

## Assignment 4 - Introduction to Apache Zookeeper

Name:	Chaitanya Madhav R
SRN:	PES1UG20CS634
Section:	K

1a.jpg Screenshot of Zookeeper Server having started.

```
chaitanyamadhav@DESKTOP-S073HML:/opt/apache-zookeeper-3.8.0-bin$ sudo 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
```

2a.jpg Screenshot of Listing of the created ZNodes

```
[zk: localhost:2181(CONNECTED) 5] ls /
[pes1ug20cs634_eph, pes1ug20cs634_seq0000000000, zookeeper]
```

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

```
[zk: localhost:2181(CONNECTED) 0] ls /
[pes1ug20cs634_seq0000000000, zookeeper]
```

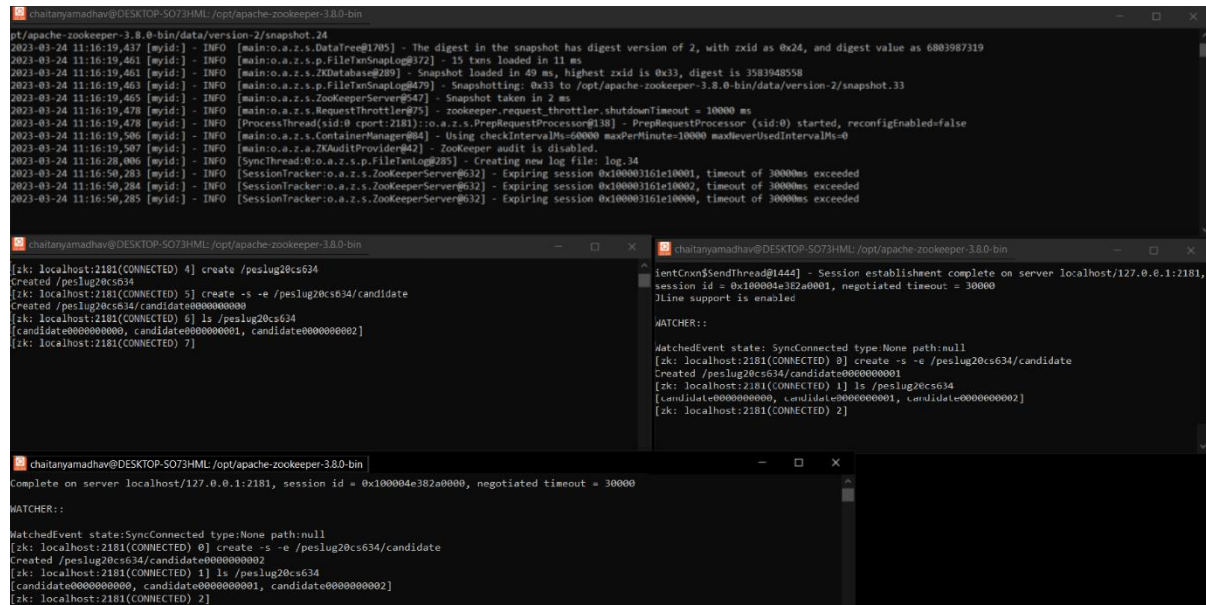
2c.jpg Screenshot of Data and Metadata associated with the created sequential znode

```
[zk: localhost:2181(CONNECTED) 3] get -s /pes1ug20cs634_seq0000000000
a sequential node
cZxid = 0x8
ctime = Thu Mar 23 14:33:37 IST 2023
mZxid = 0x8
mtime = Thu Mar 23 14:33:37 IST 2023
pZxid = 0x8
cversion = 0
dataVersion = 0
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 17
numChildren = 0
[zk: localhost:2181(CONNECTED) 4] _
```

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

```
[zk: localhost:2181(CONNECTED) 8] ls /peslug20cs634  
[Chaitanya, Madhav]
```

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



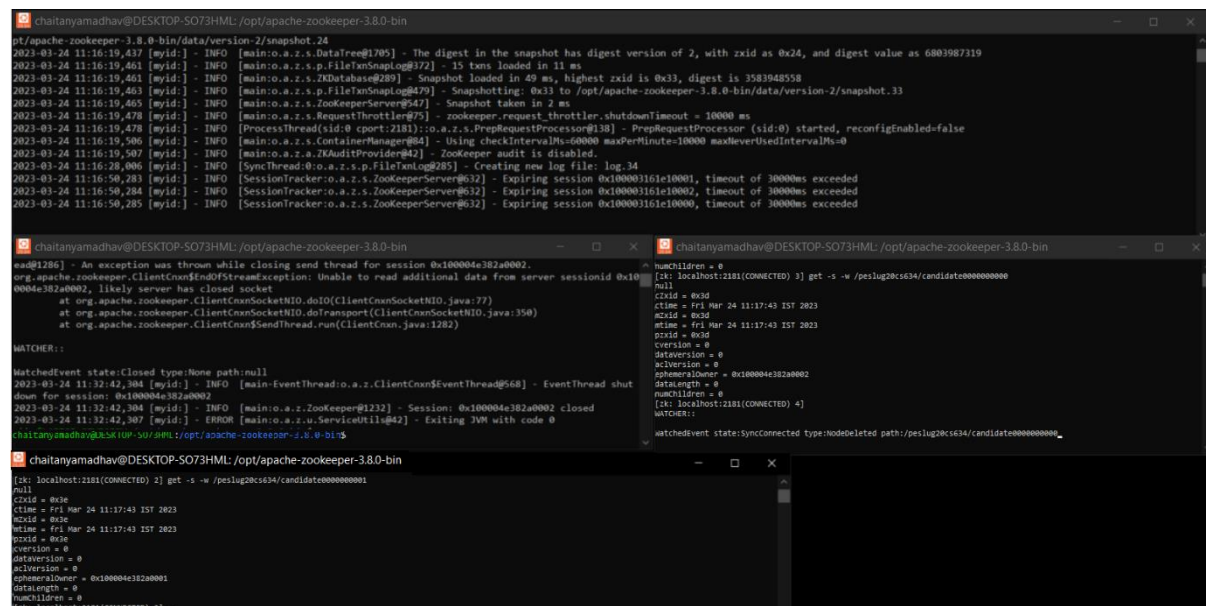
The screenshot shows a ZooKeeper terminal window with the following content:

```
chaitanyamadhav@DESKTOP-S073HML:/opt/apache-zookeeper-3.8.0-bin  
/opt/apache-zookeeper-3.8.0-bin/data/version-2/snapshot-24  
2023-03-24 11:16:19,437 [myid:] - INFO [main:o.a.z.s.DataTree@1705] - The digest in the snapshot has digest version of 2, with zxid as 0x24, and digest value as 6803987319  
2023-03-24 11:16:19,461 [myid:] - INFO [main:o.a.z.s.p.FileTxnSnapLog@372] - 15 txns loaded in 11 ms  
2023-03-24 11:16:19,461 [myid:] - INFO [main:o.a.z.s.ZKDatabase@289] - Snapshot loaded in 49 ms, highest zxid is 0x33, digest is 3583948558  
2023-03-24 11:16:19,463 [myid:] - INFO [main:o.a.z.s.p.FileTxnSnapLog@479] - Snapshotting: 0x33 to /opt/apache-zookeeper-3.8.0-bin/data/version-2/snapshot.33  
2023-03-24 11:16:19,465 [myid:] - INFO [main:o.a.z.s.ZooKeeperServer@547] - Snapshot taken in 2 ms  
2023-03-24 11:16:19,478 [myid:] - INFO [main:o.a.z.s.RequestThrottler@75] - zookeeper.request.throttler.shutdownTimeout = 10000 ms  
2023-03-24 11:16:19,478 [myid:] - INFO [ProcessThread(sid:0 cport:2181)::o.a.z.s.PreRequestProcessor@138] - PreRequestProcessor (sid:0) started, reconfigEnabled=false  
2023-03-24 11:16:19,506 [myid:] - INFO [main:o.a.z.s.ContainerManager@84] - Using checkIntervalMs=60000 maxPerMinute=10000 maxEverUsedIntervalMs=0  
2023-03-24 11:16:19,507 [myid:] - INFO [main:o.a.z.a.ZKAuditProvider@42] - ZooKeeper audit is disabled.  
2023-03-24 11:16:28,006 [myid:] - INFO [SynchThread:o.a.z.s.p.FileTxnLog@285] - Creating new log file: log.34  
2023-03-24 11:16:50,283 [myid:] - INFO [SessionTracker:o.a.z.s.ZooKeeperServer@632] - Expiring session 0x100003161e10001, timeout of 30000ms exceeded  
2023-03-24 11:16:50,284 [myid:] - INFO [SessionTracker:o.a.z.s.ZooKeeperServer@632] - Expiring session 0x100003161e10002, timeout of 30000ms exceeded  
2023-03-24 11:16:50,285 [myid:] - INFO [SessionTracker:o.a.z.s.ZooKeeperServer@632] - Expiring session 0x100003161e10000, timeout of 30000ms exceeded
```

```
[zk: localhost:2181(CONNECTED) 4] create /peslug20cs634  
Created /peslug20cs634  
[zk: localhost:2181(CONNECTED) 5] create -s -e /peslug20cs634/candidate  
Created /peslug20cs634/candidate0000000000  
[zk: localhost:2181(CONNECTED) 6] ls /peslug20cs634  
[candidate0000000000, candidate0000000001, candidate0000000002]  
[zk: localhost:2181(CONNECTED) 7]
```

```
chaitanyamadhav@DESKTOP-S073HML:/opt/apache-zookeeper-3.8.0-bin  
Complete on server localhost/127.0.0.1:2181, session id = 0x100004e32a0000, negotiated timeout = 30000  
WATCHER::  
WatchedEvent state:SyncConnected type:None path:null  
[zk: localhost:2181(CONNECTED) 0] create -s -e /peslug20cs634/candidate  
Created /peslug20cs634/candidate0000000000  
[zk: localhost:2181(CONNECTED) 1] ls /peslug20cs634  
[candidate0000000000, candidate0000000001, candidate0000000002]  
[zk: localhost:2181(CONNECTED) 2]
```

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



The screenshot shows a ZooKeeper terminal window with the following content:

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2023-03-24 11:16:19,478 [myid:] - INFO [ProcessThread(sid:0 cport:2181)::o.a.z.s.PreRequestProcessor@138] - PreRequestProcessor (sid:0) started, reconfigEnabled=false  
2023-03-24 11:16:19,506 [myid:] - INFO [main:o.a.z.s.ContainerManager@84] - Using checkIntervalMs=60000 maxPerMinute=10000 maxEverUsedIntervalMs=0  
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2023-03-24 11:16:50,284 [myid:] - INFO [SessionTracker:o.a.z.s.ZooKeeperServer@632] - Expiring session 0x100003161e10002, timeout of 30000ms exceeded  
2023-03-24 11:16:50,285 [myid:] - INFO [SessionTracker:o.a.z.s.ZooKeeperServer@632] - Expiring session 0x100003161e10000, timeout of 30000ms exceeded
```

```
chaitanyamadhav@DESKTOP-S073HML:/opt/apache-zookeeper-3.8.0-bin  
[zk: localhost:2181(CONNECTED) 3] get -s -w /peslug20cs634/candidate0000000000  
null  
Cxid = 0x3d  
ctime = Fri Mar 24 11:17:43 IST 2023  
mtime = Fri Mar 24 11:17:43 IST 2023  
pxid = 0x3d  
version = 0  
dataVersion = 0  
aclVersion = 0  
ephemeralOwner = 0x100004e32a0001  
dataLength = 0  
numChildren = 0  
[zk: localhost:2181(CONNECTED) 4]
```

```
chaitanyamadhav@DESKTOP-S073HML:/opt/apache-zookeeper-3.8.0-bin  
[zk: localhost:2181(CONNECTED) 2] get -s -w /peslug20cs634/candidate0000000001  
null  
Cxid = 0x3e  
ctime = Fri Mar 24 11:17:43 IST 2023  
mtime = Fri Mar 24 11:17:43 IST 2023  
pxid = 0x3e  
version = 0  
dataVersion = 0  
aclVersion = 0  
ephemeralOwner = 0x100004e32a0002  
dataLength = 0  
numChildren = 0  
[zk: localhost:2181(CONNECTED) 3]
```