

Sistemas distribuídos

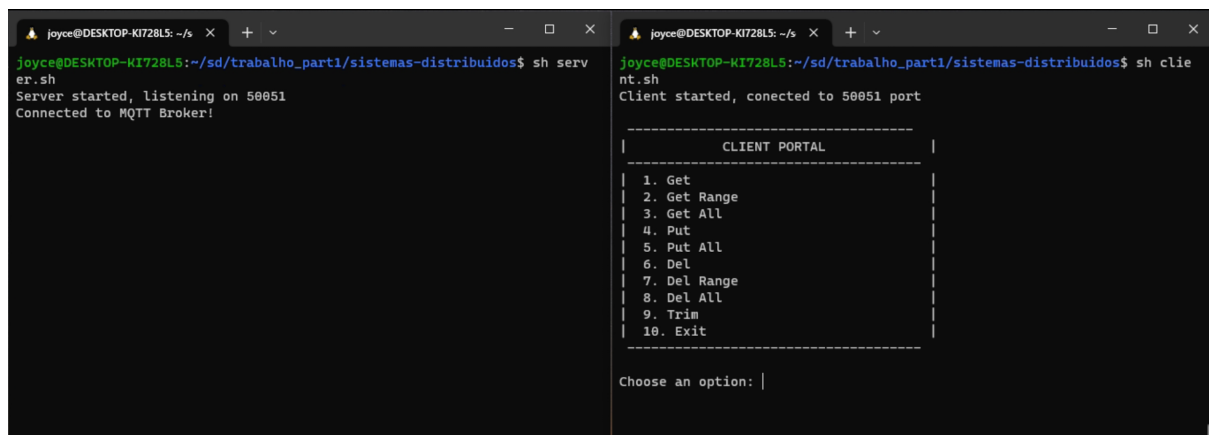
Testes da Entrega parte 1

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Os testes foram feitos em dois terminais diferentes no sistema operacional Ubuntu.

Inicialização, do lado esquerdo temos o servidor e do lado direito um cliente associado a esse servidor:



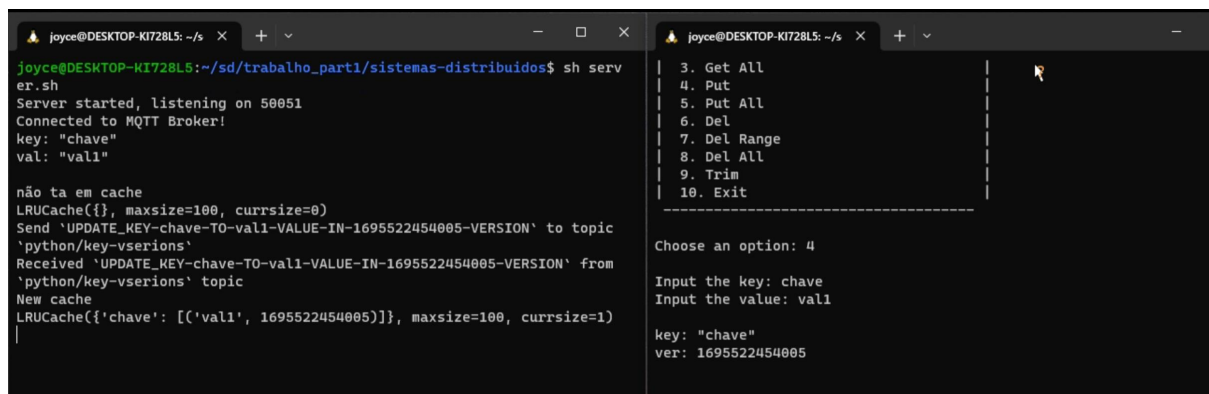
```
joyce@DESKTOP-KI728L5: ~/sd/trabalho_part1/sistemas-distribuidos$ sh server.sh
Server started, listening on 50051
Connected to MQTT Broker!

joyce@DESKTOP-KI728L5: ~/sd/trabalho_part1/sistemas-distribuidos$ sh client.sh
Client started, connected to 50051 port

-----
| CLIENT PORTAL |
-----
| 1. Get         |
| 2. Get Range  |
| 3. Get All     |
| 4. Put         |
| 5. Put All     |
| 6. Del        |
| 7. Del Range   |
| 8. Del All     |
| 9. Trim       |
| 10. Exit      |
-----

Choose an option: |
```

A execução da função put:



```
joyce@DESKTOP-KI728L5: ~/sd/trabalho_part1/sistemas-distribuidos$ sh server.sh
Server started, listening on 50051
Connected to MQTT Broker!
key: "chave"
val: "val1"

não ta em cache
LRUCache({}, maxsize=100, currsize=0)
Send 'UPDATE_KEY-chave-T0-val1-VALUE-IN-1695522454005-VERSION' to topic
'python/key-vserions'
Received 'UPDATE_KEY-chave-T0-val1-VALUE-IN-1695522454005-VERSION' from
'python/key-vserions' topic
New cache
LRUCache({'chave': [['val1', 1695522454005]]}, maxsize=100, currsize=1)

joyce@DESKTOP-KI728L5: ~/sd/trabalho_part1/sistemas-distribuidos$ sh client.sh
3. Get All
4. Put
5. Put All
6. Del
7. Del Range
8. Del All
9. Trim
10. Exit

-----

Choose an option: 4
Input the key: chave
Input the value: val1

key: "chave"
ver: 1695522454005
```

A execução da função get:

```
-----
| CLIENT PORTAL |
|-----|
| 1. Get        |
| 2. Get Range  |
| 3. Get All    |
| 4. Put        |
| 5. Put All    |
| 6. Del        |
| 7. Del Range  |
| 8. Del All    |
| 9. Trim       |
| 10. Exit      |
|-----|

Choose an option: 1

Input the key: chave

key: "chave"
val: "val1"
ver: 1695522454005
```

Inserindo muitos valores e chaves com o putall

```
joyce@DESKTOP-KI728L5: ~/s  joyce@DESKTOP-KI728L5: ~/s
Received 'UPDATE_KEY-k2-TO-gdfg-VALUE-IN-1695523042910-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'chave': [('val1', 1695522454005)], 'abc': [('zyx', 1695523042907)], 'k1': [('asf', 1695523042909)], 'k2': [('gdfg', 1695523042910)]},
maxsize=100, currsz=4)
Received 'UPDATE_KEY-k22-TO-hgfhf-VALUE-IN-1695523042912-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'chave': [('val1', 1695522454005)], 'abc': [('zyx', 1695523042907)], 'k1': [('asf', 1695523042909)], 'k2': [('gdfg', 1695523042910)],
'k22': [('hgfhf', 1695523042912)]}, maxsize=100, currsz=5)
Received 'UPDATE_KEY-k111-TO-adas-VALUE-IN-1695523042913-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'chave': [('val1', 1695522454005)], 'abc': [('zyx', 1695523042907)], 'k1': [('asf', 1695523042909)], 'k2': [('gdfg', 1695523042910)],
'k22': [('hgfhf', 1695523042912)], 'k111': [('adas', 1695523042913)]}, maxsize=100, currsz=6)
Received 'UPDATE_KEY-k5-TO-bcvbcv-VALUE-IN-1695523042916-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'chave': [('val1', 1695522454005)], 'abc': [('zyx', 1695523042907)], 'k1': [('asf', 1695523042909)], 'k2': [('gdfg', 1695523042910)],
'k22': [('hgfhf', 1695523042912)], 'k111': [('adas', 1695523042913)], 'k5': [('bcvbcv', 1695523042916)]}, maxsize=100, currsz=7)
Received 'UPDATE_KEY-k20-TO-uyiuy-VALUE-IN-1695523042920-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'chave': [('val1', 1695522454005)], 'abc': [('zyx', 1695523042907)], 'k1': [('asf', 1695523042909)], 'k2': [('gdfg', 1695523042910)],
'k22': [('hgfhf', 1695523042912)], 'k111': [('adas', 1695523042913)], 'k5': [('bcvbcv', 1695523042916)], 'k20': [('uyiuy', 1695523042920)]}, maxsize=100, currsz=8)

| CLIENT PORTAL |
|-----|
| 1. Get        |
| 2. Get Range  |
| 3. Get All    |
| 4. Put        |
| 5. Put All    |
| 6. Del        |
| 7. Del Range  |
| 8. Del All    |
| 9. Trim       |
| 10. Exit      |
|-----|

Choose an option: 5

Input the keys separated by space: abc k1 k2 k22 k111 k5 k20
Input the values separated by space: zyx asf gdfg hgfhf adas bcvbcv uyiuy
[key: "abc"
ver: 1695523042907
, key: "k1"
ver: 1695523042909
, key: "k2"
ver: 1695523042910
, key: "k22"
ver: 1695523042912
, key: "k111"
ver: 1695523042913
, key: "k5"
ver: 1695523042916
, key: "k20"
ver: 1695523042920
]
```

Coletando uma chave sem versão

```
-----
| CLIENT PORTAL |
|-----|
| 1. Get        |
| 2. Get Range  |
| 3. Get All    |
| 4. Put        |
| 5. Put All    |
| 6. Del        |
| 7. Del Range  |
| 8. Del All    |
| 9. Trim       |
| 10. Exit      |
|-----|

Choose an option: 1

Input the key: abc
Input the values (use -1 to no version): -1

key: "abc"
val: "zyx"
ver: 1695527354936
```

Inserindo novo valor para uma chave existente

```
joyce@DESKTOP-KI728LS: ~/s
k111': [{'adas', 1695527354940}]], maxsize=100, currsize=5)
Received 'UPDATE_KEY-k5-T0-bcvbcb-VALUE-IN-1695527354941-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}
], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], '
k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], ma
xsize=100, currsize=6)
Received 'UPDATE_KEY-k20-T0-uyiuy-VALUE-IN-1695527354942-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}
], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], '
k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], 'k2
0': [{'uyiuy', 1695527354942}]], maxsize=100, currsize=7)
Get abc key
key: "abc"
val: "bbbcc"

abc is in cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}
], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], '
k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], 'k2
0': [{'uyiuy', 1695527354942}]], maxsize=100, currsize=7)
Send 'UPDATE_KEY-abc-T0-bbbccc-VALUE-IN-1695527626424-VERSION' to topic
'python/key-vserions'
Received 'UPDATE_KEY-abc-T0-bbbccc-VALUE-IN-1695527626424-VERSION' from
'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], ('bbbcc', 1695527626424)], 'k
1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{
'hgfhf', 1695527354939}], 'k111': [{'adas', 1695527354940}], 'k5': [{
'bcvbcv', 1695527354941}], 'k20': [{'uyiuy', 1695527354942}]], maxsize=100,
currsize=7)

joyce@DESKTOP-KI728LS: ~/s
-----
| CLIENT PORTAL |
|-----|
| 1. Get        |
| 2. Get Range  |
| 3. Get All    |
| 4. Put        |
| 5. Put All    |
| 6. Del        |
| 7. Del Range  |
| 8. Del All    |
| 9. Trim       |
| 10. Exit      |
|-----|

Choose an option: 4

Input the key: abc
Input the value: bbbccc

key: "abc"
old_val: "zyx"
old_ver: 1695527354936
ver: 1695527626424

-----
| CLIENT PORTAL |
|-----|
| 1. Get        |
| 2. Get Range  |
| 3. Get All    |
| 4. Put        |
| 5. Put All    |
| 6. Del        |
| 7. Del Range  |
| 8. Del All    |
| 9. Trim       |
| 10. Exit      |
|-----|
```

Coletando uma chave existente com última versão:

```
joyce@DESKTOP-KI728L5: ~/fs
Received 'UPDATE_KEY-k5-T0-bcvbcbv-VALUE-IN-1695527354941-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], 'k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], 'maxsize=100, currsz=6})
Received 'UPDATE_KEY-k20-T0-uyiuuy-VALUE-IN-1695527354942-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], 'k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], 'k20': [{'uyiuuy', 1695527354942}], 'maxsize=100, currsz=7})
Get abc key
key: "abc"
val: "bbbcccc"

abc is in cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], 'k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], 'k20': [{'uyiuuy', 1695527354942}], 'maxsize=100, currsz=7})
Send 'UPDATE_KEY-abc-T0-bbbccc-VALUE-IN-1695527626424-VERSION' to topic 'python/key-vserions'
Received 'UPDATE_KEY-abc-T0-bbbccc-VALUE-IN-1695527626424-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], 'k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], 'k20': [{'uyiuuy', 1695527354942}], 'maxsize=100, currsz=7})
Get abc key
```

```
joyce@DESKTOP-KI728L5: ~/fs
-----
CLIENT PORTAL
-----
1. Get
2. Get Range
3. Get All
4. Put
5. Put All
6. Del
7. Del Range
8. Del All
9. Trim
10. Exit
-----

Choose an option: 1

Input the key: abc
Input the values (use -1 to no version): 0

key: "abc"
val: "bbbcccc"
ver: 1695527626424

-----
CLIENT PORTAL
-----
1. Get
2. Get Range
3. Get All
4. Put
5. Put All
6. Del
```

Pegando valor com uma chave e uma versão específica

```
joyce@DESKTOP-KI728L5: ~/fs
]]], maxsize=100, currsz=2)
Received 'UPDATE_KEY-k2-T0-gdfg-VALUE-IN-1695527354938-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'maxsize=100, currsz=3})
Received 'UPDATE_KEY-k22-T0-hgfhf-VALUE-IN-1695527354939-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], 'maxsize=100, currsz=4})
Received 'UPDATE_KEY-k111-T0-adas-VALUE-IN-1695527354940-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], 'k111': [{'adas', 1695527354940}], 'maxsize=100, currsz=5})
Received 'UPDATE_KEY-k5-T0-bcvbcbv-VALUE-IN-1695527354941-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], 'k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], 'maxsize=100, currsz=6})
Received 'UPDATE_KEY-k20-T0-uyiuuy-VALUE-IN-1695527354942-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [{'zyx', 1695527354936}], 'k1': [{'asf', 1695527354937}], 'k2': [{'gdfg', 1695527354938}], 'k22': [{'hgfhf', 1695527354939}], 'k111': [{'adas', 1695527354940}], 'k5': [{'bcvbcv', 1695527354941}], 'k20': [{'uyiuuy', 1695527354942}], 'maxsize=100, currsz=7})
Get abc key
key: "abc"
val: "bbbcccc"
```

```
joyce@DESKTOP-KI728L5: ~/fs
-----
CLIENT PORTAL
-----
1. Get
2. Get Range
3. Get All
4. Put
5. Put All
6. Del
7. Del Range
8. Del All
9. Trim
10. Exit
-----

Choose an option: 1

Input the key: abc
Input the values (use -1 to no version): 1695527354936

key: "abc"
val: "zyx"
ver: 1695527354936

-----
CLIENT PORTAL
-----
1. Get
2. Get Range
3. Get All
4. Put
5. Put All
6. Del
7. Del Range
```

Pegando um intervalo de chaves respeitando a ordem alfabética

```
-----
| CLIENT PORTAL |
|-----|
| 1. Get       |
| 2. Get Range |
| 3. Get All   |
| 4. Put       |
| 5. Put All   |
| 6. Del       |
| 7. Del Range |
| 8. Del All   |
| 9. Trim      |
| 10. Exit     |
|-----|

Choose an option: 2

Input two keys and values below
Input the keys separated by space: a k
Input the versions separated by space (use -1 to last version): -1 -1
[key: "abc"
val: "bbbccc"
ver: 1695527626424
]
```

Pegando um intervalo de chaves respeitando a ordem alfabética

```
joyce@DESKTOP-KI728L5: ~/s x + v
]

-----
| CLIENT PORTAL |
|-----|
| 1. Get       |
| 2. Get Range |
| 3. Get All   |
| 4. Put       |
| 5. Put All   |
| 6. Del       |
| 7. Del Range |
| 8. Del All   |
| 9. Trim      |
| 10. Exit     |
|-----|

Choose an option: 2

Input two keys and values below
Input the keys separated by space: a k2
Input the versions separated by space (use -1 to last version): -1 -1
[key: "abc"
val: "bbbccc"
ver: 1695527626424
, key: "k1"
val: "asf"
ver: 1695527354937
, key: "k111"
val: "adas"
ver: 1695527354940
, key: "k2"
val: "gdfg"
ver: 1695527354938
]
```

Pegando um intervalo de chaves respeitando a ordem alfabética com versão

```
joyce@DESKTOP-KI728L5: ~/s X + -
]], maxsize=100, currsize=2)
Received 'UPDATE_KEY-k2-TO-gdfig-VALUE-IN-1695527354938-VERSION' from 'py
thon/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)]}, maxsize=100, currsize=3)
Received 'UPDATE_KEY-k22-TO-hgfhf-VALUE-IN-1695527354939-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)], 'k22': [('hgfhf', 1695527354939)]},
maxsize=100, currsize=4)
Received 'UPDATE_KEY-k111-TO-adas-VALUE-IN-1695527354940-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)], 'k22': [('hgfhf', 1695527354939)], '
k111': [('adas', 1695527354940)]}, maxsize=100, currsize=5)
Received 'UPDATE_KEY-k5-TO-bcvbcv-VALUE-IN-1695527354941-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)], 'k22': [('hgfhf', 1695527354939)], '
k111': [('adas', 1695527354940)], 'k5': [('bcvbcv', 1695527354941)]}, ma
xsize=100, currsize=6)
Received 'UPDATE_KEY-k20-TO-uyiuy-VALUE-IN-1695527354942-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)], 'k22': [('hgfhf', 1695527354939)], '
k111': [('adas', 1695527354940)], 'k5': [('bcvbcv', 1695527354941)], 'k2
0': [('uyiuy', 1695527354942)]}, maxsize=100, currsize=7)
Get abc key
key: "abc"
val: "bbcccc"

joyce@DESKTOP-KI728L5: ~/s X + -
CLIENT PORTAL
|-----|
| 1. Get |
| 2. Get Range |
| 3. Get All |
| 4. Put |
| 5. Put All |
| 6. Del |
| 7. Del Range |
| 8. Del All |
| 9. Trim |
| 10. Exit |
|-----|

Choose an option: 2

Input two keys and values below
Input the keys separated by space: a k12
Input the versions separated by space (use -1 to last version): 16955273
54936 1695527354938
[key: "abc"
val: "zyx"
ver: 1695527354936
, key: "k1"
val: "asf"
ver: 1695527354937
]

CLIENT PORTAL
|-----|
| 1. Get |
| 2. Get Range |
| 3. Get All |
| 4. Put |
|-----|
```

Pegando várias chaves

```
joyce@DESKTOP-KI728L5: ~/s X + -
]], maxsize=100, currsize=2)
Received 'UPDATE_KEY-k2-TO-gdfig-VALUE-IN-1695527354938-VERSION' from 'py
thon/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)]}, maxsize=100, currsize=3)
Received 'UPDATE_KEY-k22-TO-hgfhf-VALUE-IN-1695527354939-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)], 'k22': [('hgfhf', 1695527354939)]},
maxsize=100, currsize=4)
Received 'UPDATE_KEY-k111-TO-adas-VALUE-IN-1695527354940-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)], 'k22': [('hgfhf', 1695527354939)], '
k111': [('adas', 1695527354940)]}, maxsize=100, currsize=5)
Received 'UPDATE_KEY-k5-TO-bcvbcv-VALUE-IN-1695527354941-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)], 'k22': [('hgfhf', 1695527354939)], '
k111': [('adas', 1695527354940)], 'k5': [('bcvbcv', 1695527354941)]}, ma
xsize=100, currsize=6)
Received 'UPDATE_KEY-k20-TO-uyiuy-VALUE-IN-1695527354942-VERSION' from '
python/key-vserions' topic
New cache
LRUCache({'abc': [('zyx', 1695527354936)], 'k1': [('asf', 1695527354937)
], 'k2': [('gdfig', 1695527354938)], 'k22': [('hgfhf', 1695527354939)], '
k111': [('adas', 1695527354940)], 'k5': [('bcvbcv', 1695527354941)], 'k2
0': [('uyiuy', 1695527354942)]}, maxsize=100, currsize=7)
Get abc key
key: "abc"
val: "bbcccc"

joyce@DESKTOP-KI728L5: ~/s X + -
CLIENT PORTAL
|-----|
| 1. Get |
| 2. Get Range |
| 3. Get All |
| 4. Put |
| 5. Put All |
| 6. Del |
| 7. Del Range |
| 8. Del All |
| 9. Trim |
| 10. Exit |
|-----|

Choose an option: 3

Input the keys separated by space: k2 k22 k111
Input the versions separated by space (use -1 to last version): -1 -1 -1
[key: "k2"
val: "gdfig"
ver: 1695527354938
, key: "k22"
val: "hgfhf"
ver: 1695527354939
, key: "k111"
val: "adas"
ver: 1695527354940
]

CLIENT PORTAL
|-----|
| 1. Get |
| 2. Get Range |
|-----|
```

Deletando chave


```
joyce@DESKTOP-KI728L5: ~/fs
chave não existe
Get k111 key
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k1': [['asf', 1695527354937]], 'k2': [['gdfg', 1695527354938]], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=7)
GetAll
Get k2 key
Get k11 key
chave não existe
Get k111 key
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k1': [['asf', 1695527354937]], 'k2': [['gdfg', 1695527354938]], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=7)
GetAll
Get k2 key
Get k22 key
Get k111 key
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k1': [['asf', 1695527354937]], 'k2': [['gdfg', 1695527354938]], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=7)
Get k1 key
Send 'DELETE_KEY-k1' to topic 'python/key-vserions'
Received 'DELETE_KEY-k1' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k2': [['gdfg', 1695527354938]], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=6)
Get k1 key
Send 'DELETE_KEY-k1' to topic 'python/key-vserions'
Received 'DELETE_KEY-k1' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k2': [['gdfg', 1695527354938]], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=6)
DelRange
['abc', 'k111', 'k2', 'k20', 'k22', 'k5']
Get k2 key
Send 'DELETE_KEY-k2' to topic 'python/key-vserions'
Get k20 key
Send 'DELETE_KEY-k20' to topic 'python/key-vserions'
Get k22 key
Send 'DELETE_KEY-k22' to topic 'python/key-vserions'
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k2': [['gdfg', 1695527354938]], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=6)
Received 'DELETE_KEY-k2' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=5)
Received 'DELETE_KEY-k20' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]]}, maxsize=100, cursize=4)
Received 'DELETE_KEY-k22' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]]}, maxsize=100, cursize=3)

CLIENT PORTAL
1. Get
2. Get Range
3. Get All
4. Put
5. Put All
6. Del
7. Del Range
8. Del All
9. Trim
10. Exit

Choose an option: 6

Input the key: k1

key: "k1"
val: "asf"
ver: 1695527354937

CLIENT PORTAL
1. Get
2. Get Range
3. Get All
4. Put
5. Put All
6. Del
7. Del Range
8. Del All
```

Deletando intervalo de chave

```
joyce@DESKTOP-KI728L5: ~/fs
Received 'DELETE_KEY-k1' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k2': [['gdfg', 1695527354938]], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=6)
DelRange
['abc', 'k111', 'k2', 'k20', 'k22', 'k5']
Get k2 key
Send 'DELETE_KEY-k2' to topic 'python/key-vserions'
Get k20 key
Send 'DELETE_KEY-k20' to topic 'python/key-vserions'
Get k22 key
Send 'DELETE_KEY-k22' to topic 'python/key-vserions'
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k2': [['gdfg', 1695527354938]], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=6)
Received 'DELETE_KEY-k2' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, cursize=5)
Received 'DELETE_KEY-k20' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]]}, maxsize=100, cursize=4)
Received 'DELETE_KEY-k22' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbcce', 1695527626424)], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]]}, maxsize=100, cursize=3)

CLIENT PORTAL
1. Get
2. Get Range
3. Get All
4. Put
5. Put All
6. Del
7. Del Range
8. Del All
9. Trim
10. Exit

Choose an option: 7

Input two keys and values below
Input the keys separated by space: k2 k22
Input the versions separated by space (use -1 to last version): -1 -1
[key: "k2"
val: "gdfg"
ver: 1695527354938
, key: "k20"
val: "uyiuy"
ver: 1695527354942
, key: "k22"
val: "hgfhf"
ver: 1695527354939
]

CLIENT PORTAL
1. Get
2. Get Range
```

Deletando muitas chaves

```
joyce@DESKTOP-KI728L5: ~/s  +  -  □  ×
Received 'DELETE_KEY-k2' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbccc', 1695527626424)], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]], 'k20': [['uyiuy', 1695527354942]]}, maxsize=100, currsz=5)
Received 'DELETE_KEY-k20' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbccc', 1695527626424)], 'k22': [['hgfhf', 1695527354939]], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]]}, maxsize=100, currsz=4)
Received 'DELETE_KEY-k22' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbccc', 1695527626424)], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]]}, maxsize=100, currsz=3)
DelAll
Get k111 key
Send 'DELETE_KEY-k111' to topic 'python/key-vserions'
Get k5 key
Send 'DELETE_KEY-k5' to topic 'python/key-vserions'
Get key
does not exist
LRUCache({'abc': [['zyx', 1695527354936], ('bbbccc', 1695527626424)], 'k111': [['adas', 1695527354940]], 'k5': [['bcvbcv', 1695527354941]]}, maxsize=100, currsz=3)
Received 'DELETE_KEY-k111' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbccc', 1695527626424)], 'k5': [['bcvbcv', 1695527354941]]}, maxsize=100, currsz=2)
Received 'DELETE_KEY-k5' from 'python/key-vserions' topic
New cache
LRUCache({'abc': [['zyx', 1695527354936], ('bbbccc', 1695527626424)], 'maxsize=100, currsz=1)

joyce@DESKTOP-KI728L5: ~/s  +  -  □  ×
-----
| CLIENT PORTAL |
|-----|
| 1. Get |
| 2. Get Range |
| 3. Get All |
| 4. Put |
| 5. Put All |
| 6. Del |
| 7. Del Range |
| 8. Del All |
| 9. Trim |
| 10. Exit |
|-----|

Choose an option: 8

Input the keys separated by space: k111 k5
[key: "k111"
val: "adas"
ver: 1695527354940
, key: "k5"
val: "bcvbcv"
ver: 1695527354941
]

-----
| CLIENT PORTAL |
|-----|
| 1. Get |
| 2. Get Range |
| 3. Get All |
| 4. Put |
| 5. Put All |
| 6. Del |
|-----|
```

Função trim de chave

```
joyce@DESKTOP-KI728L5: ~/s  +  -  □  ×
LRUCache({'ch': [['ss', 1695532840131]]}, maxsize=100, currsz=1)
Send 'UPDATE_KEY-ch-T0-gg-VALUE-IN-1695532849186-VERSION' to topic 'python/key-vserions'
Received 'UPDATE_KEY-ch-T0-gg-VALUE-IN-1695532849186-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'ch': [['ss', 1695532840131], ('gg', 1695532849186)]}, maxsize=100, currsz=1)
key: "ch"
val: "uu"

ch is in cache
LRUCache({'ch': [['ss', 1695532840131], ('gg', 1695532849186)]}, maxsize=100, currsz=1)
Send 'UPDATE_KEY-ch-T0-uu-VALUE-IN-1695532856466-VERSION' to topic 'python/key-vserions'
Received 'UPDATE_KEY-ch-T0-uu-VALUE-IN-1695532856466-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'ch': [['ss', 1695532840131], ('gg', 1695532849186), ('uu', 1695532856466)]}, maxsize=100, currsz=1)
Get ch key
Send 'DELETE_KEY-ch' to topic 'python/key-vserions'
Send 'UPDATE_KEY-ch-T0-uu-VALUE-IN-None-VERSION' to topic 'python/key-vserions'
LRUCache({'ch': [['ss', 1695532840131], ('gg', 1695532849186), ('uu', 1695532856466)]}, maxsize=100, currsz=1)
Received 'DELETE_KEY-ch' from 'python/key-vserions' topic
New cache
LRUCache({}, maxsize=100, currsz=0)
Received 'UPDATE_KEY-ch-T0-uu-VALUE-IN-None-VERSION' from 'python/key-vserions' topic
New cache
LRUCache({'ch': [['uu', None]]}, maxsize=100, currsz=1)

joyce@DESKTOP-KI728L5: ~/s  +  -  □  ×
-----
| CLIENT PORTAL |
|-----|
| 1. Get |
| 2. Get Range |
| 3. Get All |
| 4. Put |
| 5. Put All |
| 6. Del |
| 7. Del Range |
| 8. Del All |
|-----|

Choose an option: 9

Input the key: ch

key: "ch"
val: "uu"

-----
| CLIENT PORTAL |
|-----|
| 1. Get |
| 2. Get Range |
| 3. Get All |
| 4. Put |
| 5. Put All |
| 6. Del |
| 7. Del Range |
| 8. Del All |
|-----|
```