

01_HW_12

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1 Distributed Systems (LTAT.06.007)

1.0.1 Seminar 12: Implementation of Distributed Hash Table (DHT) in python

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1.1 Task

Based on the exercise, Please implement the DHT with the following commands:

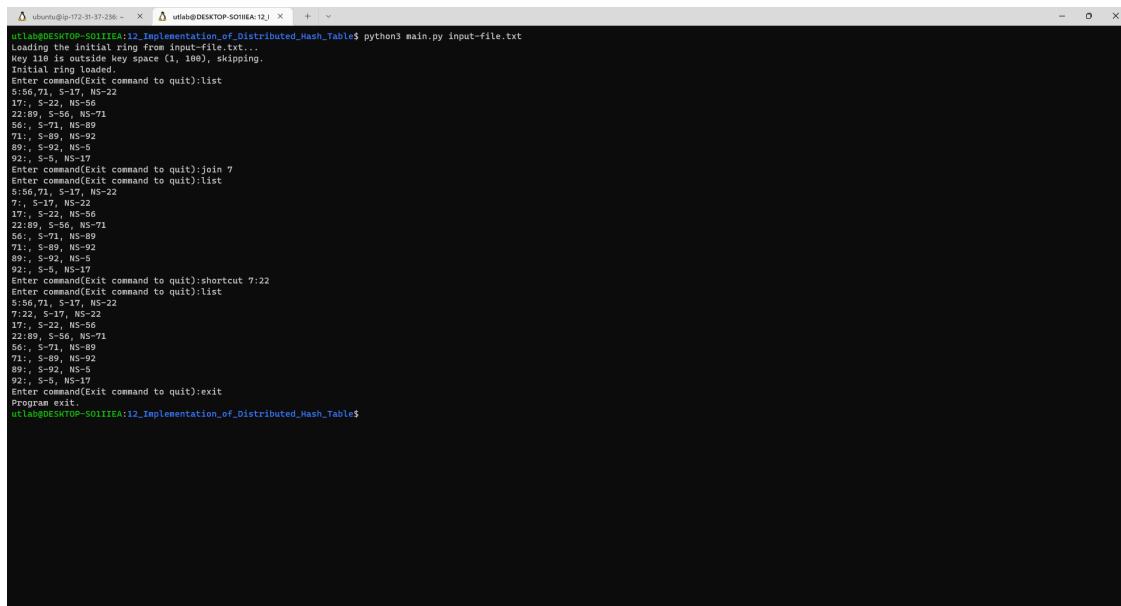
- **Join:** this commands allows a new node to join the ring. Notice that successor and next successor references should be updated.

\$ join 7: its successor 17 and next successor is 22

- **Shortcut:** this command adds a shortcut from one node to another.

\$ shortcut 7:22

(A) :



```
utl@DESKTOP-SOIIIEA:12_Implementation_of_Distributed_Hash_Table$ python3 main.py input-file.txt
Loading the initial ring from input-file.txt...
Key 110 is outside key space (1, 100), skipping.
Initial ring loaded.
Enter command(Exit command to quit):list
5:86, 71, 5-17, NS-22
17:, 5-22, NS-86
22:89, 5-56, NS-71
56:, 5-71, NS-89
71:, 5-89, NS-92
89:, 5-92, NS-5
92:, 5-5, NS-17
Enter command(Exit command to quit):join 7
Enter command(Exit command to quit):list
5:86, 71, 5-17, NS-22
7:, 5-17, NS-22
17:, 5-22, NS-86
22:89, 5-56, NS-71
56:, 5-71, NS-89
71:, 5-89, NS-92
89:, 5-92, NS-5
92:, 5-5, NS-17
Enter command(Exit command to quit):shortcut 7:22
Enter command(Exit command to quit):list
5:86, 71, 5-17, NS-22
7:22, 5-17, NS-22
17:, 5-22, NS-86
22:89, 5-56, NS-71
56:, 5-71, NS-89
71:, 5-89, NS-92
89:, 5-92, NS-5
92:, 5-5, NS-17
Enter command(Exit command to quit):exit
Program exit.
utl@DESKTOP-SOIIIEA:12_Implementation_of_Distributed_Hash_Table$
```