SER 321 A Session

SI Session

Tuesday, January 28th 2025

11:00 am - 12:00 pm MST

Agenda

- OSI Review
- TCP vs. UDP Matching
- Sockets!
  - Requirements & Steps
  - Port Examination

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

Check out the recording for the solution and discussion!

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OSI Model

Unit	Layer	What we are *really* talking about
Data		Content/Payload Info
Data		
Data		
Segment		
Packet	Network	Transmission Info
Frame	Data Link	
Bits	Physical	

Check out the recording for the solution and discussion!

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OSI Model

Unit	Layer	What we are *really* talking about
Data	Application	
Data	Presentation	
Data	Session	
Segment	Transport	
Packet	Network	
Frame	Data Link	
Bits	Physical	

Content/Payload Info

Transmission Info

Check out the recording for the solution and discussion!

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OSI Model

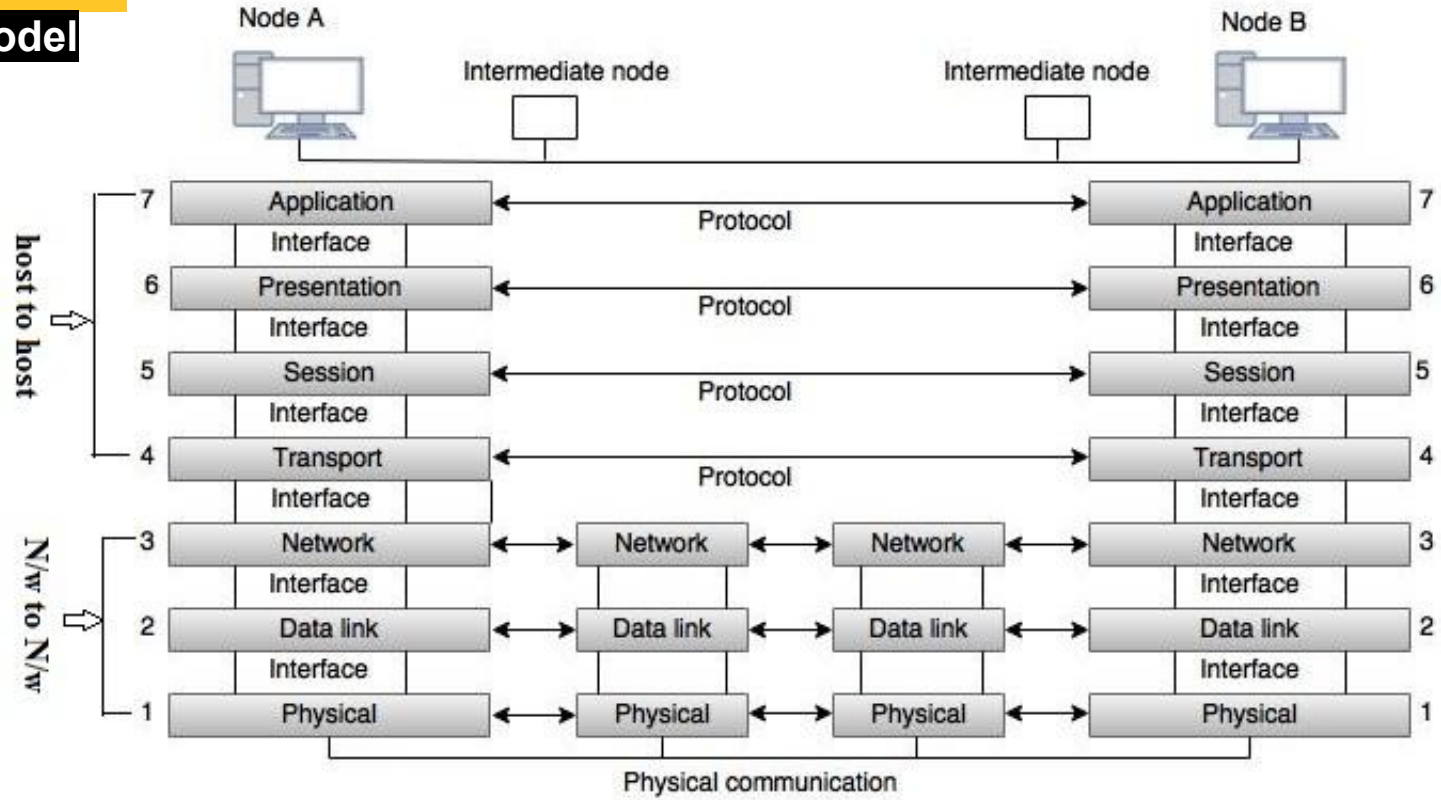

Fig: OSI Model

Check out the recording for the solution and discussion!

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TCP vs. UDP Matching

Unreliable

TCP

OR

UDP

Check out the recording for the solution and discussion!

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TCP vs. UDP Matching

Connection-Oriented

TCP

OR

UDP

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TCP vs. UDP Matching

Uses Streams

TCP

OR

UDP

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TCP vs. UDP Matching

Has Less Overhead

TCP

OR

UDP

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TCP vs. UDP Matching

Has Less Overhead

TCP

OR

UDP

Check out the recording for the solution and discussion!

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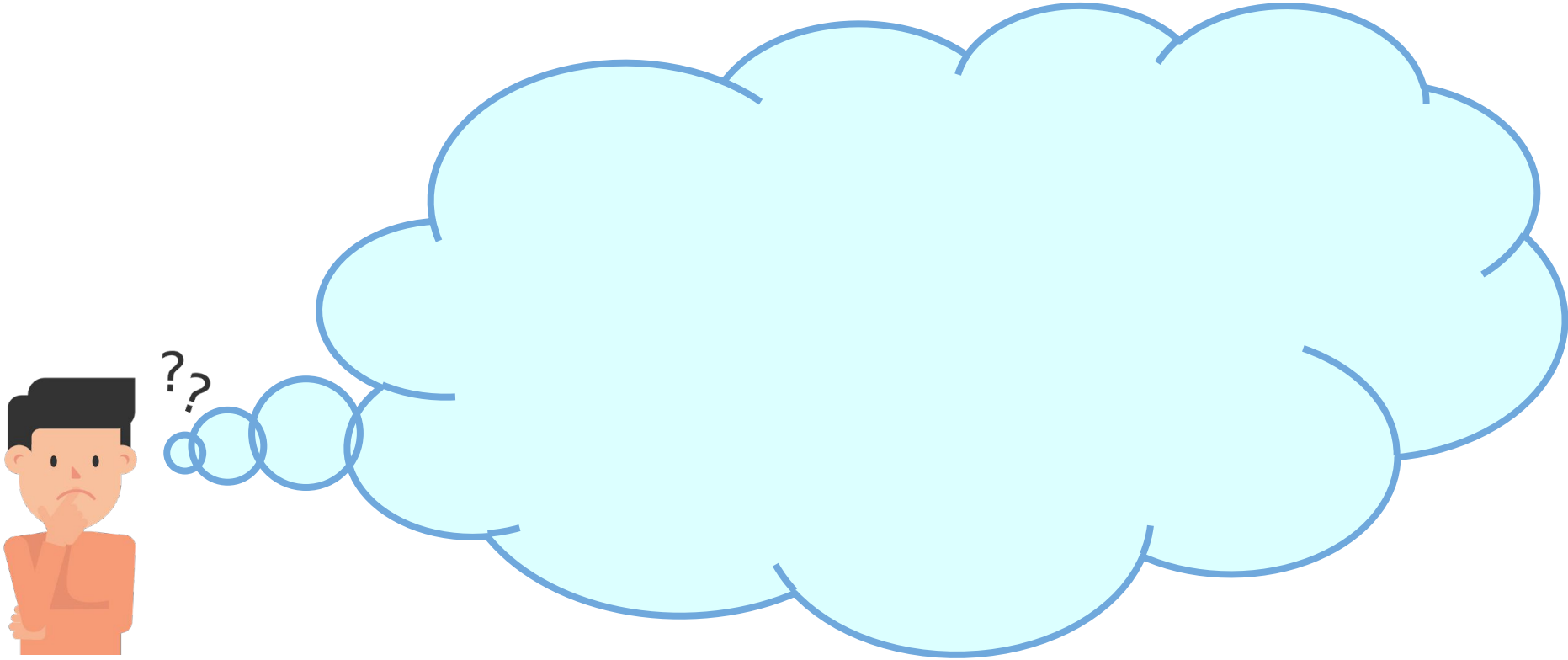
Sockets!

What do we need for a client/server connection?



Check out the recording for the solution and discussion!

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Sockets!

Sockets allow our client and server to communicate!

Need to define **3 properties** before usage

- Location
- Connection Semantics
- Message Format

IP or DNS	142.251.46.206	www.google.com
TCP or UDP	Connection Oriented	Connectionless
Protocol Specs	Synchronous	Asynchronous
	Stateless	Stateful
	Binary	Text
	Headers	No Headers

Check out the recording for the solution and discussion!

SER 321
Sockets!

Sockets allow our client and server to communicate!

Person

Conversation Flow

Conversation Content

l to define **3 properties** before usage

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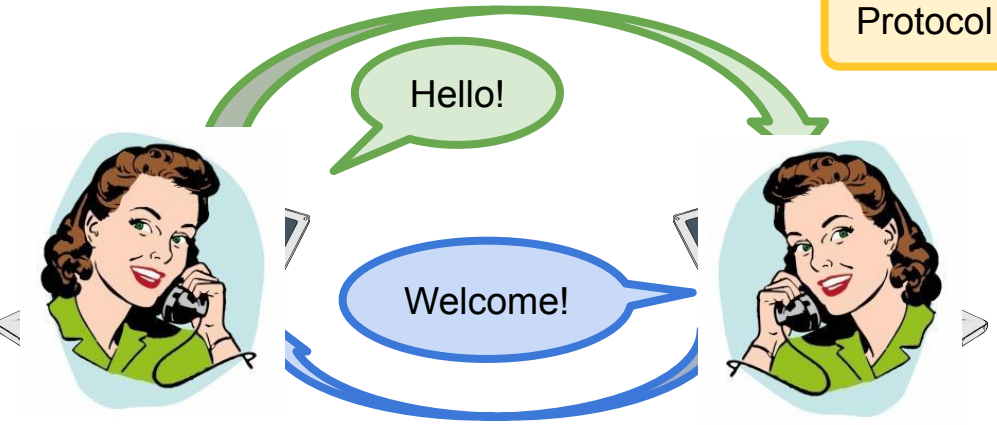

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Client Socket

Steps for the **Client Socket**

1.
2.
3.
4.
5.
6.
7.
8.

Check out the recording for the solution and discussion!

SER 321
Server Socket

Steps for the **Server Socket**

1.
2.
3.
4.
5.
6.
7.
8.
9.

Check out the recording for the solution and discussion!

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Server Socket

Java handles a few steps for us…

1. Define Params
2. Create Socket
3. **C ONLY** Create a struct for the address
3-5. Mark Socket to Listen
5. Mark Socket to Listen for Connections
6. Wait for Connection
7. Handle Client Connection
8. Close Client Connection
9. Continue Listening for Connections

Check out the recording for the solution and discussion!

Assign 3-1 Starter Code

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Server Socket

1. Define Params
2. Create Socket

3-5. Mark Socket to Listen

6. Wait for Connection
7. Handle Client Connection
8. Close Client Connection

9. Continue Listening

```
public static void main (String args[]) {

  if (args.length != 1) {
    System.out.println("Expected arguments: <port(int)>");
    System.exit( status: 1);
  }

  try {
    port = Integer.parseInt(args[0]);
  } catch (NumberFormatException nfe) {
    System.out.println("[Port|sleepDelay] must be an integer");
    System.exit( status: 2);
  }

  try {
    //open socket
    ServerSocket serv = new ServerSocket(port);
    System.out.println("Server ready for connections");

    /** Simple loop accepting one client and calling handling one request. */

    while (true){
      System.out.println("Server waiting for a connection");
      sock = serv.accept(); // blocking wait
      System.out.println("Client connected");
```

1

2 & 3-5

9

6

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Connections

Connections!

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Scratch Space

Upcoming Events

SI Sessions:

- Thursday, January 30th at 7:00 pm MST
- Sunday, February 2nd at 7:00 pm MST
- Tuesday, February 4th at 11:00 am MST

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

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More Questions?

Check out our other resources!

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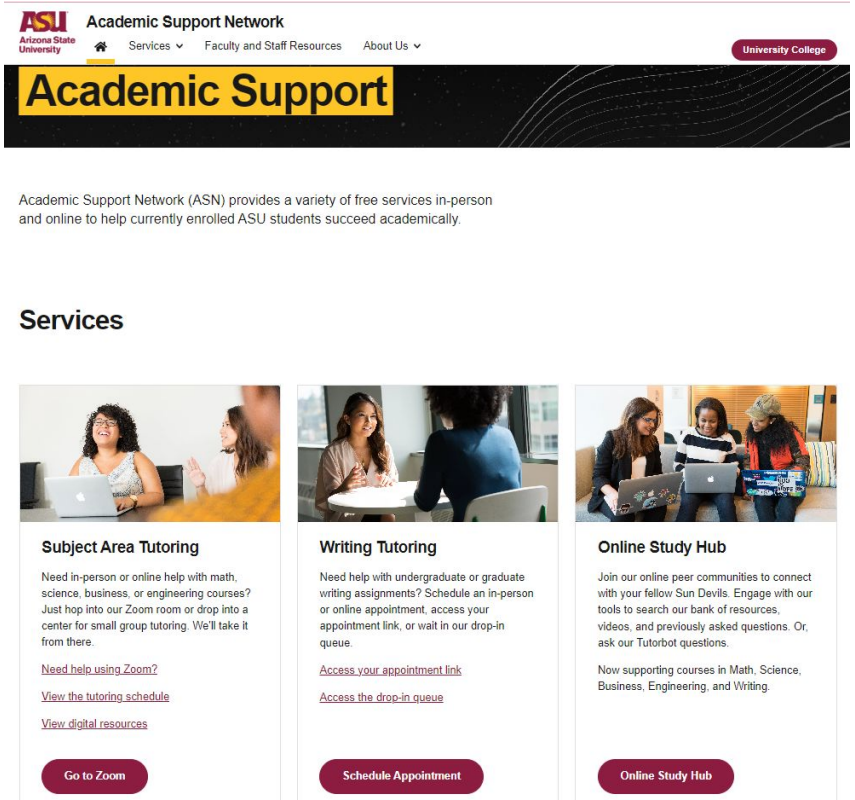
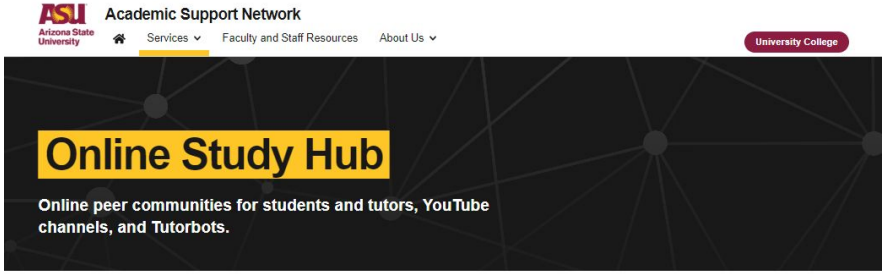


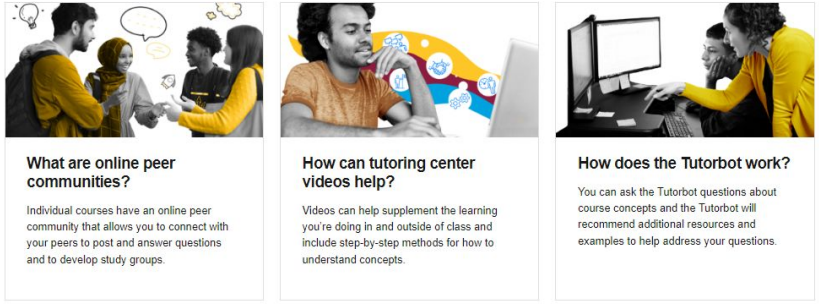
1. **Click on ‘Go to Zoom’ to log onto our Online Tutoring Center.**
2. **Click on ‘View the tutoring schedule’ to see when tutors are available for specific courses.**

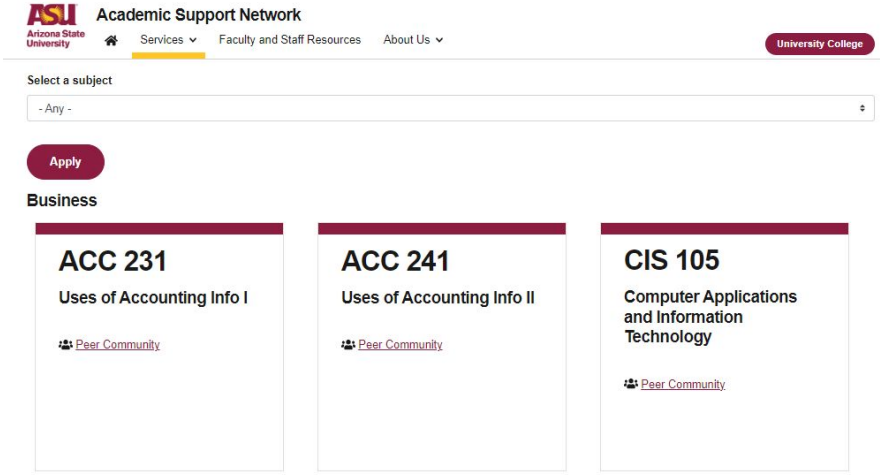
More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub



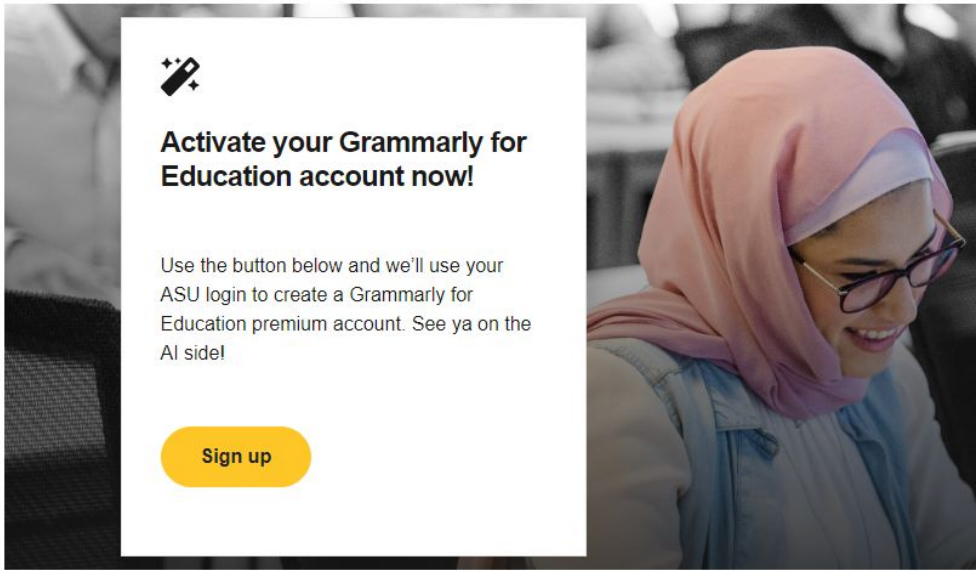




Don't forget to check out the Online Study Hub for additional resources!

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