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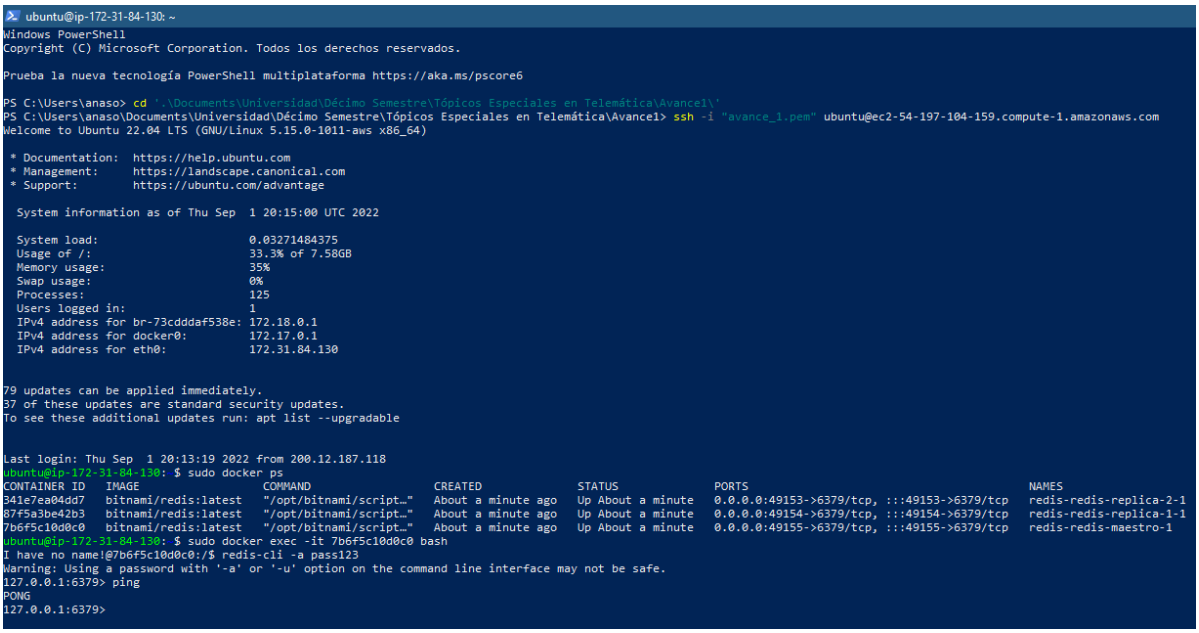
Informe avance proyecto 1

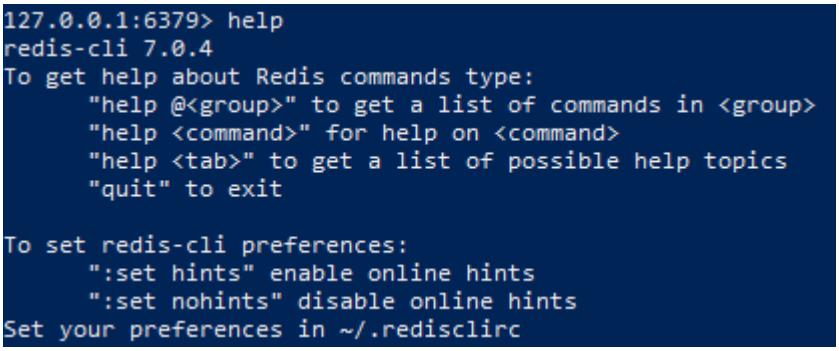
Punto 1 y 2

Para la instalación de Redis creamos un Docker en la máquina EC2 de AWS Academy, donde poseemos 3 espacios: 1 maestro y 2 réplicas, donde el maestro puede leer y escribir y los esclavos solo pueden leer.

Para realizar las actividades CRUD propuestas por el libro, iniciamos el Docker e ingresamos al nodo maestro:



Luego, comenzamos a seguir los pasos propuestos:



```
127.0.0.1:6379> SET 7wks http://www.sevenweeks.org/
OK
127.0.0.1:6379> GET 7wks
"http://www.sevenweeks.org/"
127.0.0.1:6379>
```

```
127.0.0.1:6379> MSET gog http://www.google.com yah http://www.yahoo.com
OK
127.0.0.1:6379>
```

```
127.0.0.1:6379> MGET gog yah
1) "http://www.google.com"
2) "http://www.yahoo.com"
127.0.0.1:6379>
```

```
127.0.0.1:6379> SET count 2
OK
127.0.0.1:6379> INCR count
(integer) 3
127.0.0.1:6379> GET count
"3"
127.0.0.1:6379>
```

```
127.0.0.1:6379> SET bad_count "a"
OK
127.0.0.1:6379> INCR bad_count
(error) ERR value is not an integer or out of range
127.0.0.1:6379>
```

```
127.0.0.1:6379> MULTI
OK
127.0.0.1:6379(TX)> SET prag http://pragprog.com
QUEUED
127.0.0.1:6379(TX)> INCR count
QUEUED
127.0.0.1:6379(TX)> EXEC
1) OK
2) (integer) 4
127.0.0.1:6379>
```

```
127.0.0.1:6379> MSET user:luc:name "Luc" user:luc:password s3cret
OK
127.0.0.1:6379> MGET user:luc:name user:luc:password
1) "Luc"
2) "s3cret"
127.0.0.1:6379>
```

```
127.0.0.1:6379> HMSET user:luc name "Luc" password s3cret
OK
127.0.0.1:6379> HVALS user:luc
1) "Luc"
2) "s3cret"
127.0.0.1:6379> HKEYS user:luc
1) "name"
2) "password"
127.0.0.1:6379> HGET user:luc password
"s3cret"
127.0.0.1:6379>
```

```
127.0.0.1:6379> RPUSH eric:wishlist 7wks gog prag
(integer) 3
127.0.0.1:6379> LRANGE eric:wishlist 0 -1
1) "7wks"
2) "gog"
3) "prag"
127.0.0.1:6379> LREM eric:wishlist 0 gog
(integer) 1
127.0.0.1:6379> LPOP eric:wishlist
"7wks"
```

```
127.0.0.1:6379> RPOPLPUSH eric:wishlist eric:visited
"prag"
127.0.0.1:6379>
```

```
127.0.0.1:6379> BRPOP comments 300
1) "comments"
2) "Prag is a great publisher!"
(58.31s)
127.0.0.1:6379>
```

```
127.0.0.1:6379> LPUSH comments "Prag is a great publisher!"
(integer) 1
127.0.0.1:6379>
```

```
127.0.0.1:6379> SADD news nytimes.com pragprog.com
(integer) 2
127.0.0.1:6379> SMEMBERS news
1) "nytimes.com"
2) "pragprog.com"
127.0.0.1:6379> SADD tech pragprog.com apple.com
(integer) 2
127.0.0.1:6379> SINTER news tech
1) "pragprog.com"
127.0.0.1:6379> SDIFF news tech
1) "nytimes.com"
127.0.0.1:6379> SUNION news tech
1) "nytimes.com"
2) "apple.com"
3) "pragprog.com"
127.0.0.1:6379> SUNIONSTORE websites news tech
(integer) 3
127.0.0.1:6379> SMEMBERS websites
1) "nytimes.com"
2) "apple.com"
3) "pragprog.com"
127.0.0.1:6379>
```

```
127.0.0.1:6379> ZADD visits 500 7wks 9 gog 9999 prag
(integer) 3
127.0.0.1:6379> ZINCRBY visits 1 prag
"10000"
127.0.0.1:6379>
```

```
127.0.0.1:6379> ZRANGE visits 0 1
1) "gog"
2) "7wks"
127.0.0.1:6379> ZREVRANGE visits 0 -1 WITHSCORES
1) "prag"
2) "10000"
3) "7wks"
4) "500"
5) "gog"
6) "9"
127.0.0.1:6379> ZRANGEBYSCORE visits 9 9999
1) "gog"
2) "7wks"
127.0.0.1:6379> ZRANGEBYSCORE visits (9 9999
1) "7wks"
127.0.0.1:6379>  ZRANGEBYSCORE visits -inf inf
1) "gog"
2) "7wks"
3) "prag"
127.0.0.1:6379> ZREVRANGEBYSCORE visits inf -inf
1) "prag"
2) "7wks"
3) "gog"
127.0.0.1:6379>
```

```
127.0.0.1:6379> ZADD votes 2 7wks 0 gog 9001 prag
(integer) 3
127.0.0.1:6379> ZUNIONSTORE imp 2 visits votes WEIGHTS 1 2 AGGREGATE SUM
(integer) 3
127.0.0.1:6379> ZRANGEBYSCORE imp -inf inf WITHSCORES
1) "gog"
2) "9"
3) "7wks"
4) "504"
5) "prag"
6) "28002"
127.0.0.1:6379> ZUNIONSTORE votes 1 votes WEIGHTS 2
(integer) 3
127.0.0.1:6379> ZRANGE votes 0 -1 WITHSCORES
1) "gog"
2) "0"
3) "7wks"
4) "4"
5) "prag"
6) "18002"
127.0.0.1:6379>
```

```
127.0.0.1:6379> SET ice "I'm melting..."
OK
127.0.0.1:6379> EXPIRE ice 10
(integer) 1
127.0.0.1:6379> EXISTS ice
(integer) 1
127.0.0.1:6379> EXISTS ice
(integer) 0
127.0.0.1:6379> SETEX ice 10 "I'm melting..."
OK
127.0.0.1:6379> TTL ice
(integer) -2
127.0.0.1:6379> SETEX ice 10 "I'm melting..."
OK
127.0.0.1:6379> TTL ice
(integer) 8
127.0.0.1:6379> PERSIST ice
(integer) 1
127.0.0.1:6379>
```

```
127.0.0.1:6379> SET greeting hello
OK
127.0.0.1:6379> GET greeting
"hello"
127.0.0.1:6379> SELECT 1
OK
127.0.0.1:6379[1]> GET greeting
(nil)
127.0.0.1:6379[1]> SET greeting "guten Tag"
OK
127.0.0.1:6379[1]> SELECT 0
OK
127.0.0.1:6379> GET greeting
"hello"
127.0.0.1:6379> MOVE greeting 2
(integer) 1
127.0.0.1:6379> SELECT 2
OK
127.0.0.1:6379[2]> GET greeting
"hello"
127.0.0.1:6379[2]>
```

Punto 3

Para comenzar se instaló Python y se conectó a la base de datos de Redis. Luego procedimos a realizar el código en Python para realizar las operaciones de Create y Read.

```
ubuntu@ip-172-31-84-130: ~/redis
  GNU nano 6.2                                                    main.py
import redis
redis_host = 'localhost'
redis_port = 6379

def redis_string ():
    try:
        r= redis.StrictRedis(
            host=redis_host, port=redis_port, password= 'pass123', decode_responses= True)
        r.set("message", "Hello, k mas")
        msg = r.get("message")
        print(msg)
    except Exception as e:
        print(e)


if __name__ == "__main__":
    redis_string()
```

Punto 4

Esta es la creación de los múltiples nodos:

```
ubuntu@ip-172-31-84-130:~/redis$ sudo docker ps
CONTAINER ID   IMAGE                 COMMAND                  CREATED         STATUS         PORTS                                                  NAMES
1d330e31ddd6   bitnami/redis:latest  "/opt/bitnami/script…"   4 minutes ago   Up 4 minutes   0.0.0.0:49156->6379/tcp, :::49156->6379/tcp            redis-redis-replica-3-1
341e7ea04dd7   bitnami/redis:latest  "/opt/bitnami/script…"   5 days ago      Up 4 minutes   0.0.0.0:49155->6379/tcp, :::49155->6379/tcp            redis-redis-replica-2-1
87f5a3be42b3   bitnami/redis:latest  "/opt/bitnami/script…"   5 days ago      Up 4 minutes   0.0.0.0:49154->6379/tcp, :::49154->6379/tcp            redis-redis-replica-1-1
7b6f5c10d0c0   bitnami/redis:latest  "/opt/bitnami/script…"   5 days ago      Up 4 minutes   0.0.0.0:49153->6379/tcp, :::49153->6379/tcp            redis-redis-maestro-1
ubuntu@ip-172-31-84-130:~/redis$
```

Para comprobar el acceso distribuido se generaron los siguientes datos desde el nodo maestro:

```
ubuntu@ip-172-31-84-130:~/redis$ sudo docker exec -it 7b6f5c10d0c0 bash
I have no name!@7b6f5c10d0c0:/$ redis-cli -a pass123
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
127.0.0.1:6379> ping
PONG
127.0.0.1:6379> SET ytb https://www.youtube.com/
OK
127.0.0.1:6379> GET ytb
"https://www.youtube.com/"
127.0.0.1:6379>
```

Luego, se accedió a una de las replicas y se obtuvo la información de ese dato:

```
ubuntu@ip-172-31-84-130:~/redis$ sudo docker exec -it 87f5a3be42b3 bash
I have no name!@87f5a3be42b3:/$ redis-cli -a replicapass123
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
127.0.0.1:6379> ping
PONG
127.0.0.1:6379> GET ytb
"https://www.youtube.com/"
127.0.0.1:6379>
```

Para comprobar la tolerancia a fallos se ‘detuvo’ una de las replicas y se busco la misma información en otro nodo diferente:

```
ubuntu@ip-172-31-84-130:~/redis$ sudo docker exec -it 87f5a3be42b3 bash
I have no name!@87f5a3be42b3:/$ redis-cli -a replicapass123
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
127.0.0.1:6379> ping
PONG
127.0.0.1:6379> GET ytb
"https://www.youtube.com/"
127.0.0.1:6379> shutdown force
not connected> ubuntu@ip-172-31-8
ubuntu@ip-172-31-84-130:~/redis$ sudo docker ps
CONTAINER ID   IMAGE                 COMMAND                  CREATED         STATUS         PORTS                                                  NAMES
1d330e31ddd6   bitnami/redis:latest  "/opt/bitnami/script…"   24 minutes ago  Up 24 minutes  0.0.0.0:49156->6379/tcp, :::49156->6379/tcp            redis-redis-replica-3-1
341e7ea04dd7   bitnami/redis:latest  "/opt/bitnami/script…"   5 days ago      Up 24 minutes  0.0.0.0:49155->6379/tcp, :::49155->6379/tcp            redis-redis-replica-2-1
7b6f5c10d0c0   bitnami/redis:latest  "/opt/bitnami/script…"   5 days ago      Up 24 minutes  0.0.0.0:49153->6379/tcp, :::49153->6379/tcp            redis-redis-maestro-1
ubuntu@ip-172-31-84-130:~/redis$ sudo docker exec -it 341e7ea04dd7 bash
I have no name!@341e7ea04dd7:/$ redis-cli -a replicapass123
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
127.0.0.1:6379> ping
PONG
127.0.0.1:6379> GET ytb
"https://www.youtube.com/"
127.0.0.1:6379>
```