



Bárbara Dias de Sena RA: 11201721899

Daniel Mazucanti RA: 11201721603

Fabio Luis RA: 11201721754

## **Aula Prática 4 - Relatório**

Prof. Gustavo S. Pavani

**Santo André - SP**

**2020**

### 1.1) A variável ZK foi propriamente alterada.

```
set ZK="C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14"
set CP_ZK=.;%ZK%\zookeeper-3.4.14.jar;%ZK%\lib\slf4j-log4j12-1.7.25.jar;%ZK%\lib\slf4j-api-1.7.25.jar;%ZK%\lib\log4j-1.2.17.jar
javac -cp %CP_ZK% *.java
@echo ***** Barrier test
set SIZE=2
@echo Group size = %SIZE%
java -cp %CP_ZK% -Dlog4j.configuration=file:%ZK%\conf\log4j.properties SyncPrimitive barrier localhost %SIZE%
```

1.2) A variável SIZE indica a quantidade máxima de processos que devem chegar na barreira, i.e., enquanto houver menos de SIZE processos na barreira, todos eles ficam bloqueados esperando atingir o máximo, para que todos se sincronizem.

1.3) Ao executar um run\_barrier vemos que o processo chega na barreira e fica bloqueado. Quando executamos o segundo runbarrier, vemos que ambos saem da barreira.

#### Processo 1:

```
2020-11-24 14:21:38,366 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\system32\bin;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS\;C:\Program Files\Intel\Intel(R) Management Engine Components\iCLS\;C:\Windows\system32\bin;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windows\System32\OpenSSH\;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 14:21:38,366 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 14:21:38,366 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 14:21:38,366 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 14:21:38,366 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 14:21:38,367 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 14:21:38,367 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 14:21:38,367 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 14:21:38,367 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos4
2020-11-24 14:21:38,368 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeout=3000 watcher=SyncPrimitive$Barrier$71f2a7d5
Finished starting ZK: State=CONNECTING sessionId:0x0 local:null remoteServer:null lastZxid:0 xid:1 sent:0 rcv:0 queuedPkts:0 pendingResp:0 queuedEvents:0
2020-11-24 14:21:38,625 [myid:] - INFO [main:SendThread(Localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/0:0:0:0:0:0:0:0:1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 14:21:38,627 [myid:] - INFO [main:SendThread(Localhost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/0:0:0:0:0:0:0:0:1:2181, initiating session
2020-11-24 14:21:38,648 [myid:] - INFO [main:SendThread(Localhost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/0:0:0:0:0:0:0:0:1:2181, sessionId = 0x1001fcaf7c0000, negotiated timeout = 4000
Entered barrier: 2
Left barrier
PS C:\Users\PC\Desktop\zookeeper\Codigos4> |
```

#### Processo 2:

```
2020-11-24 14:22:57,278 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\system32\bin;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS\;C:\Program Files\Intel\Intel(R) Management Engine Components\iCLS\;C:\Windows\system32\bin;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windows\System32\OpenSSH\;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 14:22:57,279 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 14:22:57,279 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 14:22:57,280 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 14:22:57,280 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 14:22:57,280 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 14:22:57,280 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 14:22:57,281 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 14:22:57,281 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos4
2020-11-24 14:22:57,282 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeout=3000 watcher=SyncPrimitive$Barrier$71f2a7d5
Finished starting ZK: State=CONNECTING sessionId:0x0 local:null remoteServer:null lastZxid:0 xid:1 sent:0 rcv:0 queuedPkts:0 pendingResp:0 queuedEvents:0
2020-11-24 14:22:57,564 [myid:] - INFO [main:SendThread(Localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/0:0:0:0:0:0:0:0:1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 14:22:57,568 [myid:] - INFO [main:SendThread(Localhost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/0:0:0:0:0:0:0:0:1:2181, initiating session
2020-11-24 14:22:57,575 [myid:] - INFO [main:SendThread(Localhost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/0:0:0:0:0:0:0:0:1:2181, sessionId = 0x1001fcaf7c0001, negotiated timeout = 4000
Entered barrier: 2
Left barrier
PS C:\Users\PC\Desktop\zookeeper\Codigos4> |
```

#### 1.4) Variável ZK do queue\_producer alterada.

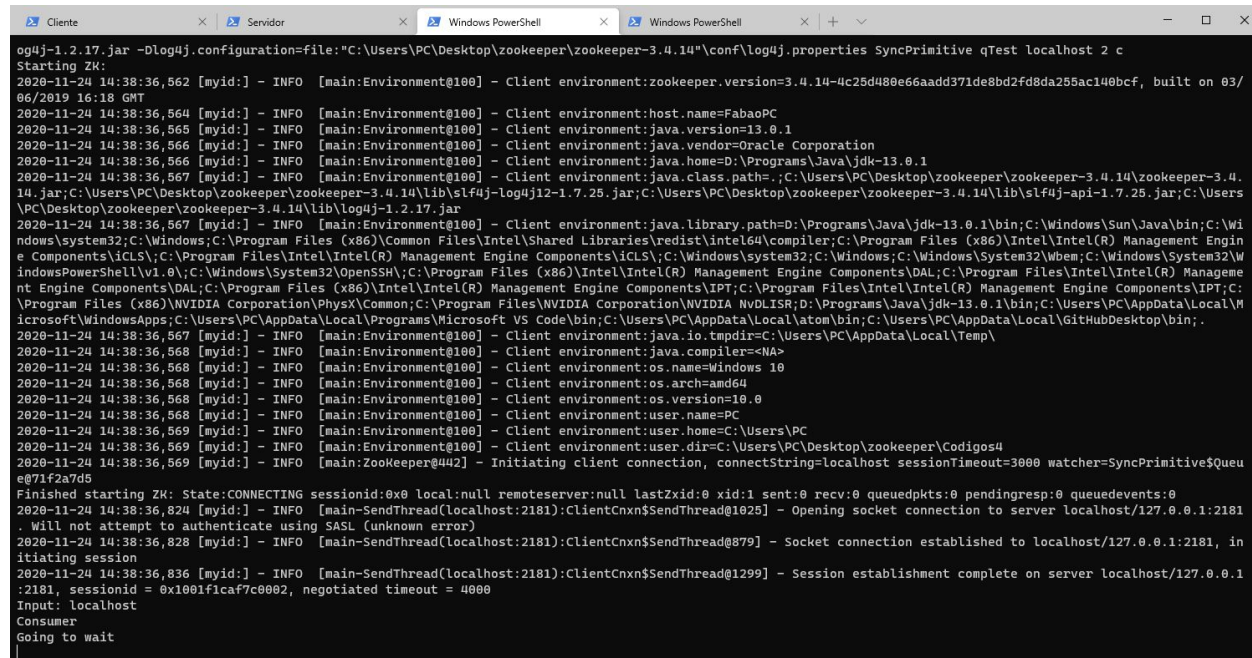
```
set ZK="C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14"
set CP_ZK=.;%ZK%\zookeeper-3.4.14.jar;%ZK%\lib\slf4j-log4j12-1.7.25.jar;%ZK%\lib\slf4j-api-1.7.25.jar;%ZK%\lib\log4j-1.2.17.jar
javac -cp %CP_ZK% *.java
@echo ***** Queue test - producer
set SIZE=2
@echo Size = %SIZE%
java -cp %CP_ZK% -Dlog4j.configuration=file:%ZK%\conf\log4j.properties SyncPrimitive qTest localhost %SIZE% p
```

#### 1.5) Variável ZK do queue\_consumer alterada.

```
set ZK="C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14"
set CP_ZK=.;%ZK%\zookeeper-3.4.14.jar;%ZK%\lib\slf4j-log4j12-1.7.25.jar;%ZK%\lib\slf4j-api-1.7.25.jar;%ZK%\lib\log4j-1.2.17.jar
javac -cp %CP_ZK% *.java
@echo ***** Queue test - consumer
set SIZE=2
@echo Size = %SIZE%
java -cp %CP_ZK% -Dlog4j.configuration=file:%ZK%\conf\log4j.properties SyncPrimitive qTest localhost %SIZE% c
```

1.6) A variável SIZE representa a quantidade de elementos que serão consumidos a cada execução do consumer.

1.7) Rodando o consumer antes do producer. Note que ele fica bloqueado esperando o producer.



```
og4j-1.2.17.jar -Dlog4j.configuration=file:"C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\conf\log4j.properties SyncPrimitive qTest localhost 2 c
Starting ZK:
2020-11-24 14:38:36,562 [myid:] - INFO [main:Environment@100] - Client environment:zookeeper.version=3.4.14-4c25d480e66aadd371de8bd2fd8da255ac140bcf, built on 03/
06/2019 16:18 GMT
2020-11-24 14:38:36,564 [myid:] - INFO [main:Environment@100] - Client environment:host.name=FabaoPC
2020-11-24 14:38:36,565 [myid:] - INFO [main:Environment@100] - Client environment:java.version=13.0.1
2020-11-24 14:38:36,566 [myid:] - INFO [main:Environment@100] - Client environment:java.vendor=Oracle Corporation
2020-11-24 14:38:36,566 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2020-11-24 14:38:36,567 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=.;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\zookeeper-3.4.
14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users
\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar
2020-11-24 14:38:36,567 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Wi
ndows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engin
e Components\iCLS;C:\Program Files\Intel\Intel(R) Management Engine Components\iCLS;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\W
indowsPowerShell\v1.0;C:\Windows\System32\OpenSSH;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Manageme
nt Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:
\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NVDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\M
icrosoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 14:38:36,567 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 14:38:36,568 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 14:38:36,568 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 14:38:36,568 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 14:38:36,568 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 14:38:36,568 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 14:38:36,569 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 14:38:36,569 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos4
2020-11-24 14:38:36,569 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeout=3000 watcher=SyncPrimitive$Queu
e@71f2a7d5
Finished starting ZK: State:CONNECTING sessionId:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 recv:0 queuedpkts:0 pendingresp:0 queuedevents:0
2020-11-24 14:38:36,824 [myid:] - INFO [main:SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/127.0.0.1:2181
. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 14:38:36,828 [myid:] - INFO [main:SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/127.0.0.1:2181, in
itiating session
2020-11-24 14:38:36,836 [myid:] - INFO [main:SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/127.0.0.1
:2181, sessionId = 0x1001f1caf7c0002, negotiated timeout = 4000
Input: localhost
Consumer
going to wait
```

Executando o producer.

```
4.14"\lib\slf4j-log4j12-1.7.25.jar;"C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14"\lib\slf4j-api-1.7.25.jar;"C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14"\lib\log4j-1.2.17.jar -Dlog4j.configuration=file:"C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14"\conf\log4j.properties SyncPrimitive qTest localhost 2 p
Starting ZK:
2020-11-24 14:39:39,792 [myid:] - INFO [main:Environment@100] - Client environment:zookeeper.version=3.4.14-4c25d480e6aadd371de8bd2fd8da255ac140bcbf, built on 03/06/2019 16:18 GMT
2020-11-24 14:39:39,795 [myid:] - INFO [main:Environment@100] - Client environment:host.name=FabaoPC
2020-11-24 14:39:39,795 [myid:] - INFO [main:Environment@100] - Client environment:java.version=13.0.1
2020-11-24 14:39:39,797 [myid:] - INFO [main:Environment@100] - Client environment:java.vendor=Oracle Corporation
2020-11-24 14:39:39,797 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2020-11-24 14:39:39,798 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=.;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar
2020-11-24 14:39:39,798 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS\;C:\Program Files\Intel\Intel(R) Management Engine Components\iCLS\;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windows\System32\OpenSSH\;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 14:39:39,799 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 14:39:39,799 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 14:39:39,799 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 14:39:39,799 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 14:39:39,799 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 14:39:39,799 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 14:39:39,800 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 14:39:39,800 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos4
2020-11-24 14:39:39,801 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeout=3000 watcher=SyncPrimitive$Queue@71f2a7d5
Finished starting ZK: State:CONNECTING sessionId:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 recv:0 queuedpkts:0 pendingresp:0 queuedevents:0
2020-11-24 14:39:40,081 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/0:0:0:0:0:0:0:0:1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 14:39:40,083 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/0:0:0:0:0:0:0:0:1:2181, initiating session
2020-11-24 14:39:40,090 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/0:0:0:0:0:0:0:0:1:2181, sessionId = 0x1001fcaf7c0003, negotiated timeout = 4000
Input: localhost
Producer
PS C:\Users\PC\Desktop\zookeeper\Codigos4> |
```

Depois de executar o producer, o consumer consome o que o producer colocou na fila.

```
Consumer
Going to wait
List: [element0000000000, element0000000001]
Temporary value: /app3/element0000000000
Item: 10
List: [element0000000001]
Temporary value: /app3/element0000000001
Item: 11
```



```

4.14\lib\slf4j-log4j12-1.7.25.jar;"C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;"C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar -Dlog4j.configuration=file:"C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\conf\log4j.properties SyncPrimitive qTest LocalHost 2 p
Starting ZK:
2028-11-24 14:05:16,214 [myid:] - INFO [main:Environment@100] - Client environment:zookeeper.version=3.4.14-4c25d4986e6aad371de8bd2fb8da255ac140bcf, built on 03/06/2019 16:18 GMT
2028-11-24 14:05:16,216 [myid:] - INFO [main:Environment@100] - Client environment:host.name=FabaoPC
2028-11-24 14:05:16,217 [myid:] - INFO [main:Environment@100] - Client environment:java.version=13.0.1
2028-11-24 14:05:16,218 [myid:] - INFO [main:Environment@100] - Client environment:java.vendor=Oracle Corporation
2028-11-24 14:05:16,218 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2028-11-24 14:05:16,218 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=.;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar
2028-11-24 14:05:16,219 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\System32\bin;C:\Windows\System32\X86\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\ICL5\;C:\Program Files\Intel\Intel(R) Management Engine Components\ICL5\;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windows\System32\OpenSSH\C\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA_NDTLSR_Drivers\bin;C:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2028-11-24 14:05:16,219 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2028-11-24 14:05:16,220 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=-Na-
2028-11-24 14:05:16,220 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2028-11-24 14:05:16,220 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=x86_64
2028-11-24 14:05:16,220 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2028-11-24 14:05:16,220 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2028-11-24 14:05:16,221 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2028-11-24 14:05:16,221 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos4
2028-11-24 14:05:16,222 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeout=3000 watcher=SyncPrimitive$Queue7f12a7ad5
Finished starting ZK: State:CONNECTING sessionId:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 recv:0 queuedpkts:0 pendingresp:0 queueevents:0
2028-11-24 14:05:16,483 [myid:] - INFO [main-SendThread(LocalHost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/127.0.0.1:2181 . Will not attempt to authenticate using SASL (unknown error)
2028-11-24 14:05:16,486 [myid:] - INFO [main-SendThread(LocalHost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/127.0.0.1:2181, initiating session
2028-11-24 14:05:16,494 [myid:] - INFO [main-SendThread(LocalHost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/127.0.0.1 :2181, sessionId= 0x10b1f1caf7c000a, negotiated timeout = 4000
Input:localhost
Producer

```

```

2020-11-24 14:45:46,693 [myid:] - INFO [main:Environment@100] - Client environment:java.version=13.0.1
2020-11-24 14:45:46,693 [myid:] - INFO [main:Environment@100] - Client environment:java.vendor=Oracle Corporation
2020-11-24 14:45:46,693 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2020-11-24 14:45:46,694 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=.;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar
2020-11-24 14:45:46,694 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\System32\bin;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS;C:\Program Files\Intel\Intel(R) Management Engine Components\iCLS;C:\Windows\System32\bin;C:\Windows\System32\WindowsPowerShell\v1.0\bin;C:\Windows\System32\OpenSSH;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin.
2020-11-24 14:45:46,694 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp
2020-11-24 14:45:46,694 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=-NA
2020-11-24 14:45:46,695 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 14:45:46,695 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 14:45:46,695 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 14:45:46,697 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 14:45:46,697 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 14:45:46,697 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos4
2020-11-24 14:45:46,697 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeout=3000 watcher=SyncPrimitive$Queue@7f12a7d5
Finished starting ZK. State:CONNECTING sessionid:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 recv:0 queuedpkts:0 pendingresp:0 queuedevents:0
2020-11-24 14:45:46,958 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 14:45:46,961 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/127.0.0.1:2181, in initiating session
2020-11-24 14:45:46,969 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/127.0.0.1:2181, sessionid = 0x1801f1ca7c0005, negotiated timeout = 4000
Input: localhost
Consumer
List: [element0000000002, element0000000003]
Temporary value: /app3/element0000000002
Item: 10
List: [element0000000003]
Temporary value: /app3/element0000000003
Item: 11

```

```
set ZK="C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14"
set CP_ZK=.%ZK%\zookeeper-3.4.14.jar;%ZK%\lib\slf4j-log4j12-1.7.25.jar;%ZK%\lib\slf4j-api-1.7.25.jar;%ZK%\lib\log4j-1.2.17.jar
javac -cp %CP_ZK% *.java
@echo ***** Lock test
set WAIT=10000
@echo Wait time = %WAIT%
java -cp %CP_ZK% -Dlog4j.configuration=file:%ZK%\conf\log4j.properties SyncPrimitive lock localhost %WAIT%
```

2.2) A variável WAIT serve para simular uma computação que está sendo executada por um processo que está com o lock.

### 2.3) Executando o primeiro run\_lock

```
2020-11-24 15:02:24,419 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2020-11-24 15:02:24,419 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=.;C:\Users\PC\Desktop\zookeeper
r\zookeeper-3.4.14\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\De
sktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar
2020-11-24 15:02:24,420 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\
bin;C:\Windows\Sun\Java\bin;C:\Windows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel
64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS\;C:\Program Files\Intel\Intel(R) Management En
gine Components\iCLS\;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windo
ws\System32\OpenSSH\;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Manage
ment Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R)
Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA
NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Micros
oft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 15:02:24,420 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 15:02:24,420 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 15:02:24,421 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 15:02:24,421 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 15:02:24,421 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 15:02:24,421 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 15:02:24,421 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 15:02:24,421 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos
4
2020-11-24 15:02:24,422 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeou
t=3000 watcher=SyncPrimitive$Lock@71f2a7d5
Finished starting ZK: State:CONNECTING sessionId:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 rcv:0 queuedpkts:0 pend
ingresp:0 queuedevents:0
2020-11-24 15:02:24,687 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection t
o server localhost/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 15:02:24,690 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection establishe
d to localhost/127.0.0.1:2181, initiating session
2020-11-24 15:02:24,696 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment compl
ete on server localhost/127.0.0.1:2181, sessionId = 0x1001f1caf7c0007, negotiated timeout = 4000
My path name is: /lock/lock-0000000001
List: [lock-0000000001]
Suffix: 1, min: 1
Lock acquired for lock-0000000001!
Lock acquired!
```

### Executando o segundo run\_lock

```
bin;C:\Windows\Sun\Java\bin;C:\Windows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel
64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS\;C:\Program Files\Intel\Intel(R) Management En
gine Components\iCLS\;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windo
ws\System32\OpenSSH\;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Manage
ment Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R)
Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA
NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Micros
oft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 15:02:25,216 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 15:02:25,217 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 15:02:25,217 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 15:02:25,217 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 15:02:25,217 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 15:02:25,217 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 15:02:25,218 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 15:02:25,218 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos
4
2020-11-24 15:02:25,219 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeou
t=3000 watcher=SyncPrimitive$Lock@71f2a7d5
Finished starting ZK: State:CONNECTING sessionId:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 rcv:0 queuedpkts:0 pend
ingresp:0 queuedevents:0
2020-11-24 15:02:25,492 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection t
o server localhost/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 15:02:25,495 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection establishe
d to localhost/127.0.0.1:2181, initiating session
2020-11-24 15:02:25,501 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment compl
ete on server localhost/127.0.0.1:2181, sessionId = 0x1001f1caf7c0008, negotiated timeout = 4000
My path name is: /lock/lock-0000000002
List: [lock-0000000001, lock-0000000002]
Suffix: 2, min: 1
Watching /lock/lock-0000000001
/lock/lock-0000000002 is waiting for a notification!
```

O primeiro run\_lock solta o lock e notifica o segundo

```
Lock released!  
PS C:\Users\PC\Desktop\zookeeper\Codigos4> |
```

O segundo run\_lock pega o lock depois de receber a notificação do primeiro.

```
Notification from /lock/lock-0000000001  
List: [lock-0000000002]  
Suffix: 2, min: 2  
Lock acquired for lock-0000000002!  
Lock acquired!  
Lock released!  
PS C:\Users\PC\Desktop\zookeeper\Codigos4> |
```

2.4) O primeiro run\_lock é executado e depois de um tempo solta o lock

```
2020-11-24 15:05:58,618 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1  
2020-11-24 15:05:58,618 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=.;C:\Users\PC\Desktop\zookeer  
r\zookeeper-3.4.14\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\De  
sktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar  
2020-11-24 15:05:58,618 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\  
bin;C:\Windows\Sun\Java\bin;C:\Windows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel  
64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS\;C:\Program Files\Intel\Intel(R) Management En  
gine Components\iCLS\;C:\Windows\system32;C:\Windows;C:\Windows\System32\wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windo  
ws\System32\OpenSSH\;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Manage  
ment Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Manage  
ment Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA  
NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Micros  
oft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.  
2020-11-24 15:05:58,619 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\  
2020-11-24 15:05:58,619 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>  
2020-11-24 15:05:58,619 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10  
2020-11-24 15:05:58,620 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64  
2020-11-24 15:05:58,620 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0  
2020-11-24 15:05:58,620 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC  
2020-11-24 15:05:58,620 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC  
2020-11-24 15:05:58,620 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos  
4  
2020-11-24 15:05:58,621 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeou  
t=30000 watcher=SyncPrimitive$Lock@71f2a7d5  
Finished starting ZK: State:CONNECTING sessionId:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 rcv:0 queuedpkts:0 pend  
ingresp:0 queuedevents:0  
2020-11-24 15:05:58,879 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection t  
o server localhost/0:0:0:0:0:0:0:1:2181. Will not attempt to authenticate using SASL (unknown error)  
2020-11-24 15:05:58,882 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection establishe  
d to localhost/0:0:0:0:0:0:0:1:2181, initiating session  
2020-11-24 15:05:58,890 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment compl  
ete on server localhost/0:0:0:0:0:0:0:1:2181, sessionId = 0x1001f1caf7c0009, negotiated timeout = 4000  
My path name is: /lock/lock-0000000003  
List: [lock-0000000003]  
Suffix: 3, min: 3  
Lock acquired for lock-0000000003!  
Lock acquired!  
Lock released!  
PS C:\Users\PC\Desktop\zookeeper\Codigos4> |
```

O segundo run\_lock é executado, mas é interrompido no meio.

```
2020-11-24 15:05:59,217 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2020-11-24 15:05:59,217 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=.;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar
2020-11-24 15:05:59,218 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS;C:\Program Files\Intel\Intel(R) Management Engine Components\iCLS;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windows\System32\OpenSSH\;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 15:05:59,218 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 15:05:59,219 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 15:05:59,219 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 15:05:59,219 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 15:05:59,219 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 15:05:59,219 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 15:05:59,220 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 15:05:59,220 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos
4
2020-11-24 15:05:59,221 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeout=3000 watcher=SyncPrimitive$Lock@71f2a7d5
Finished starting ZK: State:CONNECTING sessionId:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 recv:0 queuedpkts:0 pendingresp:0 queuedevents:0
2020-11-24 15:05:59,487 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/0:0:0:0:0:0:0:1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 15:05:59,490 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/0:0:0:0:0:0:0:1:2181, initiating session
2020-11-24 15:05:59,495 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/0:0:0:0:0:0:0:1:2181, sessionId = 0x1001f1caf7c000a, negotiated timeout = 4000
My path name is: /lock/lock-0000000004
List: [lock-0000000004, lock-0000000003]
Suffix: 4, min: 3
Watching /lock/lock-0000000003
/lock/lock-0000000004 is waiting for a notification!
Terminate batch job (Y/N)? y
PS C:\Users\PC\Desktop\zookeeper\Codigos> |
```



O terceiro run\_lock é executado e, no momento de sua criação, enxerga o segundo run\_lock, porém, quando o primeiro solta o lock ele notifica o terceiro, pois o segundo foi interrompido. O terceiro então recebe a notificação do primeiro, pega o lock e o solta depois de um tempo.

```
NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 15:06:00,214 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 15:06:00,214 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 15:06:00,214 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 15:06:00,214 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 15:06:00,214 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 15:06:00,214 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 15:06:00,214 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 15:06:00,215 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos
4
2020-11-24 15:06:00,215 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeou
t=3000 watcher=SyncPrimitive$Lock@71f2a7d5
Finished starting ZK: State:CONNECTING sessionId:0x0 local:null remoteserver:null lastZxid:0 xid:1 sent:0 rcv:0 queuedpkts:0 pend
ingresp:0 queuedevents:0
2020-11-24 15:06:00,478 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection t
o server localhost/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 15:06:00,480 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection establishe
d to localhost/127.0.0.1:2181, initiating session
2020-11-24 15:06:00,486 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment compl
ete on server localhost/127.0.0.1:2181, sessionId = 0x1001f1caf7c000b, negotiated timeout = 4000
My path name is: /lock/lock-0000000005
List: [lock-0000000005, lock-0000000004, lock-0000000003]
Suffix: 5, min: 3
Watching /lock/lock-0000000004
/lock/lock-0000000005 is waiting for a notification!
Notification from /lock/lock-0000000004
List: [lock-0000000005, lock-0000000003]
Suffix: 5, min: 3
Watching /lock/lock-0000000003
/lock/lock-0000000005 is waiting for a notification!
Not lowest sequence number! Waiting for a new notification.
Notification from /lock/lock-0000000003
List: [lock-0000000005]
Suffix: 5, min: 5
Lock acquired for lock-0000000005!
Lock acquired!
Lock released!
PS C:\Users\PC\Desktop\zookeeper\Codigos> |
```