS\Lab\6pre-emptiveCPUScheduling>g++ 2priority.cpp -o 2priority.exe

D:\Ayu\CSIT\IV\OS\Lab\6pre-emptiveCPUScheduling>2priority.exe
Enter number of processes : 4
Enter name, arrival time, burst time & priority for each process :
Process 1 : A 0 9 2
Process 2 : B 4 4 1
Process 3 : C 10 3 3
Process 4 : D 0 6 4

---Pre-emptive Priority CPU Scheduling Algorithm---

Gantt Chart :
|   A   |   B   |   A   |   C   |   D   |
0       4       8       13      16      22

+-----+--------+--------+-----+--------+---------+--------+
| PID |   AT   |   BT   | PR  |   CT   |   TAT   |   WT   |
+-----+--------+--------+-----+--------+---------+--------+
|  A  |   0.00 |   9.00 |   2 |  13.00 |   13.00 |   4.00 |
|  B  |   4.00 |   4.00 |   1 |   8.00 |    4.00 |   0.00 |
|  C  |  10.00 |   3.00 |   3 |  16.00 |    6.00 |   3.00 |
|  D  |   0.00 |   6.00 |   4 |  22.00 |   22.00 |  16.00 |
+-----+--------+--------+-----+--------+---------+--------+

Average Turnaround Time = 11.25
Average Waiting Time = 5.75
```

```
D:\Ayu\CSIT\IV\OS\Lab>7bankersAlgorithm.exe
Enter number of processes and resources : 5 3

Enter Allocation Matrix (row by row) :
P1: 0 1 0
P2: 2 0 0
P3: 3 0 2
P4: 2 1 1
P5: 0 0 2

Enter Max Matrix (row by row) :
P1: 7 5 3
P2: 3 2 2
P3: 9 0 2
P4: 2 2 2
P5: 4 3 3

Enter Available resources : 3 3 2

---Banker's Algorithm---
Allocation Matrix :
     A B C
P1 [ 0 1 0 ]
P2 [ 2 0 0 ]
P3 [ 3 0 2 ]
P4 [ 2 1 1 ]
P5 [ 0 0 2 ]

Max Matrix :
     A B C
P1 [ 7 5 3 ]
P2 [ 3 2 2 ]
P3 [ 9 0 2 ]
P4 [ 2 2 2 ]
P5 [ 4 3 3 ]

Available : [ 3 3 2 ]
```

```
D:\AyushTuladharIV\OS\Lab\8memoryManagementTechnique\1mvt&mft.exe
Enter total memory size : 80
Enter block size (for MFT) : 15
Enter number of processes : 6
Enter memory required by each process : 12 18 14 16 10 20

---MFT (Fixed Partitioning)---
Total blocks available : 5 (each 15 KB)
----------------------------------------
Process P1 (12 KB) -> Block 1 [Waste : 3 KB]
Process P2 (18 KB) -> TOO LARGE for block
Process P3 (14 KB) -> Block 2 [Waste : 1 KB]
Process P4 (16 KB) -> TOO LARGE for block
Process P5 (10 KB) -> Block 3 [Waste : 5 KB]
Process P6 (20 KB) -> TOO LARGE for block
Process P5 (10 KB) -> NO BLOCKS AVAILABLE
----------------------------------------
Used blocks : 3/5
Total internal fragmentation : 9 KB
External fragmentation : 30 KB

---MVT (Dynamic Partitioning)---
Total memory available : 80 KB
----------------------------------------
Process P1 (12 KB) -> ALLOCATED [Remaining : 68 KB]
Process P2 (18 KB) -> ALLOCATED [Remaining : 50 KB]
Process P3 (14 KB) -> ALLOCATED [Remaining : 36 KB]
Process P4 (16 KB) -> ALLOCATED [Remaining : 20 KB]
Process P5 (10 KB) -> ALLOCATED [Remaining : 10 KB]
Process P6 (20 KB) -> CANNOT ALLOCATE [Need : 20, Available : 10]
----------------------------------------
Allocated processes : 5/6
Used memory : 70 KB
External fragmentation : 10 KB
Internal fragmentation : 0 KB (exact fit)
```



```
D:\Ayu\CSIT\IV\OS\Lab\8memoryManagementTechnique>2paging.exe
Total memory (KB) : 100
Page size (KB) : 10
Number of processes : 3
Process P1 size (KB) : 25
Process P2 size (KB) : 15
Process P3 size (KB) : 35

---PROCESS ALLOCATION---
P1 (25 KB) -> 3 pages needed | Allocated : 0 1 2
P2 (15 KB) -> 2 pages needed | Allocated : 3 4
P3 (35 KB) -> 4 pages needed | Allocated : 5 6 7 8

---PAGE TABLE---
+-------+--------+----------+
| Page  | Status | Process  |
+-------+--------+----------+
|     0 |   BUSY |       P1 |
|     1 |   BUSY |       P1 |
|     2 |   BUSY |       P1 |
|     3 |   BUSY |       P2 |
|     4 |   BUSY |       P2 |
|     5 |   BUSY |       P3 |
|     6 |   BUSY |       P3 |
|     7 |   BUSY |       P3 |
|     8 |   BUSY |       P3 |
|     9 |   FREE |        - |
+-------+--------+----------+

---MEMORY MAP---
+--------+
|   P1   | 0-9 KB
+--------+
|   P1   | 10-19 KB
+--------+
|   P1   | 20-29 KB
+--------+
|   P2   | 30-39 KB
+--------+
|   P2   | 40-49 KB
+--------+
|   P3   | 50-59 KB
+--------+
|   P3   | 60-69 KB
+--------+
|   P3   | 70-79 KB
+--------+
|   P3   | 80-89 KB
+--------+
|  FREE  | 90-99 KB
+--------+

---STATISTICS---
Used : 9 | Free : 1 | Utilization: 90.00%
Internal Fragmentation : Minimal | External Fragmentation : None
```

```
D:\AyushTuladharIV\OS\Lab\2threadProcess.exe
Process Management Demo :

[1] Starting Notepad process...
Process started successfully (PID : 15752).
Waiting 5 seconds before attempting to close Notepad...
Attempting to close Notepad...
Process closed gracefully.

Thread Management Demo :

[2] Starting worker thread...
Thread 1 created successfully (ID : 12920)
Main thread waiting 3 seconds before stopping worker thread...
Thread 1 started working...
Thread 1 progress : 1/10
Thread 1 progress : 2/10
Thread 1 progress : 3/10
Stopping worker thread...
Thread 1 was stopped gracefully
Thread stopped gracefully
```

```
D:\Ayu\CSIT\IV\OS\Lab\10pageReplacementAlgorithm>1fifo.exe
Enter number of frames : 3
Enter number of pages : 13
Enter page reference string : 7 0 1 2 0 3 0 4 2 3 0 3 1

FIFO Page Replacement Algorithm :
+-------+-------+-------+-------+--------+
| Pages |  F 1  |  F 2  |  F 3  | Status |
+-------+-------+-------+-------+--------+
|   7   |   7   |   -   |   -   |  MISS  |
|   0   |   7   |   0   |   -   |  MISS  |
|   1   |   7   |   0   |   1   |  MISS  |
|   2   |   2   |   0   |   1   |  MISS  |
|   0   |   2   |   0   |   1   |   HIT  |
|   3   |   2   |   3   |   1   |  MISS  |
|   0   |   2   |   3   |   0   |  MISS  |
|   4   |   4   |   3   |   0   |  MISS  |
|   2   |   4   |   2   |   0   |  MISS  |
|   3   |   4   |   2   |   3   |  MISS  |
|   0   |   0   |   2   |   3   |  MISS  |
|   3   |   0   |   2   |   3   |   HIT  |
|   1   |   0   |   1   |   3   |  MISS  |
+-------+-------+-------+-------+--------+

Results :
------------------------------
Total Page References : 13
Total Page Faults     : 11
Total Page Hits       : 2
Miss Ratio            : 84.62%
Hit Ratio             : 15.38%
```

```
D:\Ayu\CSIT\IV\OS\Lab\10pageReplacementAlgorithm>2lru.exe
Enter number of frames : 4
Enter number of pages : 19
Enter page reference string : 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0

LRU Page Replacement Algorithm :
+-------+-------+-------+-------+-------+--------+
| Pages |  F 1  |  F 2  |  F 3  |  F 4  | Status |
+-------+-------+-------+-------+-------+--------+
|   7   |   7   |   -   |   -   |   -   |  MISS  |
|   0   |   7   |   0   |   -   |   -   |  MISS  |
|   1   |   7   |   0   |   1   |   -   |  MISS  |
|   2   |   7   |   0   |   1   |   2   |  MISS  |
|   0   |   7   |   0   |   1   |   2   |   HIT  |
|   3   |   3   |   0   |   1   |   2   |  MISS  |
|   0   |   3   |   0   |   1   |   2   |   HIT  |
|   4   |   3   |   0   |   4   |   2   |  MISS  |
|   2   |   3   |   0   |   4   |   2   |   HIT  |
|   3   |   3   |   0   |   4   |   2   |   HIT  |
|   0   |   3   |   0   |   4   |   2   |   HIT  |
|   3   |   3   |   0   |   4   |   2   |   HIT  |
|   2   |   3   |   0   |   4   |   2   |   HIT  |
|   1   |   3   |   0   |   1   |   2   |  MISS  |
|   2   |   3   |   0   |   1   |   2   |   HIT  |
|   0   |   3   |   0   |   1   |   2   |   HIT  |
|   1   |   3   |   0   |   1   |   2   |   HIT  |
|   7   |   7   |   0   |   1   |   2   |  MISS  |
|   0   |   7   |   0   |   1   |   2   |   HIT  |
+-------+-------+-------+-------+-------+--------+

Results :
------------------------------
Total Page References : 19
Total Page Faults     : 8
Total Page Hits       : 11
Miss Ratio            : 42.11%
Hit Ratio             : 57.89%
```

```
D:\Ayu\CSIT\IV\OS\Lab\9memoryAllocationTechnique>1firstFitContiguous.exe
Enter number of memory blocks : 5
Enter sizes of blocks : 100 500 200 300 600
Enter number of processes : 4
Enter sizes of processes : 212 417 112 426

---First Fit Memory Allocation---
Process P1 (212 KB) allocated to Block 2
Process P2 (417 KB) allocated to Block 5
Process P3 (112 KB) allocated to Block 3
Process P4 (426 KB) could not be allocated

Final Memory Allocation State :
+------+
|  --  | 100 KB
+------+
|  P1  | 212/500 KB
+------+
|  P3  | 112/200 KB
+------+
|  --  | 300 KB
+------+
|  P2  | 417/600 KB
+------+
```

```
D:\Ayu\CSIT\IV\OS\Lab\9memoryAllocationTechnique>2bestFitContiguous.exe
Enter number of memory blocks : 5
Enter sizes of blocks : 100 500 200 300 600
Enter number of processes : 4
Enter sizes of processes : 212 417 112 426

---Best Fit Memory Allocation---
Process P1 (212 KB) allocated to Block 4
Process P2 (417 KB) allocated to Block 2
Process P3 (112 KB) allocated to Block 3
Process P4 (426 KB) allocated to Block 5

Final Memory Allocation State :
+------+
|  --  | 100 KB
+------+
|  P2  | 417/500 KB
+------+
|  P3  | 112/200 KB
+------+
|  P1  | 212/300 KB
+------+
|  P4  | 426/600 KB
+------+
```

```
D:\Ayu\CSIT\IV\OS\Lab\9memoryAllocationTechnique>3worstFitContiguous.exe
Enter number of memory blocks : 5
Enter sizes of blocks : 100 500 200 300 600
Enter number of processes : 4
Enter sizes of processes : 212 417 112 426

---Worst Fit Memory Allocation---
---------------------------------------
Process P1 (212 KB) allocated to Block 5
Process P2 (417 KB) allocated to Block 2
Process P3 (112 KB) allocated to Block 4
Process P4 (426 KB) could not be allocated

Final Memory Allocation State :
+------+
|  --  | 100 KB
+------+
|  P2  | 417/500 KB
+------+
|  --  | 200 KB
+------+
|  P3  | 112/300 KB
+------+
|  P1  | 212/600 KB
+------+
```

```
D:\Ayu\CSIT\IV\OS\Lab\10pageReplacementAlgorithm>3lfu.exe
Enter number of frames : 3
Enter number of pages : 15
Enter page reference string : 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2

LFU Page Replacement Algorithm :
+-------+-------+-------+-------+--------+
| Pages |  F 1  |  F 2  |  F 3  | Status |
+-------+-------+-------+-------+--------+
|   7   |   7   |   -   |   -   |  MISS  |
|   0   |   7   |   0   |   -   |  MISS  |
|   1   |   7   |   0   |   1   |  MISS  |
|   2   |   2   |   0   |   1   |  MISS  |
|   0   |   2   |   0   |   1   |   HIT  |
|   3   |   2   |   0   |   3   |  MISS  |
|   0   |   2   |   0   |   3   |   HIT  |
|   4   |   4   |   0   |   3   |  MISS  |
|   2   |   4   |   0   |   2   |  MISS  |
|   3   |   3   |   0   |   2   |  MISS  |
|   0   |   3   |   0   |   2   |   HIT  |
|   3   |   3   |   0   |   2   |   HIT  |
|   2   |   3   |   0   |   2   |   HIT  |
|   1   |   3   |   0   |   1   |  MISS  |
|   2   |   3   |   0   |   2   |  MISS  |
+-------+-------+-------+-------+--------+

Results :
------------------------------
Total Page References : 15
Total Page Faults     : 10
Total Page Hits       : 5
Miss Ratio            : 66.67%
Hit Ratio             : 33.33%
```

```
D:\Ayu\CSIT\IV\OS\Lab\10pageReplacementAlgorithm>4optimal.exe
Enter number of frames : 3
Enter number of pages : 12
Enter page reference string : 1 2 3 4 1 2 5 1 2 3 4 5

Optimal Page Replacement Algorithm :
+-------+-------+-------+-------+--------+
| Pages |  F 1  |  F 2  |  F 3  | Status |
+-------+-------+-------+-------+--------+
|   1   |   1   |   -   |   -   |  MISS  |
|   2   |   1   |   2   |   -   |  MISS  |
|   3   |   1   |   2   |   3   |  MISS  |
|   4   |   1   |   2   |   4   |  MISS  |
|   1   |   1   |   2   |   4   |   HIT  |
|   2   |   1   |   2   |   4   |   HIT  |
|   5   |   1   |   2   |   5   |  MISS  |
|   1   |   1   |   2   |   5   |   HIT  |
|   2   |   1   |   2   |   5   |   HIT  |
|   3   |   3   |   2   |   5   |  MISS  |
|   4   |   3   |   4   |   5   |  MISS  |
|   5   |   3   |   4   |   5   |   HIT  |
+-------+-------+-------+-------+--------+

Results :
------------------------------
Total Page References : 12
Total Page Faults     : 7
Total Page Hits       : 5
Miss Ratio            : 58.33%
Hit Ratio             : 41.67%
```

```
D:\Ayu\CSIT\IV\OS\Lab\11fileOrganizationTec
Enter no. of files to be created : 1
Enter file name : ayush.txt

---Single Level Directory---
   1. List all files
   2. Search file
   3. Delete file
   4. Add file
   5. Exit
Enter choice : 4
Enter file name to add : byush.txt
File 'byush.txt' added successfully.

---Single Level Directory---
   1. List all files
   2. Search file
   3. Delete file
   4. Add file
   5. Exit
Enter choice : 1

Single Level Directory Contents :
------------------------------
ayush.txt
byush.txt

Total files : 2

---Single Level Directory---
   1. List all files
   2. Search file
   3. Delete file
   4. Add file
   5. Exit
Enter choice : 2
Enter file name to search : byush.txt
File 'byush.txt' found in directory.
```

```
D:\Ayu\CSIT\IV\OS\Lab\11fileOrgani
tory.exe
Enter no. of users : 2
Enter username : Ayush
Enter no. of files for Ayush : 1
Enter file name : ayush.txt
Enter username : Byush
Enter no. of files for Byush : 2
Enter file name : byush.txt
Enter file name : cyush.txt

---Two Level Directory---
   1. List all users
   2. List user files
   3. Search file
   4. Delete file
   5. Add file
   6. Add user
   7. Exit
Enter choice : 1

All Users in System:
--------------------------
Ayush (1 files)
Byush (2 files)

---Two Level Directory---
   1. List all users
   2. List user files
   3. Search file
   4. Delete file
   5. Add file
   6. Add user
   7. Exit
Enter choice : 2
Enter username : Byush
```

```
---Two Level Directory---
   1. List all users
   2. List user files
   3. Search file
   4. Delete file
   5. Add file
   6. Add user
   7. Exit
Enter choice : 5
Enter username : Ayush
Enter file name to add : cyush.txt
File 'cyush.txt' added to Ayush's directory.

---Two Level Directory---
   1. List all users
   2. List user files
   3. Search file
   4. Delete file
   5. Add file
   6. Add user
   7. Exit
Enter choice : 6
Enter new username : Cyush
User 'Cyush' added successfully.

---Two Level Directory---
   1. List all users
   2. List user files
   3. Search file
   4. Delete file
   5. Add file
   6. Add user
   7. Exit
Enter choice : 7
Exiting program.
```

```
D:\AyushTuladharIV\OS\Lab\2sjf.exe
Enter number of processes : 5
Enter name, arrival & burst time for following processes :
Process 1 : A 2 6
Process 2 : B 5 2
Process 3 : C 1 8
Process 4 : D 0 3
Process 5 : E 4 4

---SJF CPU Scheduling Algorithm---

Gantt Chart :
|   D   |   A   |   B   |   E   |   C   |
0       3       9      11      15      23

+-----+--------+--------+--------+---------+---------+
| PID |   AT   |   BT   |   CT   |   TAT   |   WT    |
+-----+--------+--------+--------+---------+---------+
|  A  |   2.00 |   6.00 |   9.00 |    7.00 |   1.00  |
|  B  |   5.00 |   2.00 |  11.00 |    6.00 |   4.00  |
|  C  |   1.00 |   8.00 |  23.00 |   22.00 |  14.00  |
|  D  |   0.00 |   3.00 |   3.00 |    3.00 |   0.00  |
|  E  |   4.00 |   4.00 |  15.00 |   11.00 |   7.00  |
+-----+--------+--------+--------+---------+---------+

Average Turnaround Time = 9.80
Average Waiting Time = 5.20
```

```
D:\AyushTuladharIV\OS\Lab\3priority.exe
Enter number of processes : 5
Enter name, arrival time, burst time & priority for each process :
Process 1 : A 0 20 4
Process 2 : B 20 25 2
Process 3 : C 15 25 3
Process 4 : D 10 15 3
Process 5 : E 25 10 10

---Non Pre-emptive Priority CPU Scheduling Algorithm---

Gantt Chart :
|   A   |   B   |   D   |   C   |   E   |
0      20      45      60      85      95

+-----+--------+--------+-----+---------+---------+---------+
| PID |   AT   |   BT   | PR  |   CT    |   TAT   |   WT    |
+-----+--------+--------+-----+---------+---------+---------+
|  A  |   0.00 |  20.00 |   4 |  20.00  |   20.00 |   0.00  |
|  B  |  20.00 |  25.00 |   2 |  45.00  |   25.00 |   0.00  |
|  C  |  15.00 |  25.00 |   3 |  85.00  |   70.00 |  45.00  |
|  D  |  10.00 |  15.00 |   3 |  60.00  |   50.00 |  35.00  |
|  E  |  25.00 |  10.00 |  10 |  95.00  |   70.00 |  60.00  |
+-----+--------+--------+-----+---------+---------+---------+

Average Turnaround Time = 47.00
Average Waiting Time = 28.00
```

```
---Single Level Directory---
   1. List all files
   2. Search file
   3. Delete file
   4. Add file
   5. Exit
Enter choice : 3
Enter file name to delete : ayush.txt
File 'ayush.txt' deleted successfully.

---Single Level Directory---
   1. List all files
   2. Search file
   3. Delete file
   4. Add file
   5. Exit
Enter choice : 5
Exiting program.
```

```
D:\Ayu\CSIT\IV\OS\Lab\6pre-emptiveCPUScheduling>1roundRobin.exe
Enter number of processes : 5 2
Enter Time Quantum : Enter name, arrival time & burst time for each process :
Process 1 : A 0 4
Process 2 : B 2 7
Process 3 : C 3 3
Process 4 : D 3.5 3
Process 5 : E 4 5

--Round Robin CPU Scheduling Algorithm--

Gantt Chart :
| A | B | A | C | D | E | B | C | D | E | B | E | B |
0   2   4   6   8  10  12  14  15  16  18  20  21  22

+-----+------+------+------+------+------+
| PID |  AT  |  BT  |  CT  |  TAT |  WT  |
+-----+------+------+------+------+------+
|  A  | 0.00 | 4.00 | 6.00 | 6.00 | 2.00 |
|  B  | 2.00 | 7.00 | 22.00 | 20.00 | 13.00 |
|  C  | 3.00 | 3.00 | 15.00 | 12.00 | 9.00 |
|  D  | 3.50 | 3.00 | 16.00 | 12.50 | 9.50 |
|  E  | 4.00 | 5.00 | 21.00 | 17.00 | 12.00 |
+-----+------+------+------+------+------+

Average Turnaround Time = 13.50
Average Waiting Time = 9.10
```

```
Byush's Directory Contents :
------------------------------
byush.txt
cyush.txt

Total files : 2

---Two Level Directory---
   1. List all users
   2. List user files
   3. Search file
   4. Delete file
   5. Add file
   6. Add user
   7. Exit
Enter choice : 3
Enter username : ayush.txt
Enter file name to search : ayush
User 'ayush.txt' not found.

---Two Level Directory---
   1. List all users
   2. List user files
   3. Search file
   4. Delete file
   5. Add file
   6. Add user
   7. Exit
Enter choice : 4
Enter username : Ayush
Enter file name to delete : ayush.txt
File 'ayush.txt' deleted from Ayush's directory.
```

```
---Sequential File Allocation---
Enter disk size : 50

---Sequential File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : ayush.txt
Enter file size (in blocks) : 30
File 'ayush.txt' allocated successfully at blocks 0 to 29

---Sequential File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : byush.txt
Enter file size (in blocks) : 19
File 'byush.txt' allocated successfully at blocks 30 to 48

---Sequential File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 3

Allocated Files :
+--------------+-------------+--------+-----------+
| File Name    | Start Block | Length | End Block |
+--------------+-------------+--------+-----------+
| ayush.txt    | 0           | 30     | 29        |
| byush.txt    | 30          | 19     | 48        |
+--------------+-------------+--------+-----------+
```

```
---Sequential File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 4

Disk Status : 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0

---Sequential File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 2
Enter file name to deallocate : ayush.txt
File 'ayush.txt' deallocated successfully.

---Sequential File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 4

Disk Status : 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0

---Sequential File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 5
Exiting program.
```

```
D:\Ayu\CSIT\IV\OS\Lab\12fileAllocationStrategy>2index
---Indexed File Allocation---
Enter disk size : 8

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : fileA
Enter file size (in blocks) : 2
File 'fileA' allocated successfully at index block 0

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : fileB
Enter file size (in blocks) : 3
File 'fileB' allocated successfully at index block 3

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : fileC
Enter file size (in blocks) : 1
Allocation not possible - insufficient free blocks
```

```
---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 4

Disk Status : I D D I D D D 0
Legend : 0=Free, D=Data Block, I=Index Block

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 3

Allocated Files :
+--------------+-------------+--------------------+-----------+
| File Name    | Index Block | Data Blocks        | File Size |
+--------------+-------------+--------------------+-----------+
| fileA        | 0           | 1,2                | 2         |
| fileB        | 3           | 4,5,6              | 3         |
+--------------+-------------+--------------------+-----------+

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 2
Enter file name to deallocate : fileB
File 'fileB' deallocated successfully.
```

```
D:\Ayu\CSIT\IV\OS\Lab\11fileOrganizationTechnique
irectory.exe
--Hierarchical Directory--

---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 3
Enter directory name : Ayush
Directory 'Ayush' created.

---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 2
Enter directory name (or '..' for parent) : ..
Already at root directory.

---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 2
Enter directory name (or '..' for parent) : Ayush
```

```
Enter directory name (or '..' for parent) : Ayush
Changed to directory : Ayush

---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 5
Enter file name : ronaldo.txt
File 'ronaldo.txt' created.

---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 3
Enter directory name : Byush
Directory 'Byush' created.

---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 7
Enter file name to search : ronaldo.txt
File 'ronaldo.txt' found.
```

```
---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 2
Enter directory name (or '..' for parent) : ..
Moved to parent directory.
---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 1

Current Directory : root
------------------------------
Subdirectories :
  Ayush/
---Hierarchical Directory---
   1. List current directory
   2. Change directory
   3. Create directory
   4. Delete directory
   5. Create file
   6. Delete file
   7. Search file
   8. Exit
Enter choice : 4
Enter directory name to delete : Ayush
Directory 'Ayush' deleted.
```

```
---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 4

Disk Status : 1 1 0 0 0 1 0 0
Block Pointers : 1 -1 - - - -1 - -

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 3

Allocated Files :
+---------------+-------------+--------+-------------------------+
| File Name     | Start Block | Length | Block Chain             |
+---------------+-------------+--------+-------------------------+
| fileA         | 0           | 2      | 0->1->END               |
| fileC         | 5           | 1      | 5->END                  |
+---------------+-------------+--------+-------------------------+

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : fileD
Enter file size (in blocks) : 2
File 'fileD' allocated successfully starting at block 2
Block chain : 2 -> 3 -> END
```

```
---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 4

Disk Status : 1 1 1 1 0 1 0 0
Block Pointers : 1 -1 3 -1 - -1 - -

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 3

Allocated Files :
+---------------+-------------+--------+-------------------------+
| File Name     | Start Block | Length | Block Chain             |
+---------------+-------------+--------+-------------------------+
| fileA         | 0           | 2      | 0->1->END               |
| fileC         | 5           | 1      | 5->END                  |
| fileD         | 2           | 2      | 2->3->END               |
+---------------+-------------+--------+-------------------------+

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 5
Exiting program.
```

```
D:\Ayu\CSIT\IV\OS\Lab\13diskSchedulingAlgorithm>1fcfs.exe
Enter number of disk requests : 8
Enter the track sequence : 98 183 41 122 14 124 65 67
Enter initial head position : 53

---FCFS Disk Scheduling Algorithm---
Order of servicing requests :
        53 -> 98 -> 183 -> 41 -> 122 -> 14 -> 124 -> 65 -> 67

Total head movement = 632
Average head movement = 79
```

```
D:\Ayu\CSIT\IV\OS\Lab\13diskSchedulingAlgorithm>2scan.exe
Enter number of disk requests : 8
Enter the track sequence : 98 183 41 122 14 124 65 67
Enter initial head position : 53
Enter disk size : 200
Enter direction (0 = towards smaller, 1 = towards larger) : 1

---Scan Disk Scheduling Algorithm---
Order of servicing requests :
        53 -> 65 -> 67 -> 98 -> 122 -> 124 -> 183 -> 199 -> 41 -> 14

Total head movement = 331
Average head movement = 41.375
```

```
D:\Ayu\CSIT\IV\OS\Lab\13diskSchedulingAlgorithm>3look.exe
Enter number of disk requests : 8
Enter the track sequence : 98 183 41 122 14 124 65 67
Enter initial head position : 53
Enter direction (0 = towards smaller, 1 = towards larger) : 1

---Look Disk Scheduling Algorithm---
Order of servicing requests :
        53 -> 65 -> 67 -> 98 -> 122 -> 124 -> 183 -> 41 -> 14

Total head movement = 299
Average head movement = 37.375
```

```
---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 4

Disk Status : I D D 0 0 0 0 0
Legend : 0=Free, D=Data Block, I=Index Block

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 3

Allocated Files :
+---------------+-------------+---------------------+-----------+
| File Name     | Index Block | Data Blocks         | File Size |
+---------------+-------------+---------------------+-----------+
| fileA         | 0           | 1,2                 | 2         |
+---------------+-------------+---------------------+-----------+

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : fileD
Enter file size (in blocks) : 2
File 'fileD' allocated successfully at index block 3
```

```
---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 4

Disk Status : I D D I D D 0 0
Legend : 0=Free, D=Data Block, I=Index Block

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 3

Allocated Files :
+---------------+-------------+---------------------+-----------+
| File Name     | Index Block | Data Blocks         | File Size |
+---------------+-------------+---------------------+-----------+
| fileA         | 0           | 1,2                 | 2         |
| fileD         | 3           | 4,5                 | 2         |
+---------------+-------------+---------------------+-----------+

---Indexed File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 5
Exiting program.
```

```
D:\Ayu\CSIT\IV\OS\Lab\12fileAllocationStrategy>3linked.e
---Linked File Allocation---
Enter disk size : 8

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : fileA
Enter file size (in blocks) : 2
File 'fileA' allocated successfully starting at block 0
Block chain : 0 -> 1 -> END

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : fileB
Enter file size (in blocks) : 3
File 'fileB' allocated successfully starting at block 2
Block chain : 2 -> 3 -> 4 -> END

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 1
Enter file name : fileC
Enter file size (in blocks) : 1
File 'fileC' allocated successfully starting at block 5
Block chain : 5 -> END
```

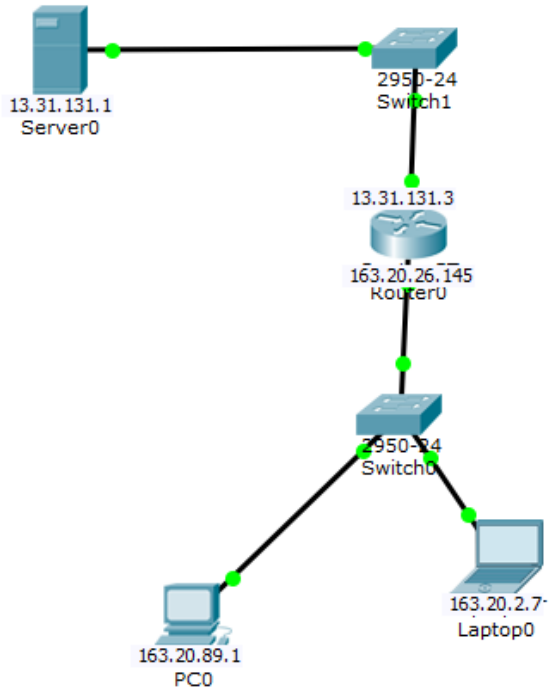
```
---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 4

Disk Status : 1 1 1 1 1 1 0 0
Block Pointers : 1 -1 3 4 -1 -1 - -

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 3

Allocated Files :
+---------------+-------------+--------+-------------------------+
| File Name     | Start Block | Length | Block Chain             |
+---------------+-------------+--------+-------------------------+
| fileA         | 0           | 2      | 0->1->END               |
| fileB         | 2           | 3      | 2->3->4->END            |
| fileC         | 5           | 1      | 5->END                  |
+---------------+-------------+--------+-------------------------+

---Linked File Allocation---
   1. Allocate File
   2. Deallocate File
   3. Display Files
   4. Display Disk Status
   5. Exit
Enter your choice : 2
Enter file name to deallocate : fileB
File 'fileB' deallocated successfully.
```

PC2

Physical | Config | Desktop | Custom Interface

Command Prompt

```
%Error opening ftp://13.31.131.1/ (Timed
.


Packet Tracer PC Command Line 1.0
PC>(Disconnecting from ftp server)


Packet Tracer PC Command Line 1.0
PC>ftp 13.31.131.1
Trying to connect...13.31.131.1
Connected to 13.31.131.1
220- Welcome to PT Ftp server
Username:ronaldo
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>get WBG.txt

Reading file WBG.txt from 13.31.131.1:
File transfer in progress...

[Transfer complete - 21 bytes]

21 bytes copied in 0 secs
ftp>
```



Server1

Physical | Config | Services | Desktop | Custom Interface

SERVICES: HTTP | DHCP | DHCPv6 | TFTP | DNS | SYSLOG | AAA | NTP | EMAIL | FTP

DNS

DNS Service: On / Off

Resource Records

Name | Type: A Record

Address

Add | Save | Remove

No.	Name	Type	Detail
0	www.nationsleague.c...	A Record	145.45.121.220

Server2

Physical | Config | Services | Desktop | Custom Interface

SERVICES: HTTP | DHCP | DHCPv6 | TFTP | DNS | SYSLOG | AAA | NTP | EMAIL | FTP

File Name: index.html

```
<html>
Lamine Yamal was washed by Cristiano Ronaldo.
</html>
```

PC1

Physical | Config | Desktop | Custom Interface

Command Prompt

```
Packet Tracer PC Command Line 1.0
PC>ftp 13.31.131.1
Trying to connect...13.31.131.1
Connected to 13.31.131.1
220- Welcome to PT Ftp server
Username:ronaldo
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>put WBG.txt
Writing file WBG.txt to 13.31.131.1:
File transfer in progress...
[Transfer complete - 21 bytes]
21 bytes copied in 0.085 secs (247 bytes/sec)
ftp>
```

Laptop1

Physical | Config | Desktop | Custom Interface

Web Browser

< | > | URL: http://www.nationsleague.com | Go | Stop

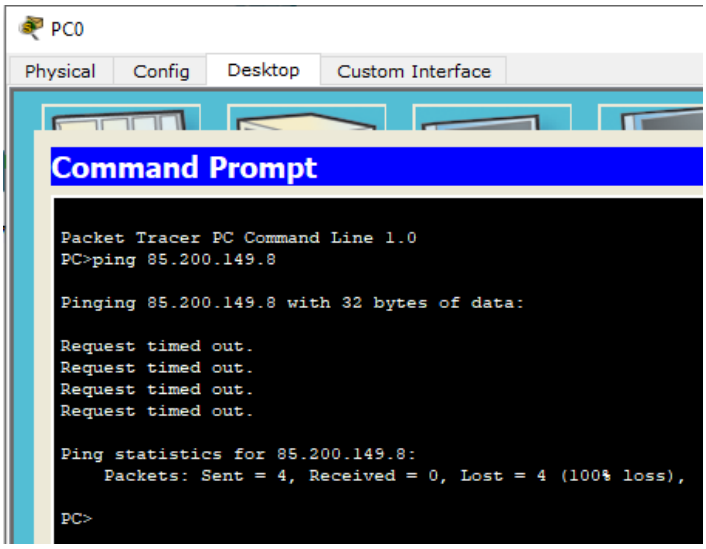
Lamine Yamal was washed by Cristiano Ronaldo.

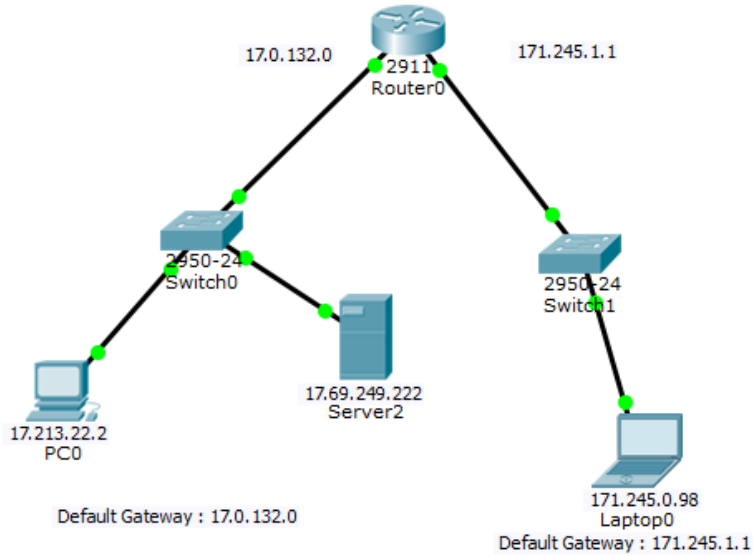
```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#access-list 1 deny 17.213.22.2 0.0.0.0
Router(config)#access-list 1 permit any
Router(config)#interface gig 0/0
Router(config-if)#ip access-group 1 out
Router(config-if)#
```

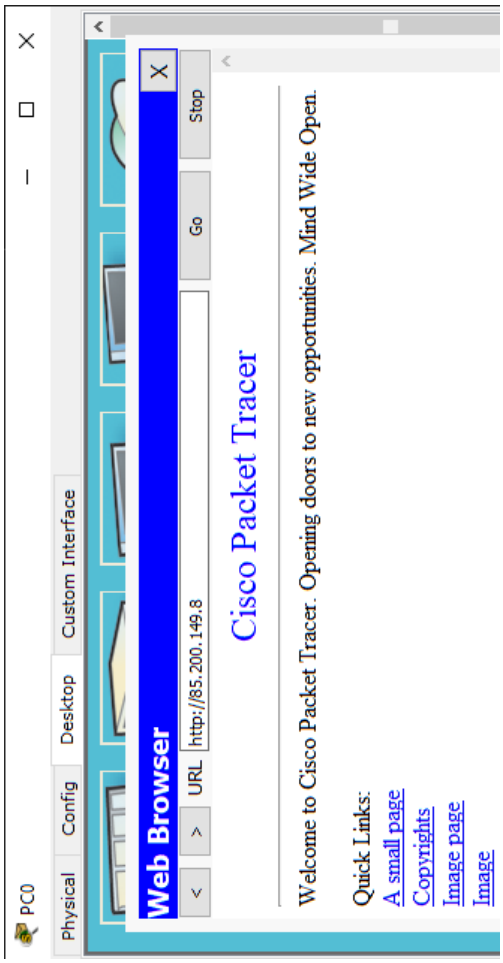


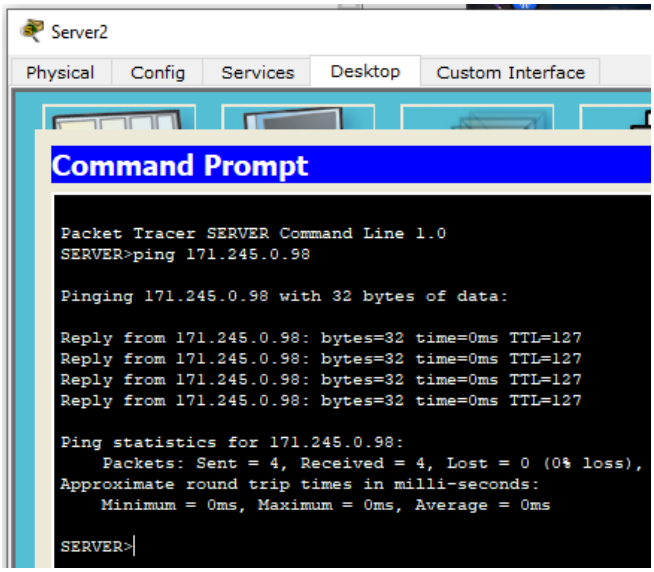
```
PC>ping 171.245.0.98

Pinging 171.245.0.98 with 32 bytes of data:

Reply from 17.0.132.0: Destination host unreachable.
Reply from 17.0.132.0: Destination host unreachable.
Reply from 17.0.132.0: Destination host unreachable.
Reply from 17.0.132.0: Destination host unreachable.

Ping statistics for 171.245.0.98:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>
```

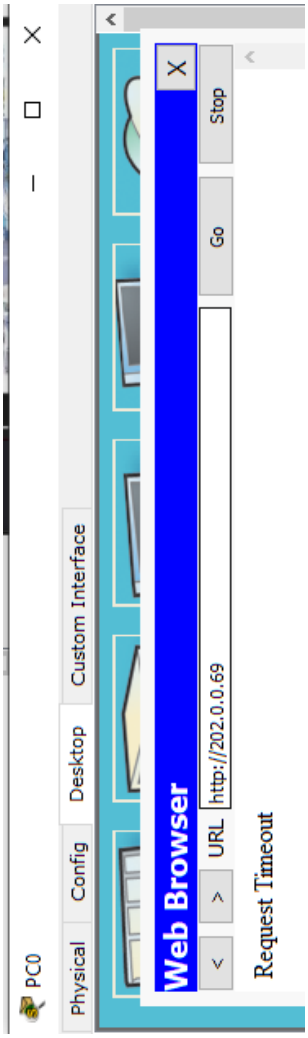
```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#access-list 100 deny tcp 49.231.54.113 0.0.0.0 202.0.0.69 0.0.0.0
eq 80
Router(config)#access-list 100 permit ip any any
Router(config)#interface gig 0/0
Router(config-if)#ip access-group 100 in
Router(config-if)#
```

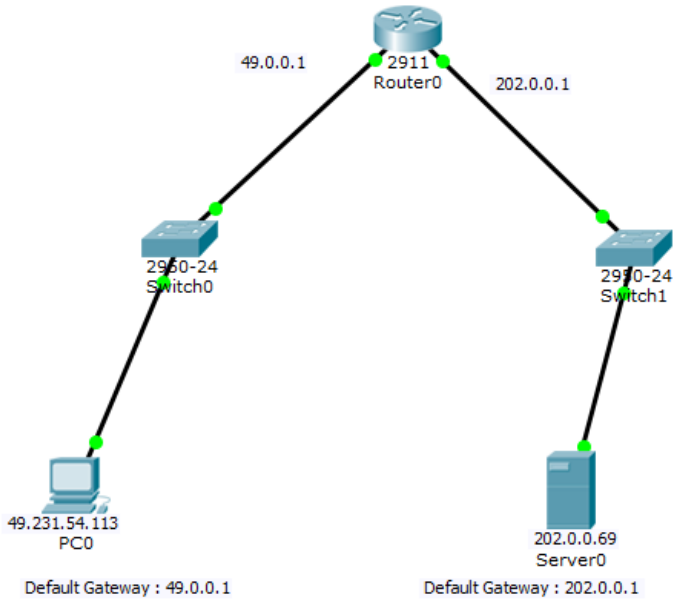

PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 85.200.149.8
Pinging 85.200.149.8 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 85.200.149.8:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
PC>

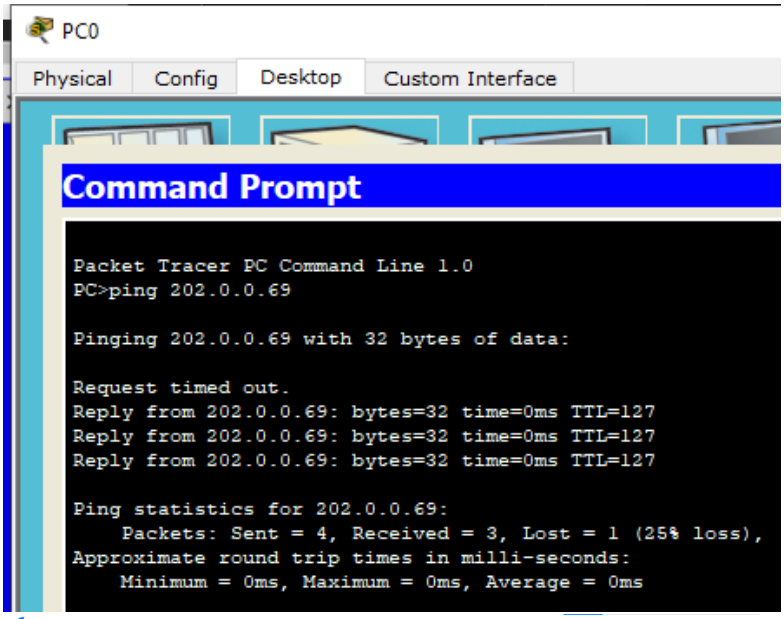

17.0.132.0
2911
Router0
171.245.1.1
2950-24
Switch0
2950-24
Switch1
17.69.249.222
Server2
17.213.22.2
PC0
Default Gateway : 17.0.132.0
171.245.0.98
Laptop0
Default Gateway : 171.245.1.1

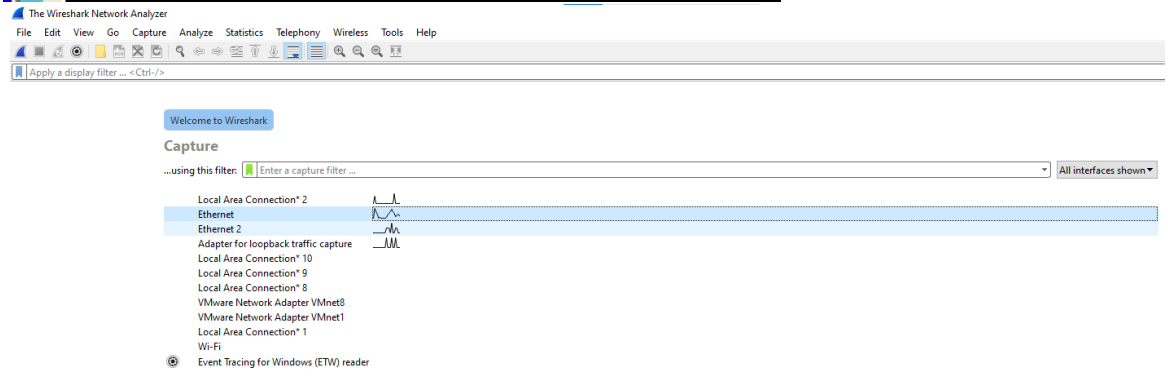

PC0
Physical
Config
Desktop
Custom Interface
Web Browser
URL
http://85.200.149.8
Go
Stop
Cisco Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
Quick Links:
A small page
Copyrights
Image page
Image

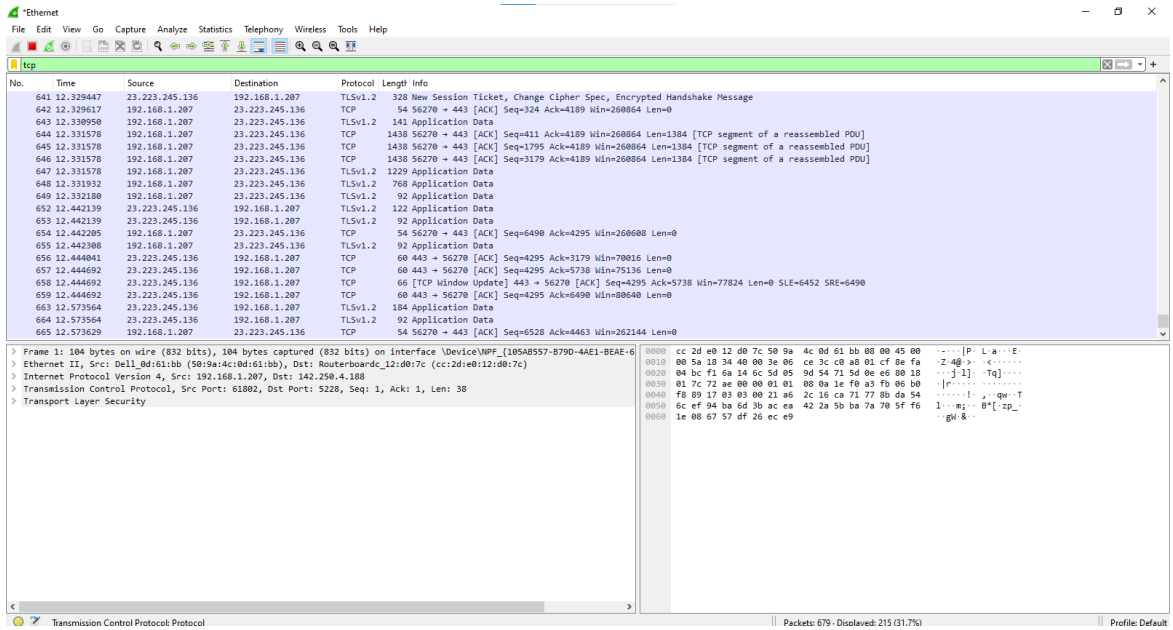

Server2
Physical
Config
Services
Desktop
Custom Interface
Command Prompt
Packet Tracer SERVER Command Line 1.0
SERVER>ping 171.245.0.98
Pinging 171.245.0.98 with 32 bytes of data:
Reply from 171.245.0.98: bytes=32 time=0ms TTL=127
Reply from 171.245.0.98: bytes=32 time=0ms TTL=127
Reply from 171.245.0.98: bytes=32 time=0ms TTL=127
Reply from 171.245.0.98: bytes=32 time=0ms TTL=127
Ping statistics for 171.245.0.98:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
SERVER>

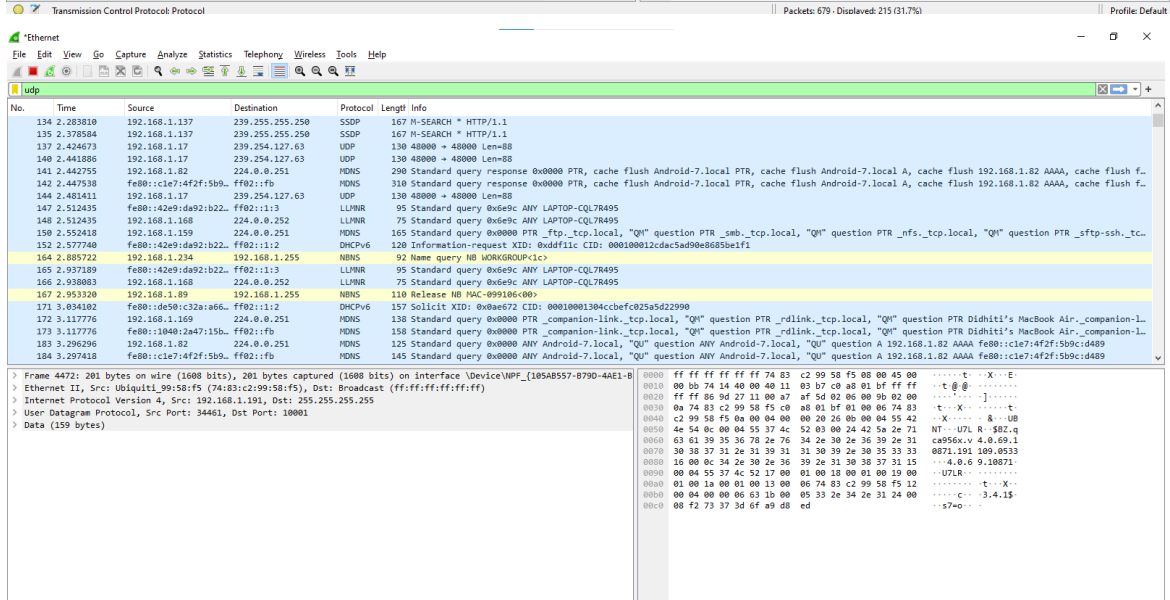

PC0
Physical
Config
Desktop
Custom Interface
Web Browser
URL
http://202.0.0.69
Go
Stop
Request Timeout

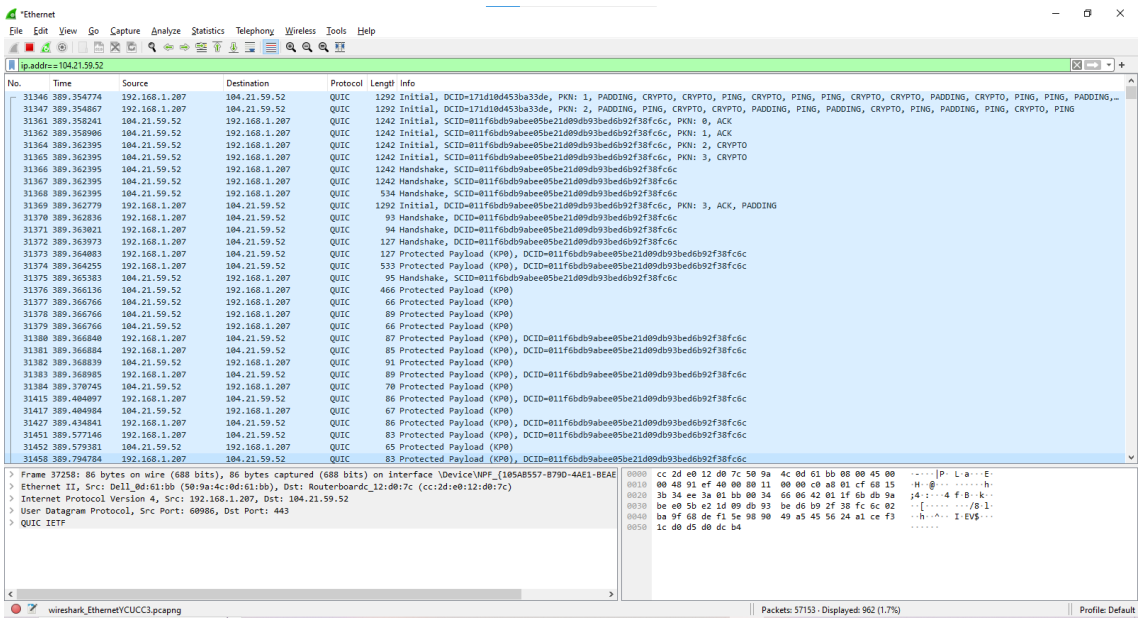

49.0.0.1
2911
Router0
202.0.0.1
2950-24
Switch0
2950-24
Switch1
49.231.54.113
PC0
202.0.0.69
Server0
Default Gateway : 49.0.0.1
Default Gateway : 202.0.0.1

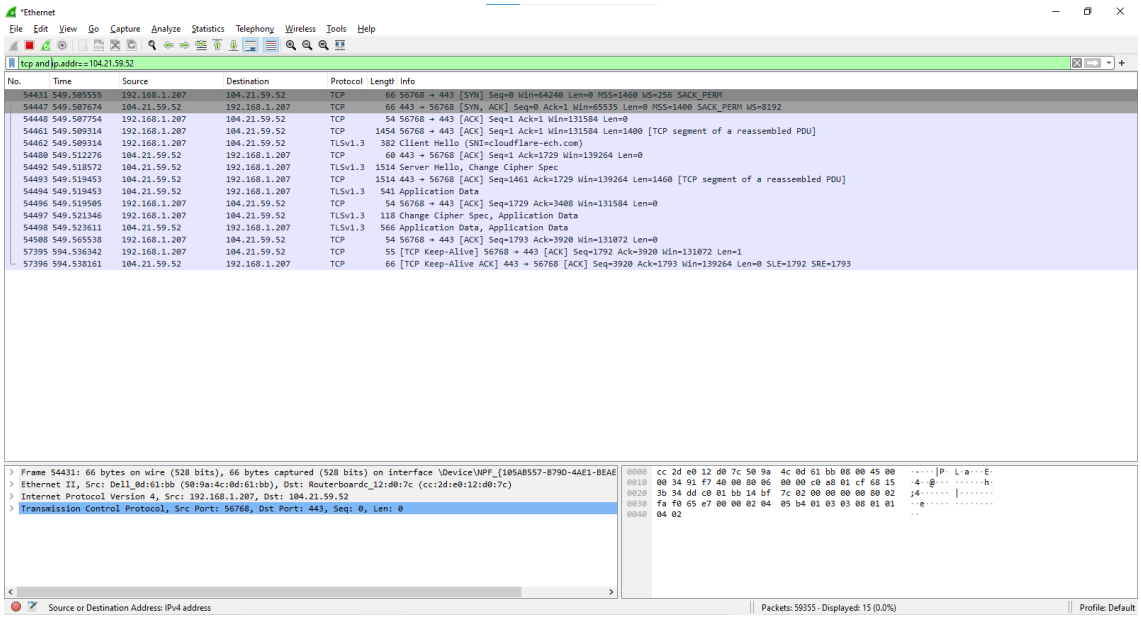

PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 202.0.0.69
Pinging 202.0.0.69 with 32 bytes of data:
Request timed out.
Reply from 202.0.0.69: bytes=32 time=0ms TTL=127
Reply from 202.0.0.69: bytes=32 time=0ms TTL=127
Reply from 202.0.0.69: bytes=32 time=0ms TTL=127
Ping statistics for 202.0.0.69:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms


The Wireshark Network Analyzer
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
Welcome to Wireshark
Capture
...using this filter: Enter a capture filter ...
All interfaces shown
Local Area Connection* 2
Ethernet
Ethernet 2
Adapter for loopback traffic capture
Local Area Connection* 10
Local Area Connection* 9
Local Area Connection* 8
VMware Network Adapter VMnet8
VMware Network Adapter VMnet1
Local Area Connection* 1
Wi-Fi
Event Tracing for Windows (ETW) reader


*Ethernet
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
tcp
No. Time Source Destination Protocol Length Info
641 12.329447 23.223.245.136 192.168.1.207 TLSv1.2 328 New Session Ticket, Change Cipher Spec, Encrypted Handshake Message
642 12.329617 192.168.1.207 23.223.245.136 TCP 54 56270 → 443 [ACK] Seq=324 Ack=4189 Win=260864 Len=0
643 12.330950 192.168.1.207 23.223.245.136 TLSv1.2 141 Application Data
644 12.331578 192.168.1.207 23.223.245.136 TCP 1438 56270 → 443 [ACK] Seq=411 Ack=4189 Win=260864 Len=1384 [TCP segment of a reassembled PDU]
645 12.331578 192.168.1.207 23.223.245.136 TCP 1438 56270 → 443 [ACK] Seq=1795 Ack=4189 Win=260864 Len=1384 [TCP segment of a reassembled PDU]
646 12.331578 192.168.1.207 23.223.245.136 TCP 1438 56270 → 443 [ACK] Seq=3179 Ack=4189 Win=260864 Len=1384 [TCP segment of a reassembled PDU]
647 12.331578 192.168.1.207 23.223.245.136 TLSv1.2 1229 Application Data
648 12.331932 192.168.1.207 23.223.245.136 TLSv1.2 768 Application Data
649 12.332180 192.168.1.207 23.223.245.136 TLSv1.2 92 Application Data
652 12.442139 23.223.245.136 192.168.1.207 TLSv1.2 122 Application Data
653 12.442139 23.223.245.136 192.168.1.207 TLSv1.2 92 Application Data
654 12.442205 192.168.1.207 23.223.245.136 TCP 54 56270 → 443 [ACK] Seq=6490 Ack=4295 Win=260608 Len=0
655 12.442308 192.168.1.207 23.223.245.136 TLSv1.2 92 Application Data
656 12.444041 23.223.245.136 192.168.1.207 TCP 60 443 → 56270 [ACK] Seq=4295 Ack=3179 Win=70016 Len=0
657 12.444692 23.223.245.136 192.168.1.207 TCP 60 443 → 56270 [ACK] Seq=4295 Ack=5738 Win=75136 Len=0
658 12.444692 23.223.245.136 192.168.1.207 TCP 66 [TCP Window Update] 443 → 56270 [ACK] Seq=4295 Ack=5738 Win=77824 Len=0 SLE=6452 SRE=6490
659 12.444692 23.223.245.136 192.168.1.207 TCP 60 443 → 56270 [ACK] Seq=4295 Ack=6490 Win=80640 Len=0
663 12.573564 23.223.245.136 192.168.1.207 TLSv1.2 184 Application Data
664 12.573564 23.223.245.136 192.168.1.207 TLSv1.2 92 Application Data
665 12.573629 192.168.1.207 23.223.245.136 TCP 54 56270 → 443 [ACK] Seq=6528 Ack=4463 Win=262144 Len=0
Frame 1: 104 bytes on wire (832 bits), 104 bytes captured (832 bits) on interface \Device\NPF_{105AB557-B79D-4AE1-BEAE-6
Ethernet II, Src: Dell_0d:61:bb (50:9a:4c:0d:61:bb), Dst: Routerboardc_12:d0:7c (cc:2d:e0:12:d0:7c)
Internet Protocol Version 4, Src: 192.168.1.207, Dst: 142.250.4.188
Transmission Control Protocol, Src Port: 61802, Dst Port: 5228, Seq: 1, Ack: 1, Len: 38
Transport Layer Security
0000 cc 2d e0 12 d0 7c 50 9a 4c 0d 61 bb 08 00 45 00
0010 00 5a 18 34 40 00 3e 06 ce 3c c0 a8 01 cf 8e fa
0020 04 bc f1 6a 14 6c 5d 05 9d 54 71 5d 0e e6 80 18
0030 01 7c 72 ae 00 00 01 01 08 0a 1e f0 a3 fb 06 b0
0040 f8 89 17 03 03 00 21 a6 2c 16 ca 71 77 8b da 54
0050 6c ef 94 ba 6d 3b ac ea 42 2a 5b ba 7a 70 5f f6
0060 1e 08 67 57 df 26 ec e9
Transmission Control Protocol: Protocol
Packets: 679 · Displayed: 215 (31.7%)
Profile: Default


*Ethernet
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
udp
No. Time Source Destination Protocol Length Info
134 2.283810 192.168.1.137 239.255.255.250 SSDP 167 M-SEARCH * HTTP/1.1
135 2.378584 192.168.1.137 239.255.255.250 SSDP 167 M-SEARCH * HTTP/1.1
137 2.424673 192.168.1.17 239.254.127.63 UDP 130 48000 → 48000 Len=88
140 2.441886 192.168.1.17 239.254.127.63 UDP 130 48000 → 48000 Len=88
141 2.442755 192.168.1.82 224.0.0.251 MDNS 290 Standard query response 0x0000 PTR, cache flush Android-7.local PTR, cache flush Android-7.local A, cache flush 192.168.1.82 AAAA, cache flush f…
142 2.447538 fe80::c1e7:4f2f:5b9… ff02::fb MDNS 310 Standard query response 0x0000 PTR, cache flush Android-7.local PTR, cache flush Android-7.local A, cache flush 192.168.1.82 AAAA, cache flush f…
144 2.481411 192.168.1.17 239.254.127.63 UDP 130 48000 → 48000 Len=88
147 2.512435 fe80::42e9:da92:b22… ff02::1:3 LLMNR 95 Standard query 0x6e9c ANY LAPTOP-CQL7R495
148 2.512435 192.168.1.168 224.0.0.252 LLMNR 75 Standard query 0x6e9c ANY LAPTOP-CQL7R495
150 2.552418 192.168.1.159 224.0.0.251 MDNS 165 Standard query 0x0000 PTR _ftp._tcp.local, "QM" question PTR _smb._tcp.local, "QM" question PTR _nfs._tcp.local, "QM" question PTR _sftp-ssh._tc…
152 2.577740 fe80::42e9:da92:b22… ff02::1:2 DHCPv6 120 Information-request XID: 0xddf11c CID: 000100012cdac5ad90e8685be1f1
164 2.885722 192.168.1.234 192.168.1.255 NBNS 92 Name query NB WORKGROUP<1c>
165 2.937189 fe80::42e9:da92:b22… ff02::1:3 LLMNR 95 Standard query 0x6e9c ANY LAPTOP-CQL7R495
166 2.938083 192.168.1.168 224.0.0.252 LLMNR 75 Standard query 0x6e9c ANY LAPTOP-CQL7R495
167 2.953320 192.168.1.89 192.168.1.255 NBNS 110 Release NB MAC-099106<00>
171 3.034102 fe80::de50:c32a:a66… ff02::1:2 DHCPv6 157 Solicit XID: 0x0ae672 CID: 00010001304ccbefc025a5d22990
172 3.117776 192.168.1.169 224.0.0.251 MDNS 138 Standard query 0x0000 PTR _companion-link._tcp.local, "QM" question PTR Didhiti's MacBook Air._companion-l…
173 3.117776 fe80::1040:2a47:15b… ff02::fb MDNS 158 Standard query 0x0000 PTR _companion-link._tcp.local, "QM" question PTR _rdlink._tcp.local, "QM" question PTR Didhiti's MacBook Air._companion-l…
183 3.296296 192.168.1.82 224.0.0.251 MDNS 125 Standard query 0x0000 ANY Android-7.local, "QU" question ANY Android-7.local, "QU" question A 192.168.1.82 AAAA fe80::c1e7:4f2f:5b9c:d489
184 3.297418 fe80::c1e7:4f2f:5b9… ff02::fb MDNS 145 Standard query 0x0000 ANY Android-7.local, "QU" question ANY Android-7.local, "QU" question A 192.168.1.82 AAAA fe80::c1e7:4f2f:5b9c:d489
Frame 4472: 201 bytes on wire (1608 bits), 201 bytes captured (1608 bits) on interface \Device\NPF_{105AB557-B79D-4AE1-B
Ethernet II, Src: Ubiquiti_99:58:f5 (74:83:c2:99:58:f5), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
Internet Protocol Version 4, Src: 192.168.1.191, Dst: 255.255.255.255
User Datagram Protocol, Src Port: 34461, Dst Port: 10001
Data (159 bytes)
0000 ff ff ff ff ff ff 74 83 c2 99 58 f5 08 00 45 00
0010 00 bb 74 14 40 00 40 11 03 b7 c0 a8 01 bf ff ff
0020 ff ff 86 9d 27 11 00 a7 af 5d 02 06 00 9b 02 00
0030 0a 74 83 c2 99 58 f5 c0 a8 01 bf 01 00 06 74 83
0040 c2 99 58 f5 0a 00 04 00 00 20 26 0b 00 04 55 42
0050 4e 54 0c 00 04 55 37 4c 52 03 00 24 42 5a 2e 71
0060 63 61 39 35 36 78 2e 76 34 2e 30 2e 36 39 2e 31
0070 30 38 37 31 2e 31 39 31 31 30 39 2e 30 35 33 33
0080 16 00 0c 34 2e 30 2e 36 39 2e 31 30 38 37 31 15
0090 00 04 55 37 4c 52 17 00 01 00 18 00 01 00 19 00
00a0 01 00 1a 00 01 00 13 00 06 74 83 c2 99 58 f5 12
00b0 00 04 00 00 06 63 1b 00 05 33 2e 34 2e 31 24 00
00c0 08 f2 73 37 3d 6f a9 d8 ed






```
ayush@Ayush-Nitro:~$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.254.196  netmask 255.255.240.0  broadcast 192.168.255.255
        inet6 fe80::215:5dff:fe2b:e464  prefixlen 64  scopeid 0x20<link>
        ether 00:15:5d:2b:e4:64  txqueuelen 1000  (Ethernet)
        RX packets 227  bytes 250723 (250.7 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 190  bytes 19417 (19.4 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

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 42  bytes 5239 (5.2 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 42  bytes 5239 (5.2 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

```
ayush@Ayush-Nitro:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet 10.255.255.254/32 brd 10.255.255.254 scope global lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:2b:e4:64 brd ff:ff:ff:ff:ff:ff
    inet 192.168.254.196/20 brd 192.168.255.255 scope global eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe2b:e464/64 scope link
       valid_lft forever preferred_lft forever
```

```
ayush@Ayush-Nitro:~$ ping twitch.tv
PING twitch.tv (151.101.66.167) 56(84) bytes of data.
64 bytes from 151.101.66.167: icmp_seq=1 ttl=54 time=35.8 ms
64 bytes from 151.101.66.167: icmp_seq=2 ttl=54 time=38.5 ms
64 bytes from 151.101.66.167: icmp_seq=3 ttl=54 time=38.8 ms
64 bytes from 151.101.66.167: icmp_seq=4 ttl=54 time=36.3 ms
64 bytes from 151.101.66.167: icmp_seq=5 ttl=54 time=40.2 ms
64 bytes from 151.101.66.167: icmp_seq=6 ttl=54 time=37.9 ms
64 bytes from 151.101.66.167: icmp_seq=7 ttl=54 time=41.1 ms
64 bytes from 151.101.66.167: icmp_seq=8 ttl=54 time=39.2 ms
64 bytes from 151.101.66.167: icmp_seq=9 ttl=54 time=41.3 ms
64 bytes from 151.101.66.167: icmp_seq=10 ttl=54 time=36.3 ms
64 bytes from 151.101.66.167: icmp_seq=11 ttl=54 time=40.1 ms
64 bytes from 151.101.66.167: icmp_seq=12 ttl=54 time=41.6 ms
64 bytes from 151.101.66.167: icmp_seq=13 ttl=54 time=43.0 ms
64 bytes from 151.101.66.167: icmp_seq=14 ttl=54 time=39.0 ms
64 bytes from 151.101.66.167: icmp_seq=15 ttl=54 time=41.1 ms
64 bytes from 151.101.66.167: icmp_seq=16 ttl=54 time=41.3 ms
```

```
root@Ayush-Nitro:~# iptables --list
Chain INPUT (policy ACCEPT)
target     prot opt source               destination

Chain FORWARD (policy ACCEPT)
target     prot opt source               destination

Chain OUTPUT (policy ACCEPT)
target     prot opt source               destination
```

```
root@Ayush-Nitro:~# nslookup pvpoke.com
Server:         10.255.255.254
Address:        10.255.255.254#53

Non-authoritative answer:
Name:   pvpoke.com
Address: 104.21.59.52
Name:   pvpoke.com
Address: 172.67.214.143
Name:   pvpoke.com
Address: 2606:4700:3037::6815:3b34
Name:   pvpoke.com
Address: 2606:4700:3035::ac43:d68f
```