LINK : https://github.com/Mlth/Assignment4

We have chosen to use the ring algorithm to solve this problem.

Our algorithm first uses a gRPC-method ‘CheckConnection’ to send a ‘ConnectionVerification’ message between all peers. When this is done, we know that all peers have connected to each other, and the token is passed for the first time using another gRPC-method ‘PassToken’.

Next, all peers are asked if they want to enter the critical section.

If they have not chosen to enter the critical section, they will simply pass the token on to the next peer.

If they do choose to enter the critical section, a print-statement tells them to wait for the token to reach them, and when that happens, another print-statement informs them that they are now in the critical section, and how they can leave it again.

When a peer has left the critical section, a print-statement informs them about this, and the token is passed to the next peer.

The algorithm then just continuously checks for peers that want to enter the critical state.

The system logs below provide an example of the working of our algorithm.

A list of the peers as they connect to each other.

5500_output.log

```
2022/11/14 17:13:51 5500 : Trying to dial: 5501
2022/11/14 17:13:51 5500 : Do you want to enter the critical state? (type 'yes' or 'no')
```

5501_output.log

```
2022/11/14 17:13:50 5501 : Trying to dial: 5502
2022/11/14 17:13:50 5501 : Do you want to enter the critical state? (type 'yes' or 'no')
```

5502_output.log

```
2022/11/14 17:13:44 5502 : Trying to dial: 5503
2022/11/14 17:13:48 5502 : Do you want to enter the critical state? (type 'yes' or 'no')
```

Peer 4 wants to get access to critical state and as there is no other process that are in the critical state then it is allowed to do it right away.

5503_output.log

```
2022/11/14 17:13:48 5503 : Trying to dial: 5504
2022/11/14 17:13:49 5503 : Do you want to enter the critical state? (type 'yes' or 'no')
2022/11/14 17:15:03 User ( 5503 ): yes
2022/11/14 17:15:03 5503 : Okay! Wait for the token to be passed along to you.
2022/11/14 17:15:10 5503 : You are now in the critical state. Do you want to exit the state? (type 'yes' or 'no')
2022/11/14 17:15:13 User ( 5503 ): yes
2022/11/14 17:15:13 5503 : Okay! You have passed the token along
2022/11/14 17:15:13 5503 : Do you want to enter the critical state? (type 'yes' or 'no')

```

Peer 3 wants to get access to critical state and as there is already are process in the critical state then it has to wait until that process is finished.

5504_output.log

```
2022/11/14 17:13:49 5504 : Trying to dial: 5500
2022/11/14 17:13:51 5504 : Do you want to enter the critical state? (type 'yes' or 'no')
2022/11/14 17:14:55 User ( 5504 ): yes
2022/11/14 17:14:55 5504 : Okay! Wait for the token to be passed along to you.
2022/11/14 17:14:55 5504 : You are now in the critical state. Do you want to exit the state? (type 'yes' or 'no')
2022/11/14 17:15:10 User ( 5504 ): yes
2022/11/14 17:15:10 5504 : Okay! You have passed the token along
2022/11/14 17:15:10 5504 : Do you want to enter the critical state? (type 'yes' or 'no')

```