

SER 321 A Session

SI Session

Tuesday, February 18th 2025

11:00 am - 12:00 pm MST

Agenda



OSI Model *Final Challenge!*

Parallel vs. Distributed Process Flow

Consensus!

RAFT

Peer to Peer Communication

SI Session Expectations

Thanks for coming to the **SER 321** SI session. We have a packed agenda and we are going to try to get through as many of our planned example problems as possible. This session will be recorded and shared with others.

- If after this you want to see additional examples, please visit the drop-in tutoring center.
- We will post the link in the chat now and at the end of the session.
 - tutoring.asu.edu
- Please keep in mind we are recording this session and it will be made available for you to review 24-48 hours after this session concludes.
- Finally, please be respectful to each other during the session.

Interact with us:

Zoom Features



Zoom Chat

- Use the chat feature to interact with the presenter and respond to presenter's questions.
- Annotations are encouraged

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OSI Model

Unit

Layer

What we are *really*
talking about

OSI Model *Final Challenge*

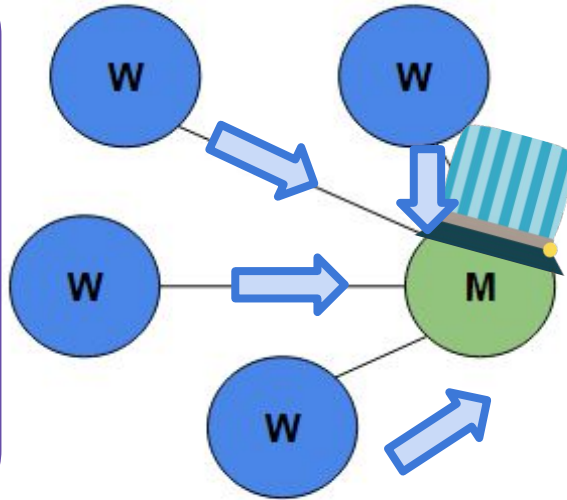
Check out the recording for the discussion!

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Distributed Systems

Does this look familiar?

How is this different from a parallel processing model?



D1

DATA



D1

D2

D3

D4

D1
Result

D2
Result

D3
Result

D4
Result



RESULTS

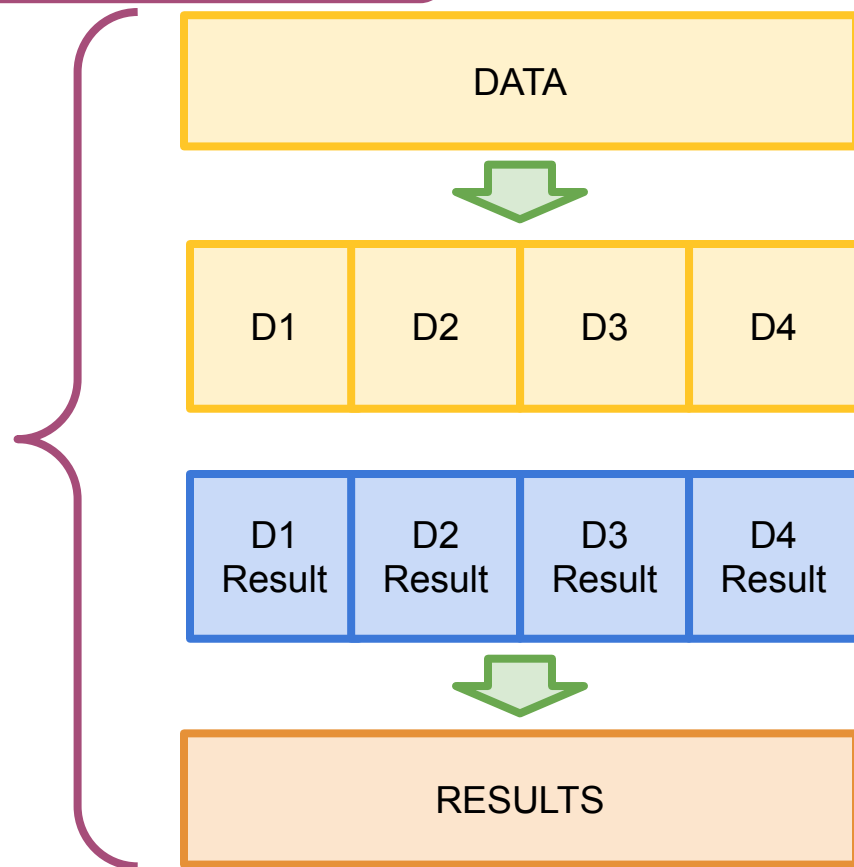
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Distributed Systems

What about Peer to Peer?

Would this sequence
(*the data handling*) change
in the different structure?

***Check out the recording for
the discussion!***



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Distributed Systems

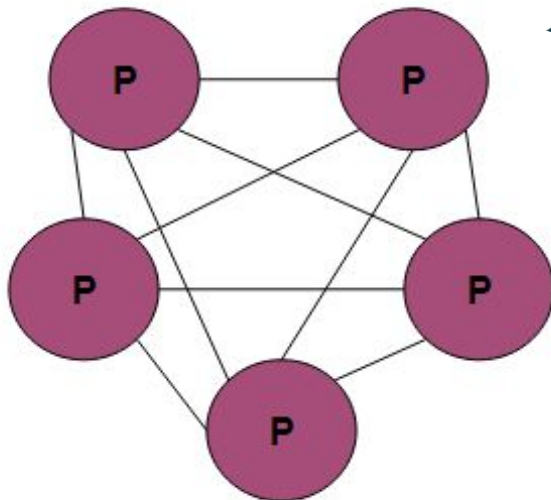
What about Peer to Peer?

*Check out the recording for
the discussion!*



We want
someone to
wear the
conductor
hat!

A **LEADER**



How do we choose a leader?

DATA



D1

D2

D3

D4

D1
Result

D2
Result

D3
Result

D4
Result



RESULTS

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Distributed Systems

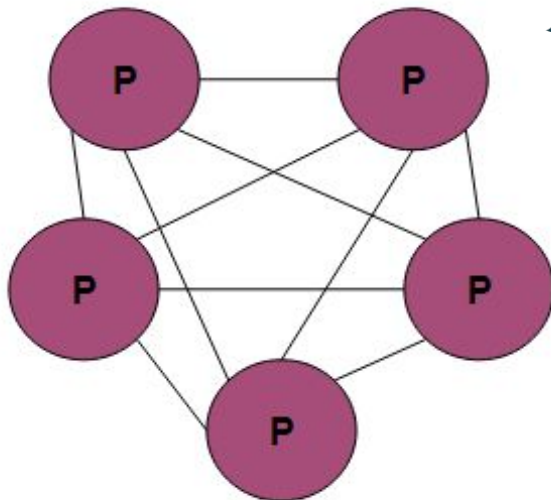
What about Peer to Peer?

*Check out the recording for
the discussion!*



We want
someone to
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A **LEADER**



Leader Election!

DATA



D1

D2

D3

D4

D1
Result

D2
Result

D3
Result

D4
Result



RESULTS

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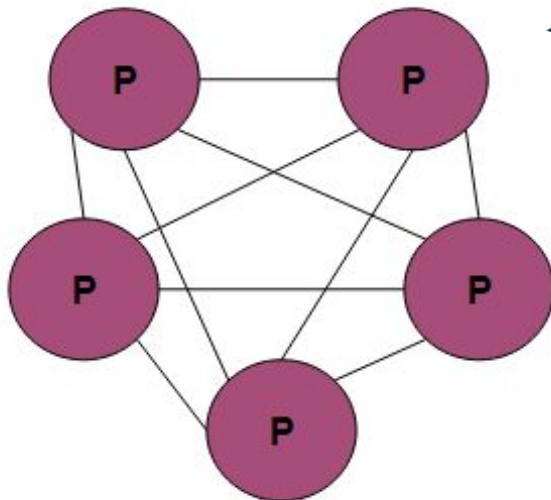
Distributed Systems

What about Peer to Peer?

*Check out the recording for
the discussion!*

We want
someone to
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conductor
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A **LEADER**



Leader Election!

Type of
CONSENSUS

What's
consensus?



“General agreement or
trust amongst a group”

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Consensus

“General agreement or trust amongst a group”

Types of Consensus?

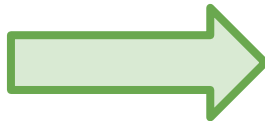
Leader Election



Result Verification



Log Replication



Node Validation



Check out the recording for the discussion!

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Consensus

Match the Consensus Algorithm to its Description!
Check out the recording for the solution!

2-Phase Commit

Blockchain

Proof of Work

RAFT

If you solve this
resource-intensive problem, you
may make a request

Leader Election and Log
Replication coordinate
transactions

Transaction Coordinator
approves and orchestrates
transactions

Distributed Ledger used to
determine if a transaction is valid

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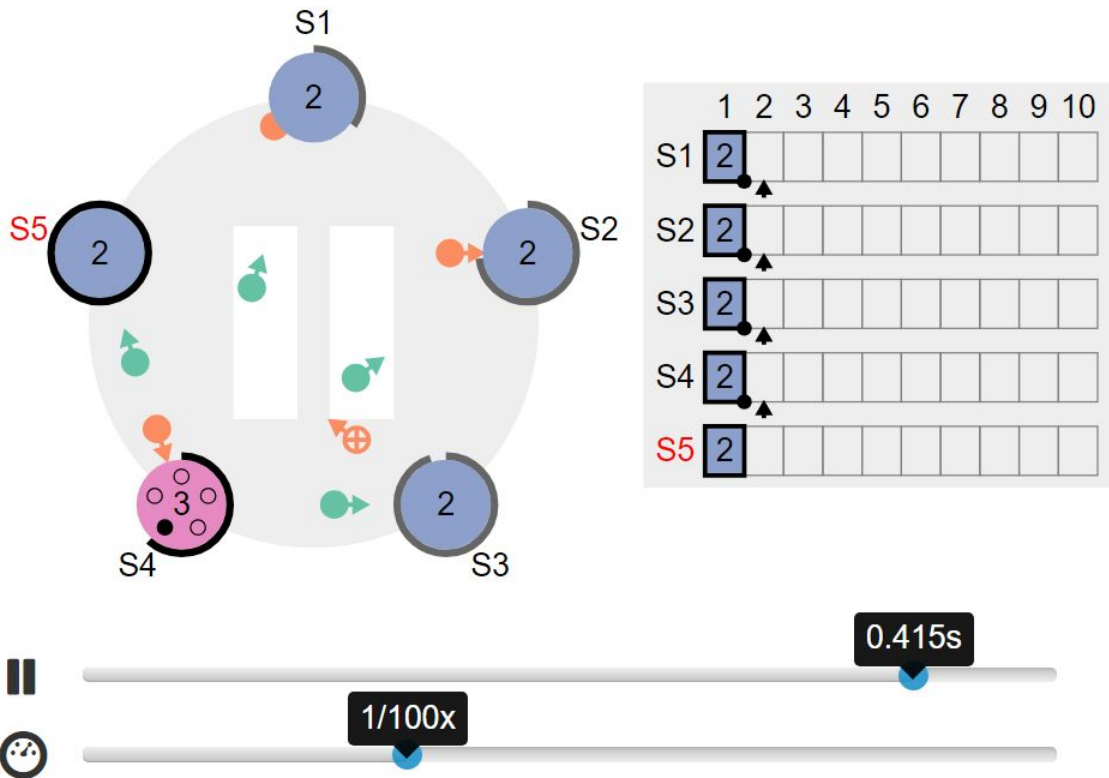
RAFT

Check out the recording for the discussion!

RAFT is a
great
consensus
example!

Leader Election

Log Replication



The Secret Lives of Data is a different visualization of Raft. It's more guided and less interactive, so it may be a gentler starting point.

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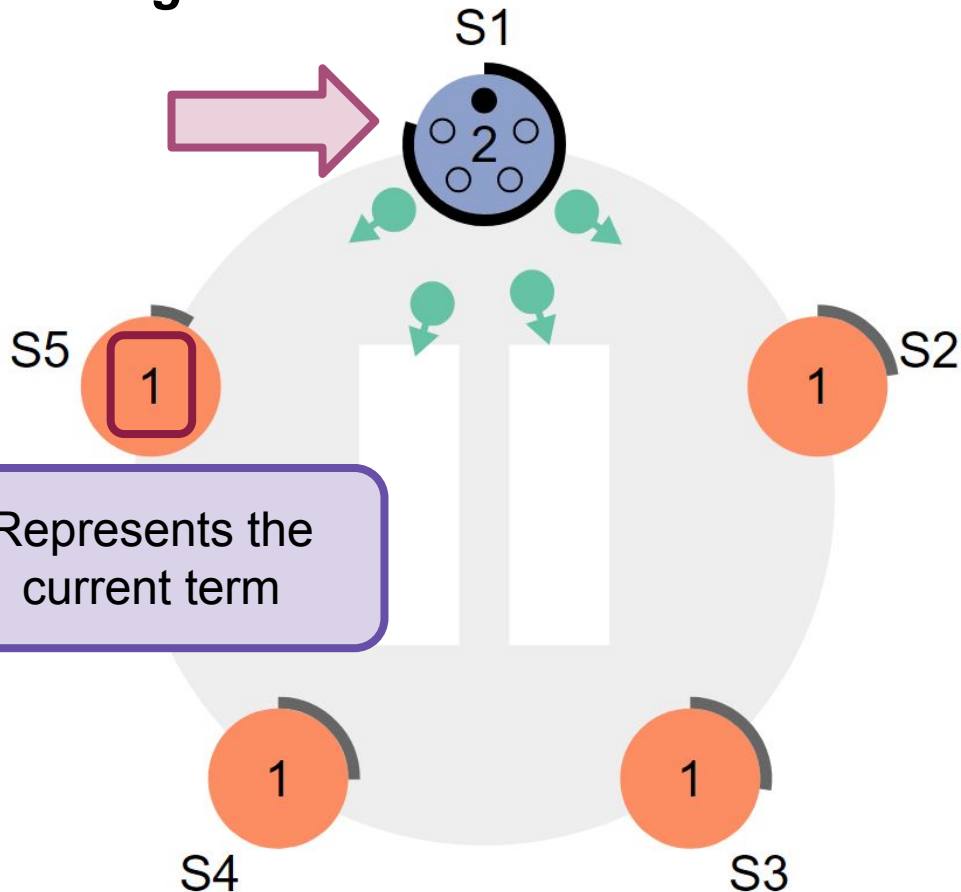
RAFT

Check out the recording for the discussion!

Every node has a ***timer***

When it hits zero, the
node triggers a new
Election Term

Represents the
current term



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RAFT

Leader Election

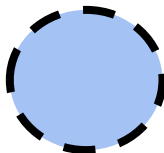
Check out the recording for the discussion!

Nodes have 3 states:

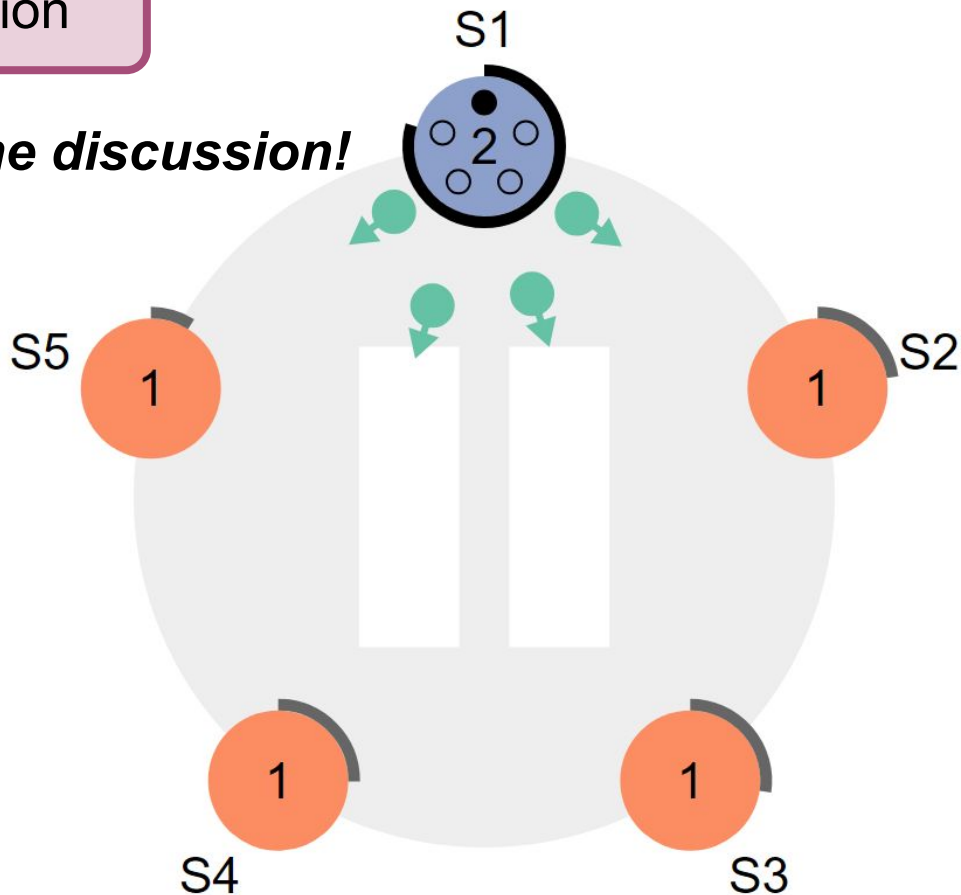
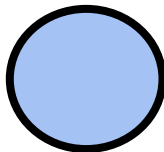
Follower



Candidate



Leader



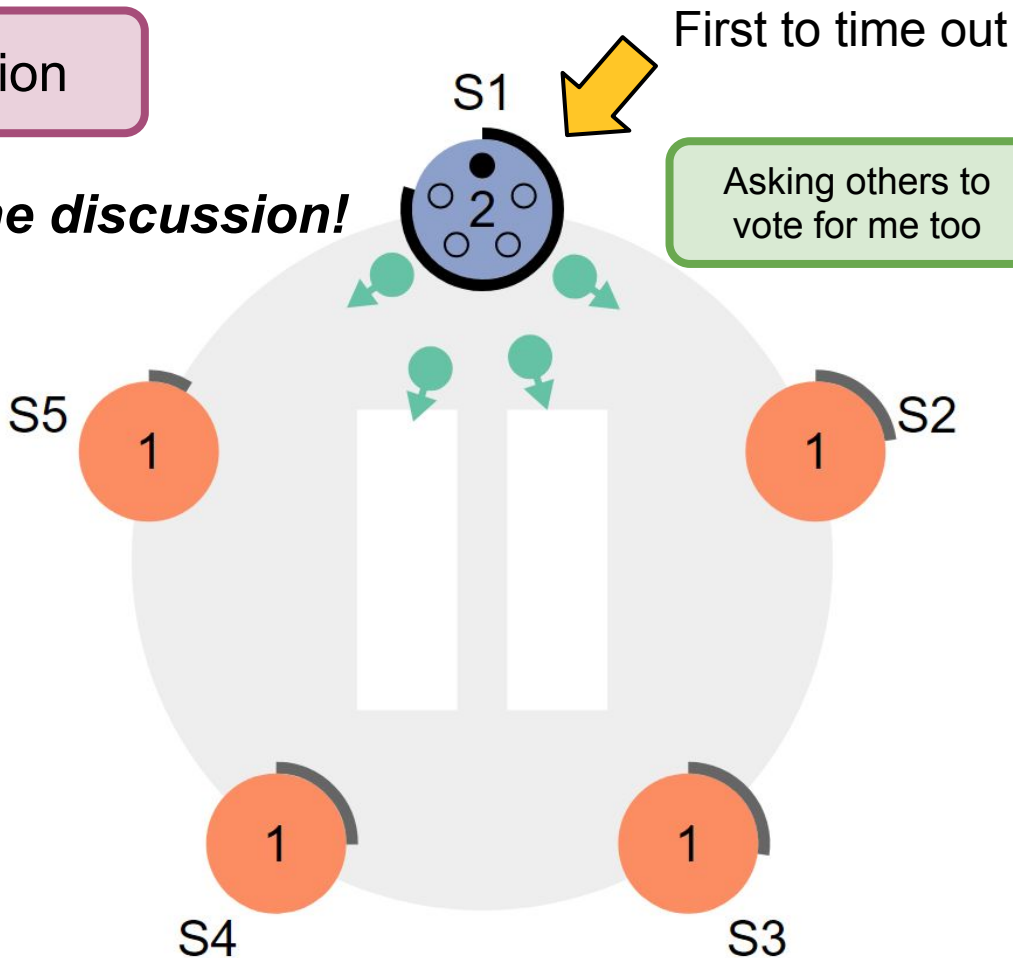
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RAFT

Check out the recording for the discussion!

This is the first election

Leader Election



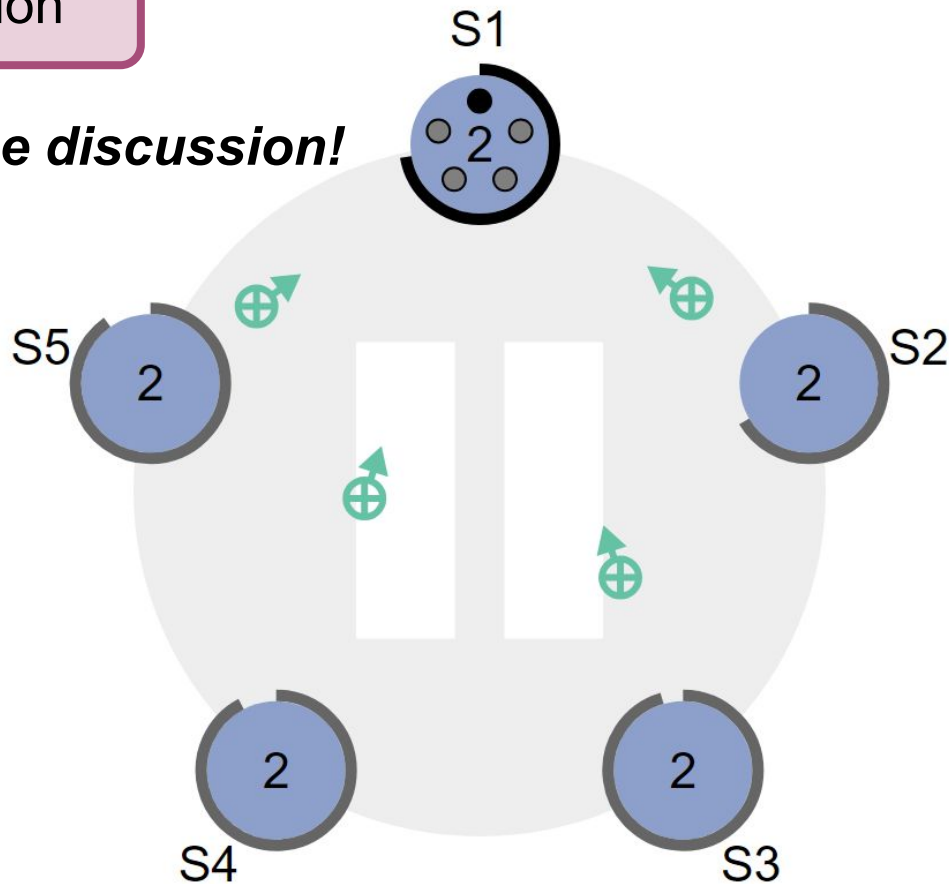
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RAFT

Leader Election

Check out the recording for the discussion!

Other nodes said
sure whatever



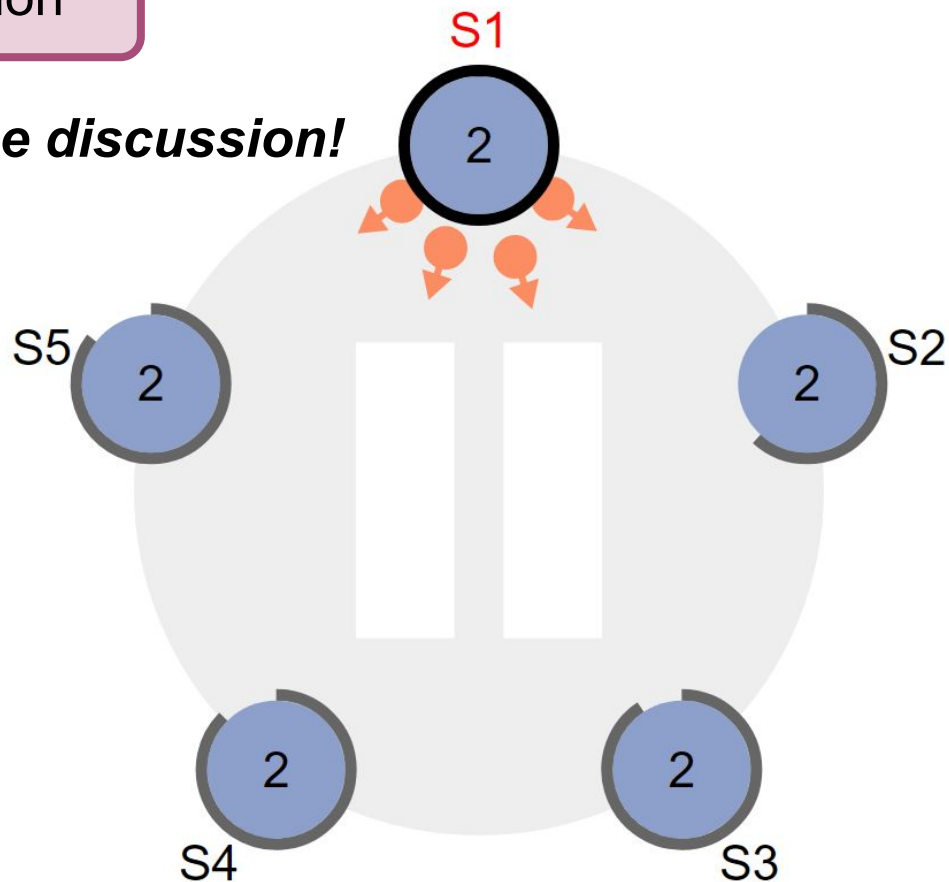
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RAFT

Leader Election

Check out the recording for the discussion!

Now confirmed
as Leader



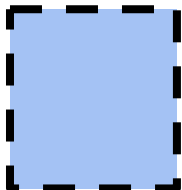
RAFT

Log Replication

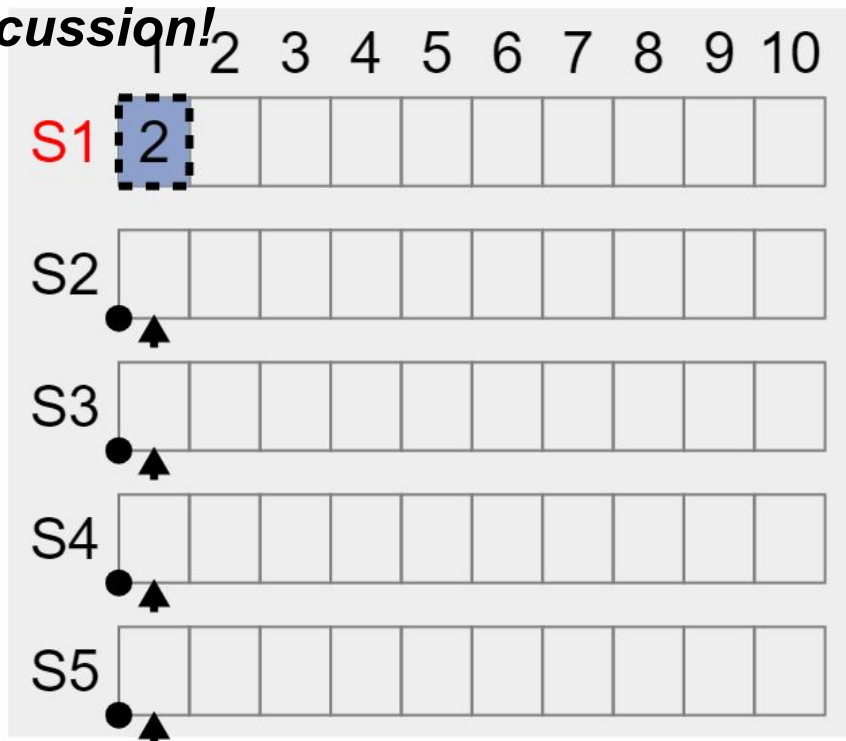
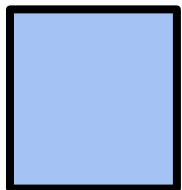
Check out the recording for the discussion!

Same Pattern!

Candidate



Added



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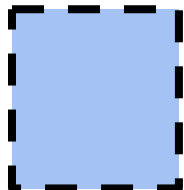
RAFT

Log Replication

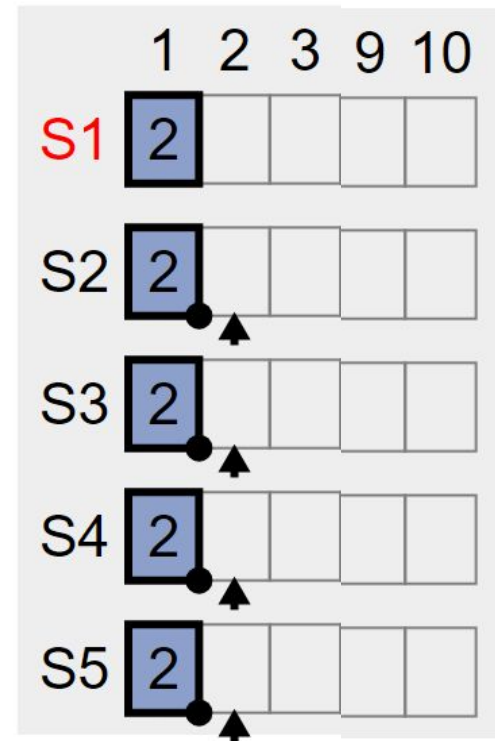
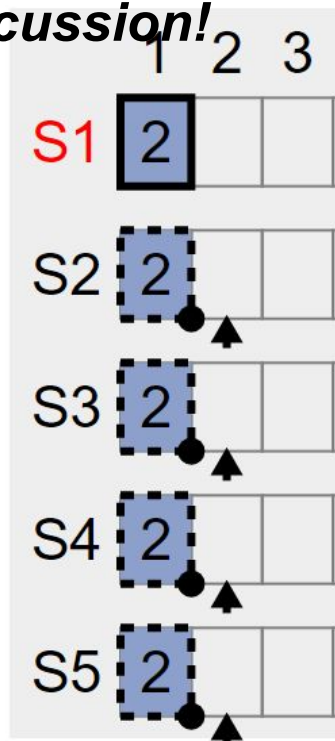
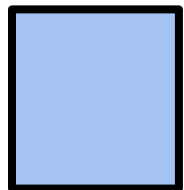
Check out the recording for the discussion!

Same Pattern!

Candidate



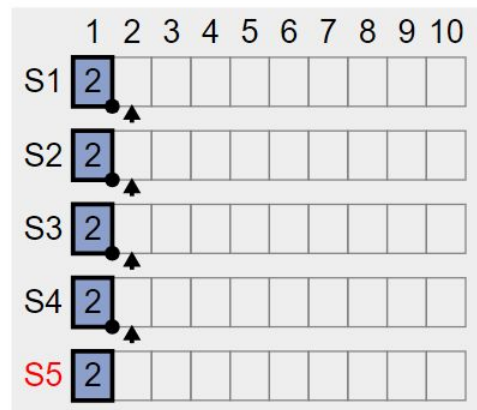
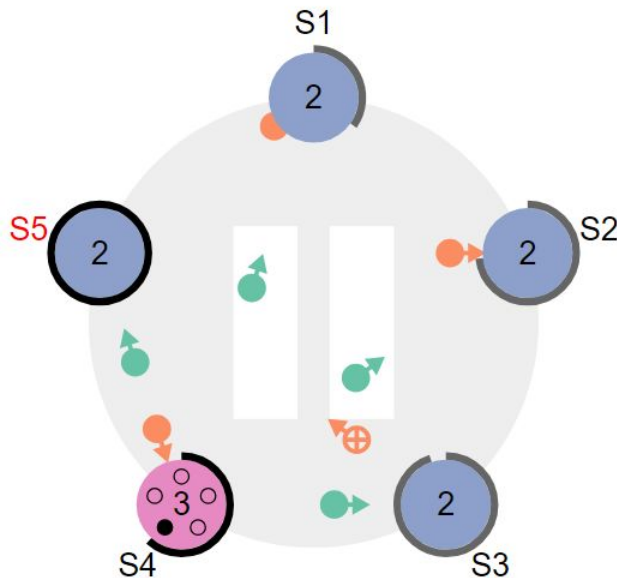
Added



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RAFT

Check out the recording for the walkthrough!



1/100x

0.415s

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Scratch Space

Upcoming Events

SI Sessions:

- Thursday, February 20th at 7:00 pm MST
- Sunday, February 23rd at 7:00 pm MST
- Tuesday, February 25th at 11:00 am MST - **Q&A Session**

Review Sessions:

- Tuesday, February 25th at 11:00 am MST - **Q&A Session**
- Thursday, February 27th at 7:00 pm MST - **Exam Review Session (2hrs)**

Questions?

Survey:

<https://asuasn.info/ASNSurvey>



More Questions?

Check out our other resources!

tutoring.asu.edu



Academic Support

Academic Support Network (ASN) provides a variety of free services in-person and online to help currently enrolled ASU students succeed academically.

Services



Subject Area Tutoring

Need in-person or online help with math, science, business, or engineering courses? Just hop into our Zoom room or drop into a center for small group tutoring. We'll take it from there.

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Writing Tutoring

Need help with undergraduate or graduate writing assignments? Schedule an in-person or online appointment, access your appointment link, or wait in our drop-in queue.

[Access your appointment link](#)

[Access the drop-in queue](#)

Schedule Appointment



Online Study Hub

Join our online peer communities to connect with your fellow Sun Devils. Engage with our tools to search our bank of resources, videos, and previously asked questions. Or, ask our Tutorbot questions.

Now supporting courses in Math, Science, Business, Engineering, and Writing.

Online Study Hub

1-

Go to Zoom

2-

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[View the tutoring schedule](#)

[View digital resources](#)






1. Click on 'Go to Zoom' to log onto our Online Tutoring Center.
2. Click on 'View the tutoring schedule' to see when tutors are available for specific courses.

More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub

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Online Study Hub

Online peer communities for students and tutors, YouTube channels, and Tutorbots.



What are online peer communities?

Individual courses have an online peer community that allows you to connect with your peers to post and answer questions and to develop study groups.



How can tutoring center videos help?

Videos can help supplement the learning you're doing in and outside of class and include step-by-step methods for how to understand concepts.



How does the Tutorbot work?

You can ask the Tutorbot questions about course concepts and the Tutorbot will recommend additional resources and examples to help address your questions.

Select a subject

- Any -

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Business


ACC 231

Uses of Accounting Info I

 [Peer Community](#)

ACC 241

Uses of Accounting Info II

 [Peer Community](#)

CIS 105

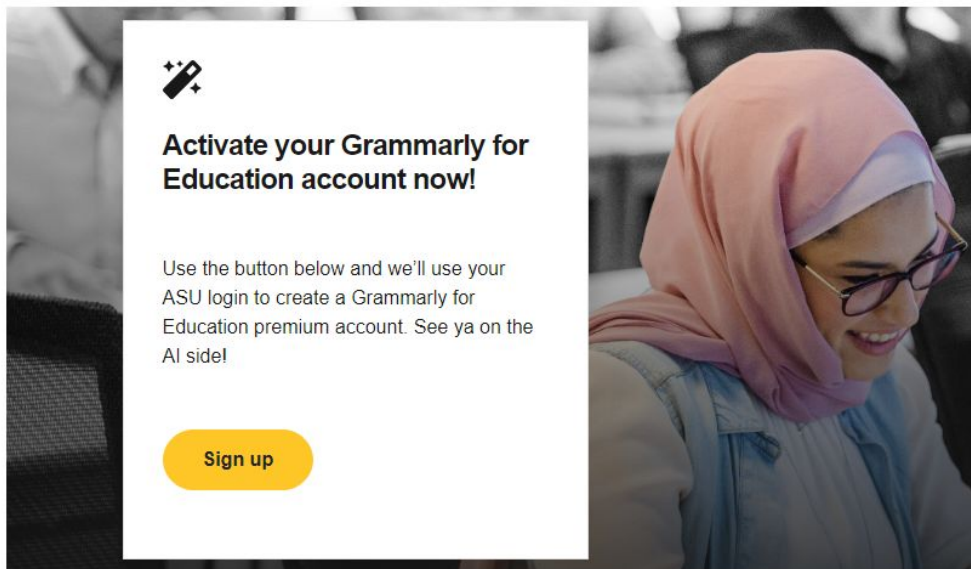
Computer Applications and Information Technology

 [Peer Community](#)

Don't forget to check out the Online Study Hub for additional resources!

Expanded Writing Support Available

Including Grammarly for Education, at no cost!



tutoring.asu.edu/expanded-writing-support

*Available slots for this pilot are limited

Additional Resources

- [Course Repo](#)
- [Gradle Documentation](#)
- [GitHub SSH Help](#)
- [Linux Man Pages](#)
- [OSI Interactive](#)
- [MDN HTTP Docs](#)
 - [Requests](#)
 - [Responses](#)
- [JSON Guide](#)
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- [Austin G Walters Traffic Comparison](#)
- [RAFT](#)