SER 321 B Session

SI Session

Tuesday, November 12th 2024

10:00 am - 11:00 am MST

Agenda

OSI Matching Activity

Threads!

- Relevance
- Pitfalls
- Concurrency Structures

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 Matching Activity!

Check out the recording for the activity!

Let’s try something new today!

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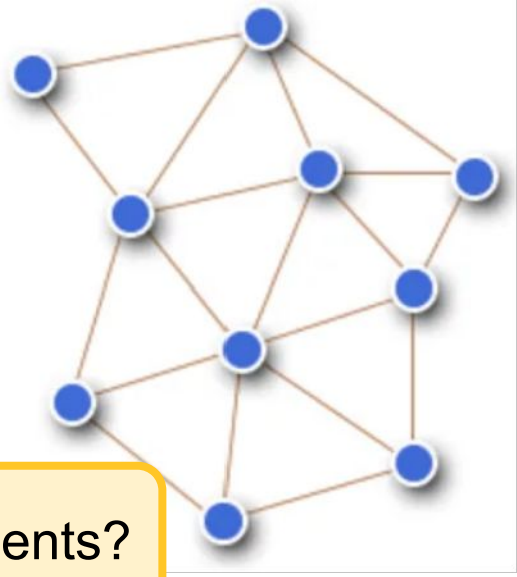
System Layout

Goal →



But you have two systems…

Check out the recording for the discussion!

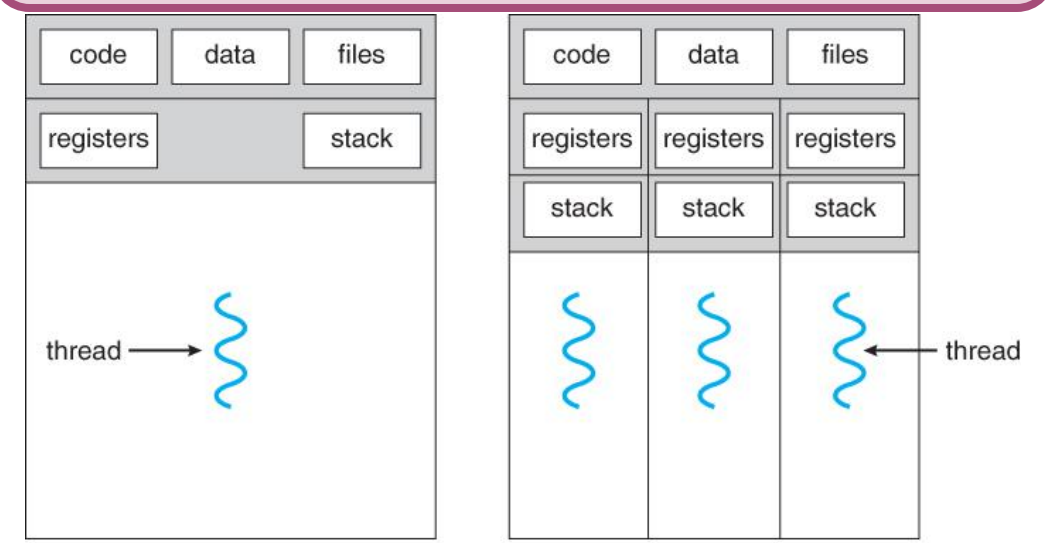
How can we test our server with multiple clients?

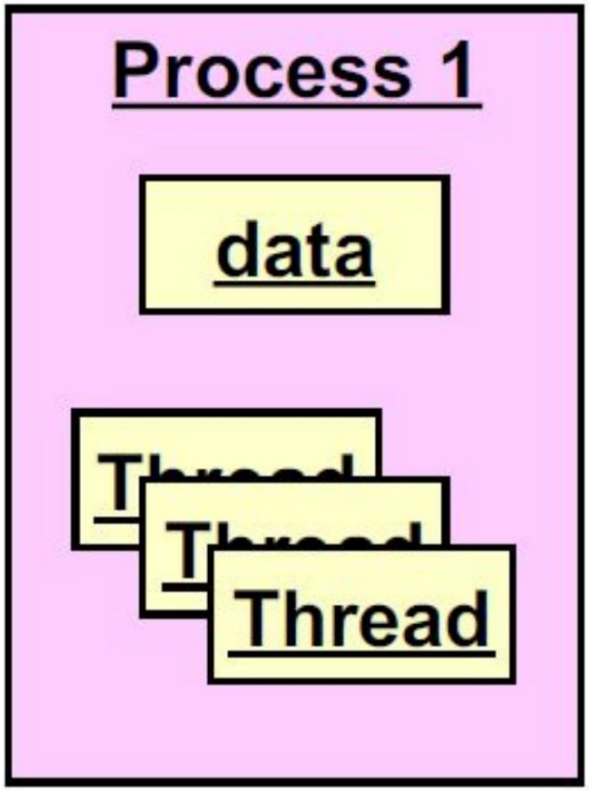
?

Check out the recording for the discussion!

What does that imply?

Remember that they exist *within* the parent process





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Threading Pitfalls

Check out the recording for the solution!

Race Condition	A thread never gains access to the resource it needs
Starvation	A thread is only able to acquire some of the resources it needs
Deadlock	More than one thread accesses a single resource at the same time

NetworkDeadlock

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Threading Pitfalls

As the project name implies, we encounter a ***deadlock***.

But what happened?

Client

```
class SockClient {
    public static void main (String args[]) throws Exception {
        Socket      sock = new Socket( host: "localhost",  port: 8888);    //Any IP name

        ObjectInputStream in = new ObjectInputStream(sock.getInputStream());
        ObjectOutputStream out = new ObjectOutputStream(sock.getOutputStream());

        String s = (String) in.readObject();
        out.writeObject("Back at you");

        in.close();
        out.close();
        sock.close();
    }
}
```

Server

```
class SockServer {
    public static void main (String args[]) throws Exception {

        int count = 0;
        ServerSocket    serv = new ServerSocket( port: 8888);

        Socket sock = serv.accept();

        ObjectInputStream in = new ObjectInputStream(sock.getInputStream());
        ObjectOutputStream out = new ObjectOutputStream(sock.getOutputStream());

        String s = (String) in.readObject();
        System.out.println("Received " + s);
        out.writeObject("Back at you");
        System.out.println("Received " + s);

        in.close();
        out.close();
        sock.close();
    }
}
```

```
PS C:\ASU\SER321\examples_repo\ser321examples\Threads\NetworkDeadlock> gradle
server
<=========----> 75% EXECUTING [1m 33s]
> :server
```

```
PS C:\ASU\SER321\examples_repo\ser321examples\Threads\NetworkDeadlock> gradle
client
Starting a Gradle Daemon, 1 busy and 1 stopped Daemons could not be reused, us
e --status for details
<=========----> 75% EXECUTING [53s]
> :client
```

Check out the recording for the discussion!

Dining Philosophers

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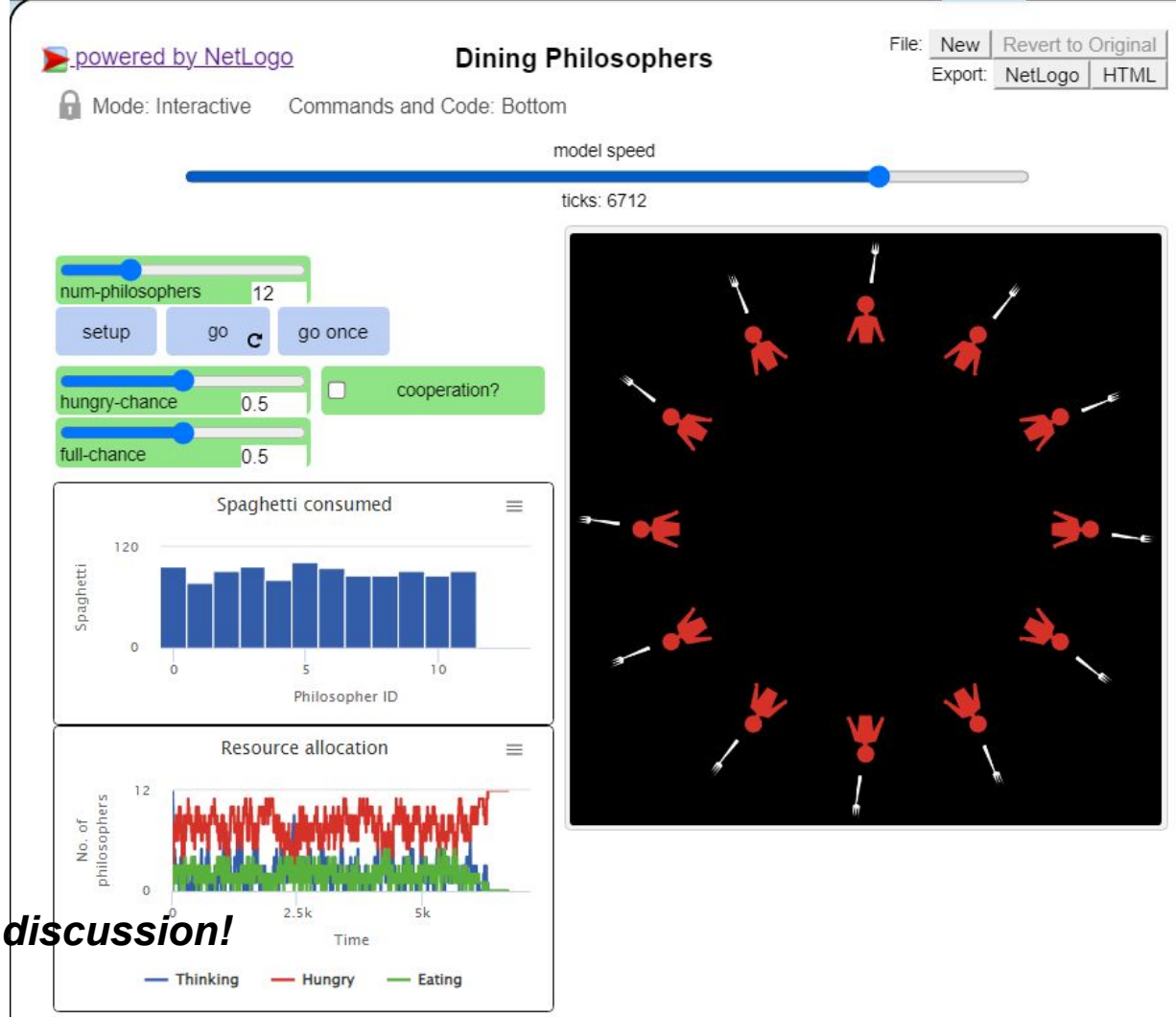
Threading Pitfalls

What does *Spaghetti Consumed* represent?

What does *Thinking* represent?

What does *Hungry* represent?



Check out the recording for the discussion!

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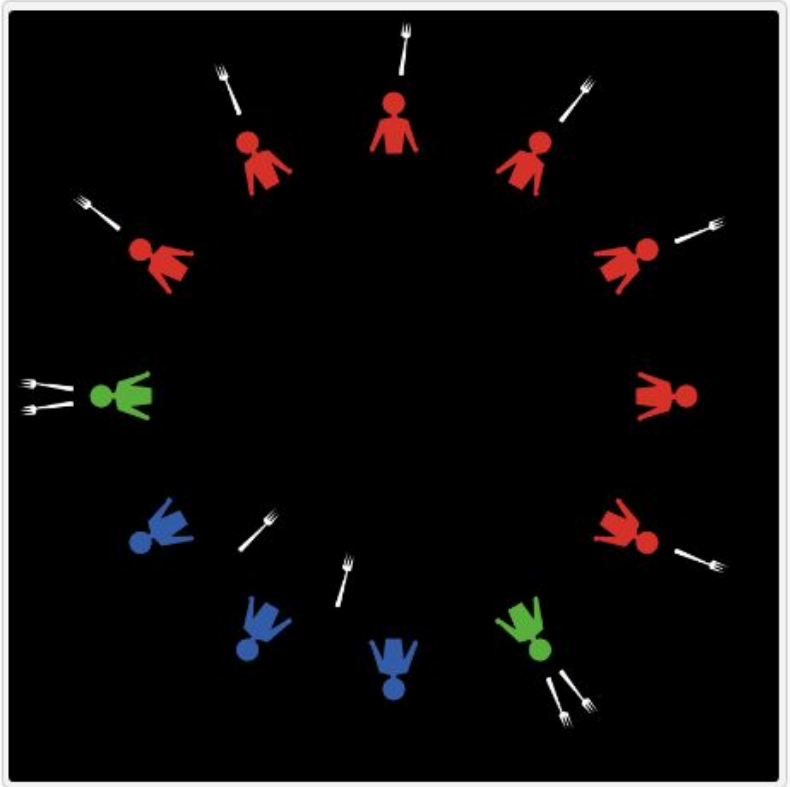
Threading Pitfalls

Can we take a guess at what is happening here?

Check out the recording for the discussion!



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Scratch Space

Upcoming Events

SI Sessions:

- Thursday, November 14th at 7:00 pm MST
- Sunday, November 17th at 7:00 pm MST
- Tuesday, November 19th at 10:00 am MST

Review Sessions:

- Sunday, December 1st at 7:00 pm MST - **2 hour Review Session**
- Tuesday, December 3rd at 10:00 am MST - **Q&A Session**

Questions?

Survey:

https://asuasn.info/ASNSurvey

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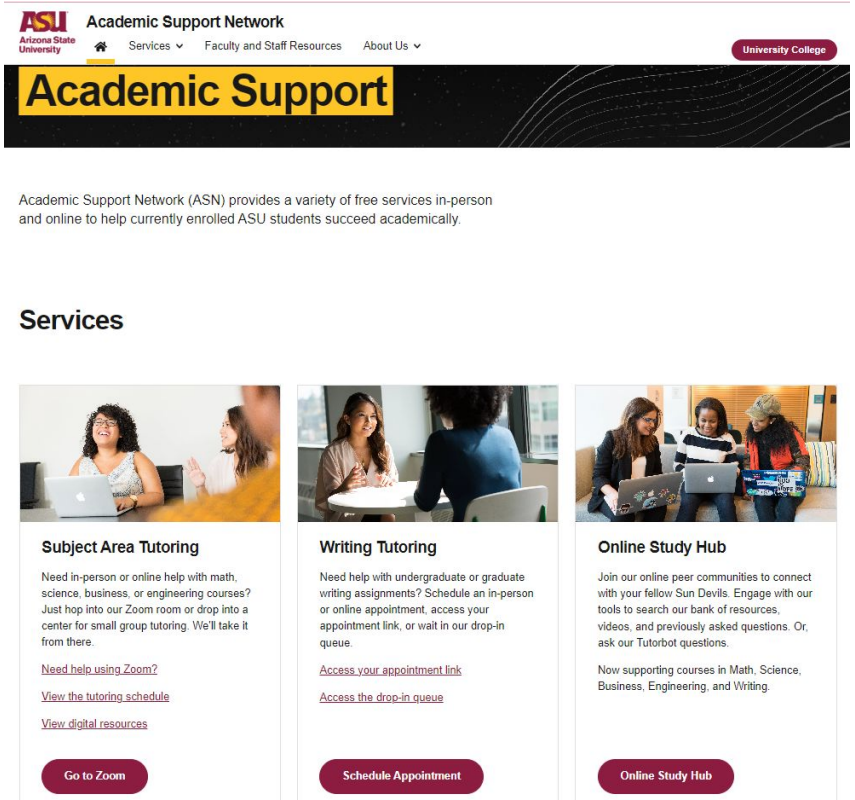
More Questions?

Check out our other resources!

tutoring.asu.edu

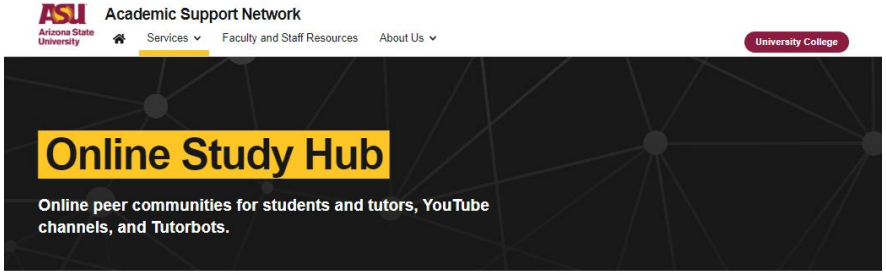


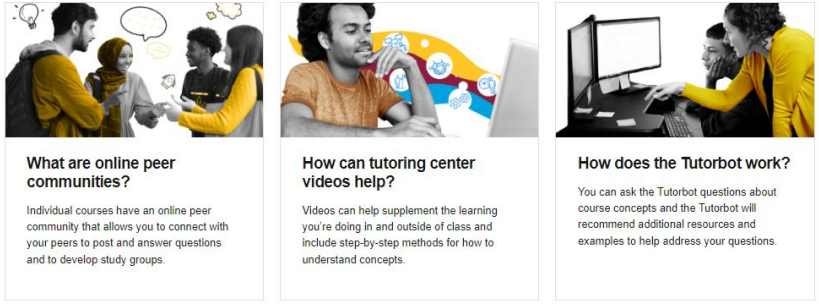
1. **Click on ‘Go to Zoom’ to log onto our Online Tutoring Center.**
2. **Click on ‘View the tutoring schedule’ to see when tutors are available for specific courses.**

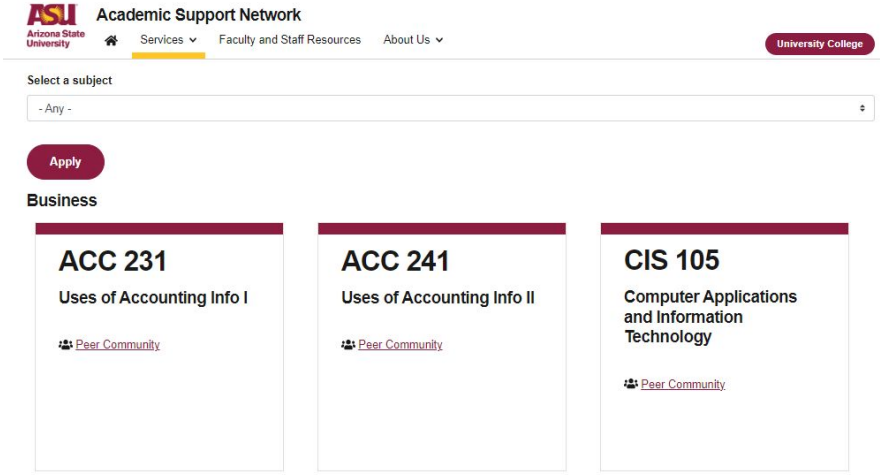
More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub



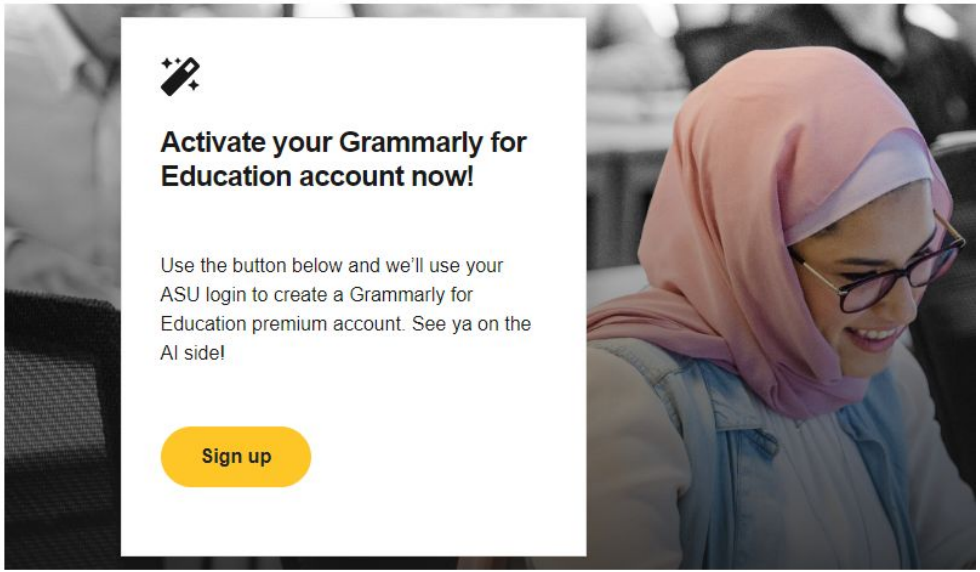




Don't forget to check out the Online Study Hub for additional resources!

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
- org.json Docs
- javax.swing package API
- Swing Tutorials
- Dining Philosophers Interactive
- Austin G Walters Traffic Comparison