

1. Run `general.py` by providing the command `python general.py -f 0/1` [0: Not a traitor, 1 : traitor]

```
veena1@veena1-VirtualBox:~/RDS_18/assignment-4-bft-VeenaNalluri$ python general.py
What order does General give?
Attack 1, Retreat 0"0"
Retreat
Acknowledgement from lieutenant 1
Acknowledgement from lieutenant 2
Acknowledgement from lieutenant 3
Acknowledgement from lieutenant 4
Acknowledgement from lieutenant 5
Acknowledgement from lieutenant 6
veena1@veena1-VirtualBox:~/RDS_18/assignment-4-bft-VeenaNalluri$
```

2. Run `lieutenant.py` by providing the command `python lieutenant.py node_id is_traitor`. For example if I wanted to run lieutenant 1 and it is not a traitor then the command “**python lieutenant.py 1 f**”

As an instance I have considered the general is not a traitor and gives the order retreat to all the lieutenants and there are total 7 nodes in which lieutenants 5 and 6 are faulty. As there are 2 faulty nodes 3 rounds is required to get to a final decision to attack or retreat. As shown below all the nodes comes to a final decision to retreat.

The orders shown below has the final decision and the path fro which it acquired to that decision. For example '0,023' means the order is considered to retreat and the path is 023 which means 3 says 2 is telling that it received 0 from node 0.

```
veena1@veena1-VirtualBox:~/RDS_18/assignment-4-bft-VeenaNalluri$ python lieutenant.py 1 f
In Lieutenant 1
N('orders', ['u'0,021', u'0,0231', u'X,02351'])
('orders', ['u'0,031', u'0,0241', u'X,0261', u'0,041', u'X,0251', u'X,051', u'0,02341', u'X,023561'])
('filtered orders', ['u'0,02', u'0,03', u'0,04', u'X,05'])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', ['u'0,023', u'0,024', u'X,026', u'X,025'])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', ['u'X,0235', u'0,0234'])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', ['u'X,02356'])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', [])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', [])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', [])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', [])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', [])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', [])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', [])
('orders', ['u'0,0', u'0,02', u'0,023', u'X,0235', u'0,03', u'0,024', u'X,026', u'0,04', u'X,025', u'X,05', u'0,0234', u'X,02356'])
('filtered orders', [])
('final_decision', '0')
0,0,0
├── 0,02,0
│   ├── 0,023,0
│   │   ├── X,0235,X
│   │   └── X,02356,X
│   └── 0,0234,0
│       ├── 0,024,0
│       ├── X,026,X
│       └── X,025,X
├── 0,03,0
├── 0,04,0
└── X,05,X
```

```
veena1@veena1-VirtualBox: ~/RDS_18/assignment-4-bft-VeenaNalluri
veena1@veena1-VirtualBox:~/RDS_18/assignment-4-bft-VeenaNalluri$ python lieutenant.py 2 f
In Lieutenant 2
N('orders', [u'0,012', u'0,0142', u'X,01462'])
```

```
veena1@veena1-VirtualBox: ~/RDS_18/assignment-4-bft-VeenaNalluri
veena1@veena1-VirtualBox:~/RDS_18/assignment-4-bft-VeenaNalluri$ python lieutenant.py 3 f
In Lieutenant 3
('orders', [u'0,03', u'0,013', u'0,0143', u'X,01463'])
```

```
veena1@veena1-VirtualBox: ~/RDS_18/assignment-4-bft-VeenaNalluri
veena1@veena1-VirtualBox:~/RDS_18/assignment-4-bft-VeenaNalluri$ python lieutenant.py 4 f
In Lieutenant 4
('orders', [u'0,024', u'0,04', u'0,0234', u'X,02354'])
```

```
veena1@veena1-VirtualBox: ~/RDS_18/assignment-4-bft-VeenaNalluri
veena1@veena1-VirtualBox:~/RDS_18/assignment-4-bft-VeenaNalluri$ python lieutenant.py 5 true
In a traitor Lieutenant 5
('orders', [u'0,015', u'0,025', u'0,05', u'0,0145', u'X,01465'])
```

```
veena1@veena1-VirtualBox: ~/RDS_18/assignment-4-bft-VeenaNalluri
veena1@veena1-VirtualBox:~/RDS_18/assignment-4-bft-VeenaNalluri$ python lieutenant.py 6 true
In a traitor Lieutenant 6
('orders', [u'0,026', u'0,016', u'X,02356', u'0,0236', u'0,06'])
```