

# Cloud Computing Assignment 4

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## Output Screen shots:

1a: Screenshot of Zookeeper Server having started.

```
(base) pes2ug20cs455@pes2ug20cs455:/opt/apache-zookeeper-3.8.0-bin$ gedit config/zoo.cfg
(base) pes2ug20cs455@pes2ug20cs455:/opt/apache-zookeeper-3.8.0-bin$ bin/zkServer.sh start
ZooKeeper JMX enabled by default
Using config: /opt/apache-zookeeper-3.8.0-bin/bin/../conf/zoo.cfg
Starting zookeeper ... STARTED
(base) pes2ug20cs455@pes2ug20cs455:/opt/apache-zookeeper-3.8.0-bin$
```

2a: Screenshot of Listing of the created Znodes

```
ACL is not valid: null
[zk: localhost:2181(CONNECTED) 2] create -s /pes2ug20cs455_seq
Created /pes2ug20cs455_seq0000000000
[zk: localhost:2181(CONNECTED) 3] create -e /pes2ug20cs455_eph
Created /pes2ug20cs455_eph
[zk: localhost:2181(CONNECTED) 4] ls /
[pes2ug20cs455_eph, pes2ug20cs455_seq0000000000, zookeeper]
[zk: localhost:2181(CONNECTED) 5]
```

2b: Screenshot of Listing of the deleted ephemeral node

```
JLine support is enabled
[zk: localhost:2181(CONNECTED) 0] ls /
[pes2ug20cs455_seq0000000000, zookeeper]
[zk: localhost:2181(CONNECTED) 1]
```

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

```
[zk: localhost:2181(CONNECTED) 3] get -s /pes2ug20cs455_seq0000000000
null
cZxid = 0x4
ctime = Tue Mar 21 21:18:45 IST 2023
mZxid = 0x4
mtime = Tue Mar 21 21:18:45 IST 2023
pZxid = 0x4
cversion = 0
dataVersion = 0
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 0
numChildren = 0
[zk: localhost:2181(CONNECTED) 4]
```

2d: Screenshot of Listing of all the children nodes

```
node does not exist: /parents
[zk: localhost:2181(CONNECTED) 11] ls /pes2ug20cs455
[nawar, safiya]
[zk: localhost:2181(CONNECTED) 12]
```

3a: Screenshot of each of the clients listing all the znodes

```
pes2ug20cs455@pes2ug20cs455: /opt/apache-zookeeper-3.8.0-bin
at java.base/sun.nio.ch.Net.bind0(Native Method)
at java.base/sun.nio.ch.Net.bind(Net.java:555)
at java.base/sun.nio.ch.ServerSocketChannelImpl.netBind(ServerSocketChannelImpl.java:344)
at java.base/sun.nio.ch.ServerSocketChannelImpl.bind(ServerSocketChannelImpl.java:301)
at java.base/sun.nio.ch.ServerSocketAdaptor.bind(ServerSocketAdaptor.java:89)
at org.eclipse.jetty.server.ServerConnector.openAcceptChannel(ServerConnector.java:344)
... 12 common frames omitted
Unable to start AdminServer, exiting abnormally
2023-03-23 20:23:13,453 [myid:] - INFO [main:o.a.z.a.ZKAuditProvider@42] - ZooKeeper audit is disabled.
2023-03-23 20:23:13,457 [myid:] - ERROR [main:o.a.z.u.ServiceUtils@42] - Exiting JVM with code 4
(base) pes2ug20cs455@pes2ug20cs455: /opt/apache-zookeeper-3.8.0-bin$

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 l
zk: localhost:2181(CONNECTED) 4] ls /pes2ug20cs455
0000000003, candidate0000000002, candidate0000000004, nawar, safiya]
zk: localhost:2181(CONNECTED) 5]

WATCHER::
WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] create -s -e /pes2ug20cs455/candidate
Created /pes2ug20cs455/0000000003
[zk: localhost:2181(CONNECTED) 1] ls /pes2ug20cs455
[0000000003, candidate0000000002, candidate0000000004, nawar, safiya]
[zk: localhost:2181(CONNECTED) 2]

WATCHER::
WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] create -s -e /pes2ug20cs455/candidate
Created /pes2ug20cs455/candidate0000000004
[zk: localhost:2181(CONNECTED) 1] ls /pes2ug20cs455
[0000000003, candidate0000000002, candidate0000000004, nawar, safiya]
[zk: localhost:2181(CONNECTED) 2]
```

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

```
pes2ug20cs455@pes2ug20cs455: /opt/apache-zookeeper-3.8.0-bin
at java.base/sun.nio.ch.Net.bind0(Native Method)
at java.base/sun.nio.ch.Net.bind(Net.java:555)
at java.base/sun.nio.ch.ServerSocketChannelImpl.netBind(ServerSocketChannelImpl.java:344)
at java.base/sun.nio.ch.ServerSocketChannelImpl.bind(ServerSocketChannelImpl.java:301)
at java.base/sun.nio.ch.ServerSocketAdaptor.bind(ServerSocketAdaptor.java:89)
at org.eclipse.jetty.server.ServerConnector.openAcceptChannel(ServerConnector.java:344)
... 12 common frames omitted
Unable to start AdminServer, exiting abnormally
2023-03-23 20:30:03,521 [myid:] - INFO [main:o.a.z.a.ZKAuditProvider@42] - ZooKeeper audit is disabled.
2023-03-23 20:30:03,537 [myid:] - ERROR [main:o.a.z.u.ServiceUtils@42] - Exiting JVM with code 4
(base) pes2ug20cs455@pes2ug20cs455: /opt/apache-zookeeper-3.8.0-bin$

WatchedEvent state:Closed type:None path:null
2023-03-23 20:30:03,521 [myid:] - INFO [main-EventThread:0.a.z.ClientCnxn$EventThread@568] - EventThread shut down for session: 0x10000d0b36a0005
2023-03-23 20:33:59,829 [myid:] - INFO [main:o.a.z.ZooKeeper@1232] - Session: 0x10000d0b36a0005 closed
2023-03-23 20:33:59,842 [myid:] - ERROR [main:o.a.z.u.ServiceUtils@42] - Exiting JVM with code 0
(base) pes2ug20cs455@pes2ug20cs455: /opt/apache-zookeeper-3.8.0-bin$

2023-03-23 20:34:08,061 [myid:] - ERROR [main:o.a.z.u.ServiceUtils@42] - Exiting JVM with code 0
(base) pes2ug20cs455@pes2ug20cs455: /opt/apache-zookeeper-3.8.0-bin$ quit
Command 'quit' not found, but can be installed with:
sudo snap install quit
(base) pes2ug20cs455@pes2ug20cs455: /opt/apache-zookeeper-3.8.0-bin$

WatchedEvent state:Closed type:None path:null
2023-03-23 20:35:00,221 [myid:] - INFO [main:o.a.z.ZooKeeper@1232] - Session: 0x10000d0b36a0006 closed
2023-03-23 20:35:00,222 [myid:] - INFO [main-EventThread:0.a.z.ClientCnxn$EventThread@568] - EventThread shut down for session: 0x10000d0b36a0006
2023-03-23 20:35:00,232 [myid:] - ERROR [main:o.a.z.u.ServiceUtils@42] - Exiting JVM with code 0
(base) pes2ug20cs455@pes2ug20cs455: /opt/apache-zookeeper-3.8.0-bin$
```

3c: Screenshot of the old leader coming back and having a new sequence number.

```
WATCHER::

WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] create -s -e /pes2ug20cs455/newnode
Created /pes2ug20cs455/newnode0000000005
```