PAXOS Testing:

Immediate Responses:

Code:

```
21          //Single random proposal
22          Random rand = new Random();
23          int proposer_num = rand.nextInt( origin: 0, bound: 8);
24          int candidate_num = rand.nextInt( origin: 1, bound: 9);
25          CouncilMember proposer = councilMembers.get(proposer_num);
26          proposer.proposeCandidate(candidate_num);
```

Output:

```
Member 2 has proposed Member 2 for president (proposal 1788064226)
Member 1 has received proposal 1788064226
Member 3 has received proposal 1788064226
Member 3 votes for proposal 1788064226
Member 1 votes for proposal 1788064226
Member 2 received a PROMISE from Member 1
Member 2 received a PROMISE from Member 3
Member 4 has received proposal 1788064226
Member 4 votes for proposal 1788064226
Member 2 received a PROMISE from Member 4
Member 5 has received proposal 1788064226
Member 5 votes for proposal 1788064226
Member 6 has received proposal 1788064226
Member 6 votes for proposal 1788064226
Member 2 received a PROMISE from Member 5
Member 7 has received proposal 1788064226
Member 7 votes for proposal 1788064226
Member 8 has received proposal 1788064226
Member 8 votes for proposal 1788064226
Member 2 received a PROMISE from Member 6
Candidate 2 has received enough votes
Member 9 has received proposal 1788064226
Member 9 votes for proposal 1788064226
Member 1 acknowledged acceptance for Candidate 2
Member 3 acknowledged acceptance for Candidate 2
Member 4 acknowledged acceptance for Candidate 2
Member 5 acknowledged acceptance for Candidate 2
Member 6 acknowledged acceptance for Candidate 2
Proposal 1788064226 has passed. Candidate 2 has been elected president!
```

Simultaneous Proposals:

Code:

```java
        //Simultaneous proposal (M1 & M2)
        new Thread(() -> councilMembers.get(0).proposeCandidate( candidateId: 1)).start();
        new Thread(() -> councilMembers.get(1).proposeCandidate( candidateId: 2)).start();

        // Wait for election to finish
        try {
            Thread.sleep( millis: 5000);
        } catch (InterruptedException e) {
            e.printStackTrace();
        }
```

Output:

```
Member 1 has proposed Member 1 for president (proposal 1793756878)
Member 2 has proposed Member 2 for president (proposal 1793756879)
Member 1 has received proposal 1793756879
Member 1 votes for proposal 1793756879
Member 3 has received proposal 1793756879
Member 3 votes for proposal 1793756879
Member 2 has received proposal 1793756878
Member 2 votes for proposal 1793756878
Member 2 received a PROMISE from Member 1
Member 4 has received proposal 1793756879
Member 4 votes for proposal 1793756879
Member 2 received a PROMISE from Member 3
Member 2 received a PROMISE from Member 4
Member 5 has received proposal 1793756879
Member 5 votes for proposal 1793756879
Member 2 received a PROMISE from Member 5
Member 7 has received proposal 1793756879
Member 7 votes for proposal 1793756879
Member 6 has received proposal 1793756879
Member 6 votes for proposal 1793756879
Member 3 has received proposal 1793756878
Member 2 received a PROMISE from Member 7
Candidate 2 has received enough votes
Member 4 has received proposal 1793756878
Member 5 has received proposal 1793756878
Member 6 has received proposal 1793756878
Member 7 has received proposal 1793756878
Member 9 has received proposal 1793756878
Member 9 votes for proposal 1793756878
```

```
Member 1 acknowledged acceptance for Candidate 2
Member 4 acknowledged acceptance for Candidate 2
Member 3 acknowledged acceptance for Candidate 2
Member 5 acknowledged acceptance for Candidate 2
Member 6 acknowledged acceptance for Candidate 2
Proposal 1793756879 has passed. Candidate 2 has been elected president!
```