

Cloud Computing: UE20CS352

Assignment 4

-Adithya M, Section K

-PES1UG20CS621

1a.jpg Screenshot of Zookeeper Server having started.

```
adithya@ubuntu:/opt/apache-zookeeper-3.8.0-bin$ sudo bin/zkServer.sh start
[sudo] password for adithya:
/usr/bin/java
ZooKeeper JMX enabled by default
Using config: /opt/apache-zookeeper-3.8.0-bin/bin/../conf/zoo.cfg
Starting zookeeper ... STARTED
adithya@ubuntu:/opt/apache-zookeeper-3.8.0-bin$
```

2a.jpg Screenshot of Listing of the created ZNodes

```
adithya@ubuntu: /opt/apache-zookeeper-3.8.0-bin
2023-03-22 17:11:42,017 [myid:localhost:2181] - INFO [main-SendThread(localhost:2181):o.a.z.ClientCnxn$SendThread@1173] - SASL config status: Will not attempt to authenticate using SASL (unknown error)
JLine support is enabled
2023-03-22 17:11:42,036 [myid:localhost:2181] - INFO [main-SendThread(localhost:2181):o.a.z.ClientCnxn$SendThread@1005] - Socket connection established, initiating session, client: /127.0.0.1:33866, server: localhost/127.0.0.1:2181
2023-03-22 17:11:42,049 [myid:localhost:2181] - INFO [main-SendThread(localhost:2181):o.a.z.ClientCnxn$SendThread@1444] - Session establishment complete on server localhost/127.0.0.1:2181, session id = 0x100000e8f050001, negotiated timeout = 30000

WATCHER::

WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] create -s /PES1UG20CS621_seq "a sequential node"
Created /PES1UG20CS621_seq0000000000
[zk: localhost:2181(CONNECTED) 1] create -e /PES1UG20CS621_eph "an ephemeral node"
Created /PES1UG20CS621_eph
[zk: localhost:2181(CONNECTED) 2] ls /
[PES1UG20CS621_eph, PES1UG20CS621_seq0000000000, zookeeper]
[zk: localhost:2181(CONNECTED) 3]
```

2b.jpg Screenshot of Listing of the deleted ephemeral node

```
adithya@ubuntu: /opt/apache-zookeeper-3.8.0-bin
2023-03-22 17:14:33,364 [myid:] - INFO [main:o.a.z.ClientCnxn@1732] - zookeeper
.request.timeout value is 0. feature enabled=false
Welcome to ZooKeeper!
2023-03-22 17:14:33,380 [myid:localhost:2181] - INFO [main-SendThread(localhost
:2181):o.a.z.ClientCnxn$SendThread@1171] - Opening socket connection to server l
ocalhost/127.0.0.1:2181.
2023-03-22 17:14:33,382 [myid:localhost:2181] - INFO [main-SendThread(localhost
:2181):o.a.z.ClientCnxn$SendThread@1173] - SASL config status: Will not attempt
to authenticate using SASL (unknown error)
JLine support is enabled
2023-03-22 17:14:33,397 [myid:localhost:2181] - INFO [main-SendThread(localhost
:2181):o.a.z.ClientCnxn$SendThread@1005] - Socket connection established, initia
ting session, client: /127.0.0.1:33868, server: localhost/127.0.0.1:2181
2023-03-22 17:14:33,417 [myid:localhost:2181] - INFO [main-SendThread(localhost
:2181):o.a.z.ClientCnxn$SendThread@1444] - Session establishment complete on ser
ver localhost/127.0.0.1:2181, session id = 0x100000e8f050002, negotiated timeout
= 30000

WATCHER::

WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] ls /
[PES1UG20CS621_seq0000000000, zookeeper]
[zk: localhost:2181(CONNECTED) 1]
```

2c.jpg Screenshot of Data and Metadata associated with the created sequential znode.

```
adithya@ubuntu: /opt/apache-zookeeper-3.8.0-bin
:2181):o.a.z.ClientCnxn$SendThread@1005] - Socket connection established, initia
ting session, client: /127.0.0.1:33872, server: localhost/127.0.0.1:2181
2023-03-22 17:16:51,437 [myid:localhost:2181] - INFO [main-SendThread(localhost
:2181):o.a.z.ClientCnxn$SendThread@1444] - Session establishment complete on ser
ver localhost/127.0.0.1:2181, session id = 0x100000e8f050004, negotiated timeout
= 30000

WATCHER::

WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] get -s /PES1UG20CS621_seq0000000000
a sequential node
cZxid = 0x4
ctime = Wed Mar 22 17:12:02 IST 2023
mZxid = 0x4
mtime = Wed Mar 22 17:12:02 IST 2023
pZxid = 0x4
cversion = 0
dataVersion = 0
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 17
numChildren = 0
[zk: localhost:2181(CONNECTED) 1]
```

2d.jpg Screenshot of Listing of all the children nodes

```
Path must not end with / character
[zk: localhost:2181(CONNECTED) 7] ls /PES1UG20CS621
[Adithya, M]
[zk: localhost:2181(CONNECTED) 8]
```

3a.jpg Screenshot of each of the clients listing all the znodes

```
adithya@ubuntu: /opt/apache-zookeeper-3.8.0-bin
2023-03-22 17:46:51,985 [myid:] - INFO [main:o.a.z.s.ZKDatabase@289] - Snapshot
loaded in 17 ms, highest zxid is 0x1c, digest is 11369027453
2023-03-22 17:46:51,985 [myid:] - INFO [main:o.a.z.s.p.FileTxnSnapLog@479] - Sn
apshotting: 0x1c to /path/to/zookeeper/data/version-2/snapshot.1c
2023-03-22 17:46:51,986 [myid:] - INFO [main:o.a.z.s.ZooKeeperServer@547] - Sna
pshot taken in 1 ms
2023-03-22 17:46:51,995 [myid:] - INFO [main:o.a.z.s.RequestThrottler@75] - zoo
keeper.request.throttler.shutdownTimeout = 10000 ms
2023-03-22 17:46:51,995 [myid:] - INFO [ProcessThread(sid:0 cport:2181)::o.a.z.
s.PrepareRequestProcessor@138] - PrepareRequestProcessor (sid:0) started, reconfigEnab
led=false
2023-03-22 17:46:52,015 [myid:] - INFO [main:o.a.z.s.ContainerManager@84] - Usi
ng checkIntervalMs=60000 maxPerMinute=10000 maxNeverUsedIntervalMs=0
2023-03-22 17:46:52,016 [myid:] - INFO [main:o.a.z.a.ZKAuditProvider@42] - ZooK
eeper audit is disabled.
2023-03-22 17:47:23,224 [myid:] - INFO [SessionTracker:o.a.z.s.ZooKeeperServer@
632] - Expiring session 0x100002cfff8b0000, timeout of 30000ms exceeded
2023-03-22 17:47:23,232 [myid:] - INFO [SessionTracker:o.a.z.s.ZooKeeperServer@
632] - Expiring session 0x100002cfff8b0002, timeout of 30000ms exceeded
2023-03-22 17:47:23,232 [myid:] - INFO [SessionTracker:o.a.z.s.ZooKeeperServer@
632] - Expiring session 0x100002cfff8b0001, timeout of 30000ms exceeded
2023-03-22 17:47:23,252 [myid:] - INFO [SyncThread:0:o.a.z.s.p.FileTxnLog@285]
- Creating new log file: log.1d

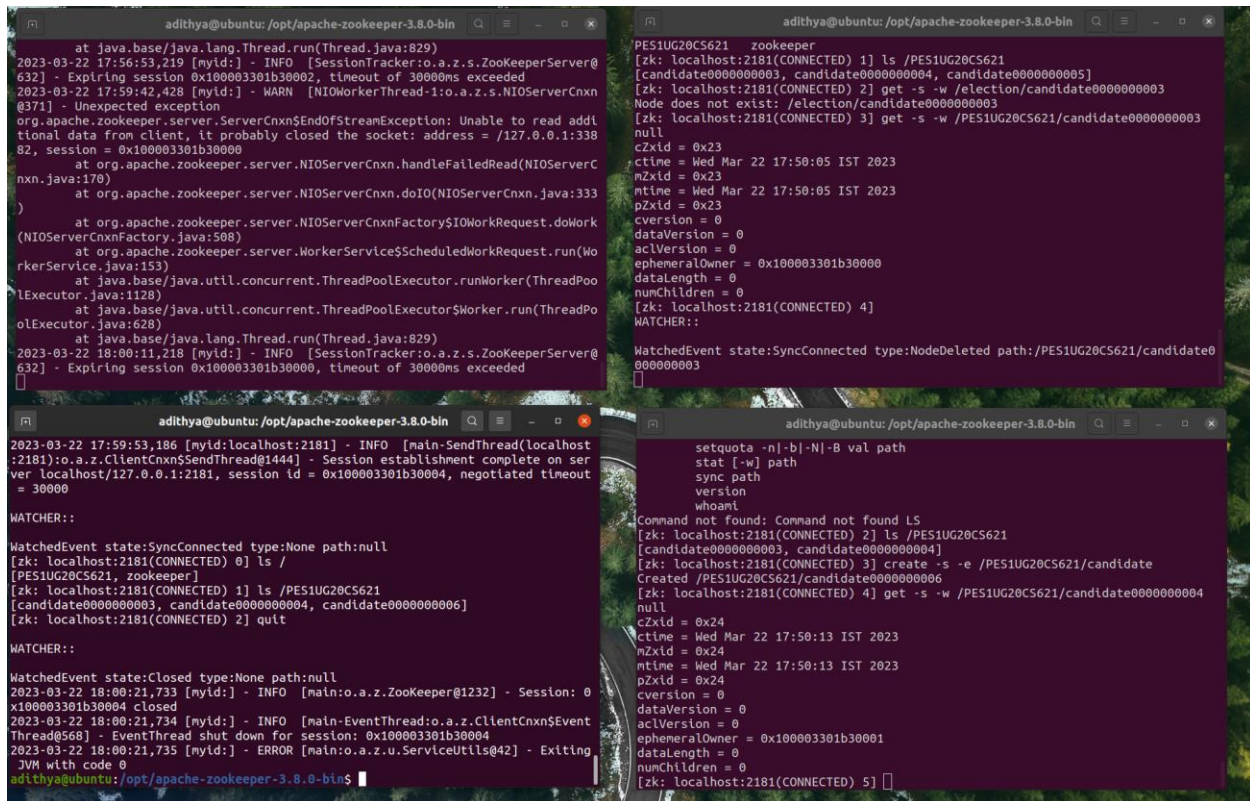
adithya@ubuntu: /opt/apache-zookeeper-3.8.0-bin
2023-03-22 17:47:28,872 [myid:localhost:2181] - INFO [main-SendThread(localhost
:2181)::o.a.z.ClientCnxn$SendThread@1171] - SASL config status: Will not attempt
to authenticate using SASL (unknown error)
2023-03-22 17:47:28,887 [myid:localhost:2181] - INFO [main-SendThread(localhost
:2181)::o.a.z.ClientCnxn$SendThread@1005] - Socket connection established, initia
ting session, client: /127.0.0.1:33882, server: localhost/127.0.0.1:2181
JLine support is enabled
2023-03-22 17:47:28,927 [myid:localhost:2181] - INFO [main-SendThread(localhost
:2181)::o.a.z.ClientCnxn$SendThread@1444] - Session establishment complete on ser
ver localhost/127.0.0.1:2181, session id = 0x100003301b30000, negotiated timeout
= 30000

WATCHER::

WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] ls /
[PES1UG20CS621, zookeeper]
[zk: localhost:2181(CONNECTED) 1] ls /PES1UG20CS621
[]
[zk: localhost:2181(CONNECTED) 2] create -s -e /PES1UG20CS621/candidate
Created /PES1UG20CS621/candidate0000000003
[zk: localhost:2181(CONNECTED) 3] ls /PES1UG20CS621
[candidate0000000003, candidate0000000004, candidate0000000005]
[zk: localhost:2181(CONNECTED) 4]

adithya@ubuntu: /opt/apache-zookeeper-3.8.0-bin
getAcl [-s] path
getAllChildrenNumber path
getEphemerals path
history
listquota path
ls [-s] [-w] [-R] path
printwatches on/off
quit
reconfig [-s] [-v version] [[-file path] | [-members serverID:host:port1
:port2:port3[,...]]*] | [-add serverId:host:port1:port2:port3[,...]]* [-remove s
erverId[,...]]*
redo cmdno
removewatches path [-c|-d|-a] [-l]
set [-s] [-v version] path data
setAcl [-s] [-v version] [-R] path acl
setquota -n|-b|-N|-B val path
stat [-w] path
sync path
version
whoami
Command not found: Command not found LS
[zk: localhost:2181(CONNECTED) 2] ls /PES1UG20CS621
[candidate0000000003, candidate0000000004, candidate0000000005]
[zk: localhost:2181(CONNECTED) 3]
```


3b.jpg Screenshot of the Watched Event and the Zookeeper Server logs.



The image shows four terminal windows from a user named 'adithya' on an Ubuntu system, running the Apache Zookeeper 3.8.0 binary. The windows display a mix of server logs, client commands, and Zookeeper responses.

Top Left Window: Shows server logs. It includes an 'Unexpected exception' message from the `org.apache.zookeeper.server.ServerCnxn$EndOfStreamException` and a warning from `NIOWorkerThread-1` about a session timeout. It also shows a `WatchedEvent` for a `NodeDeleted` state.

Top Right Window: Shows the output of a `ls` command on the `/PES1UG20CS621` path, listing three candidate nodes. It also shows the output of a `get` command for a node that does not exist.

Bottom Left Window: Shows a `Session establishment complete` message for a client at `localhost:2181`. It also shows a `WatchedEvent` for a `SyncConnected` state and a `Session closed` message.

Bottom Right Window: Shows the output of a `stat` command for the `/PES1UG20CS621` path, displaying various Zookeeper statistics. It also shows the output of a `create` command for a new candidate node.