

# SER 321 B Session

**SI Session**

**Tuesday, October 22nd 2024**

*10:00 am - 11:00 am MST*

# Agenda



Setup Review

OSI Model

Importance/Why We Care

Lower Layers

Upper Layers

# 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](https://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

# SER 321

## Setup Review

You will need ***two*** systems

Your MAIN device

AWS Instance



# SER 321

## Setup Review

Where will you install **Java**?



Your MAIN device

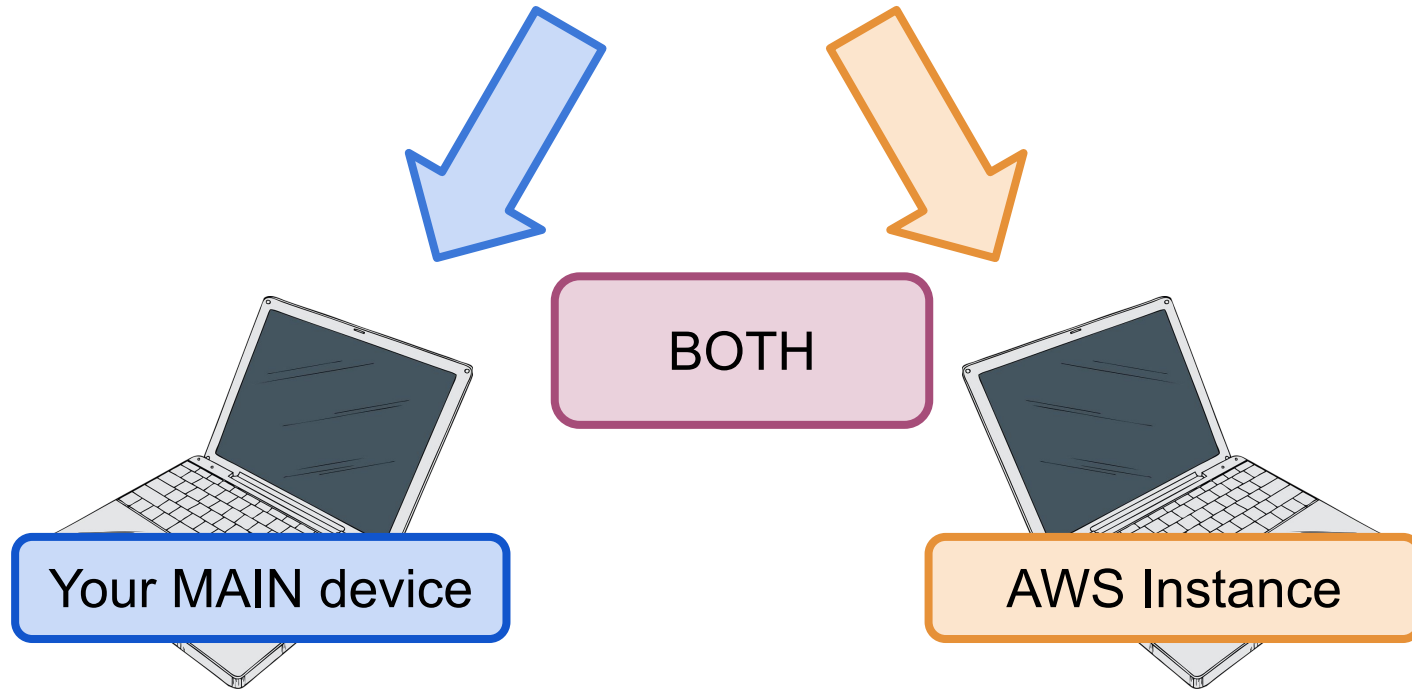


AWS Instance

# SER 321

## Setup Review

Where will you install **Java**?



# SER 321

## Setup Review

Where will you install **Gradle**?



Your MAIN device



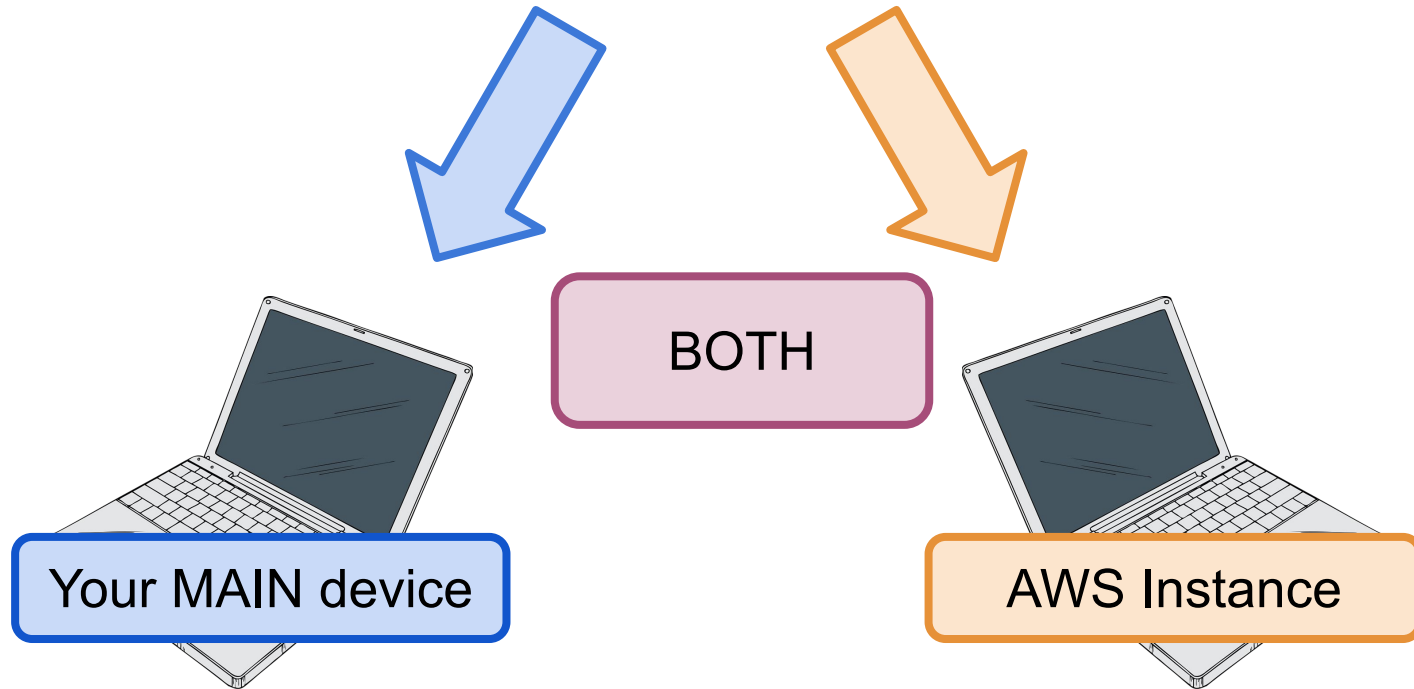
AWS Instance



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## Setup Review

Where will you install **Gradle**?



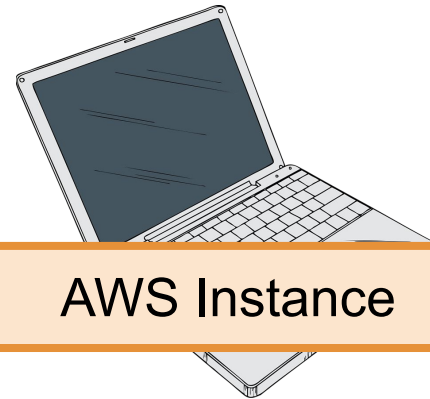
# SER 321

## Setup Review

Where will you fork the **Course Repo**?



Your MAIN device

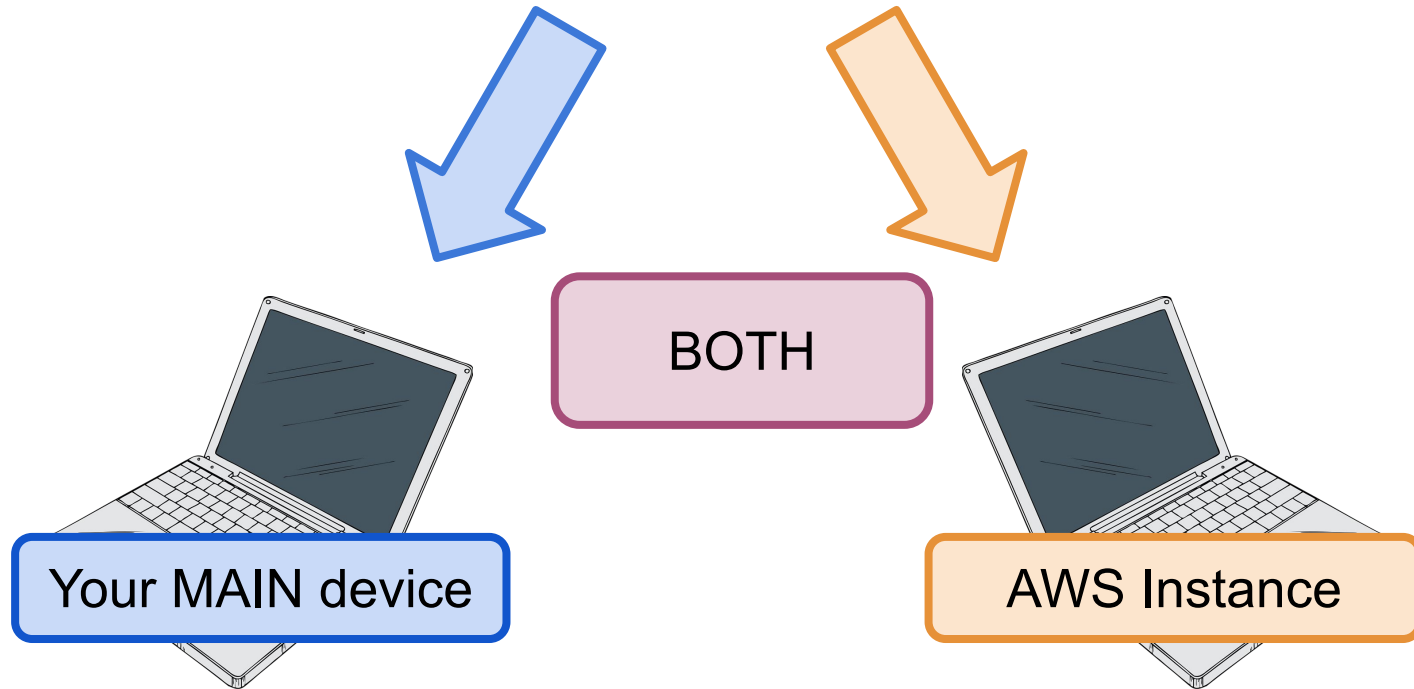


AWS Instance

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## Setup Review

Where will you fork the **Course Repo**?



# SER 321

## Setup Review

Where will you clone the **Submission Repo**?



Your MAIN device

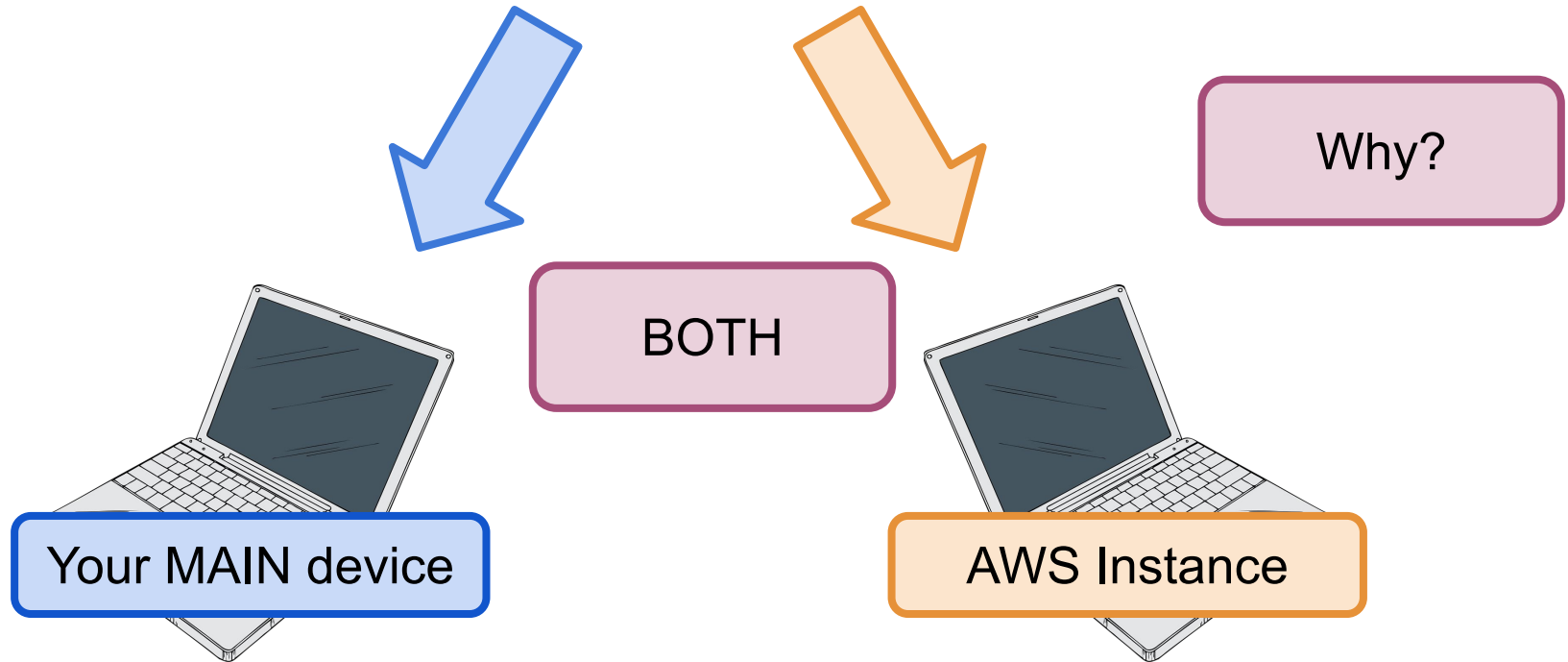


AWS Instance

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## Setup Review

Where will you clone the **Submission Repo**?



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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	

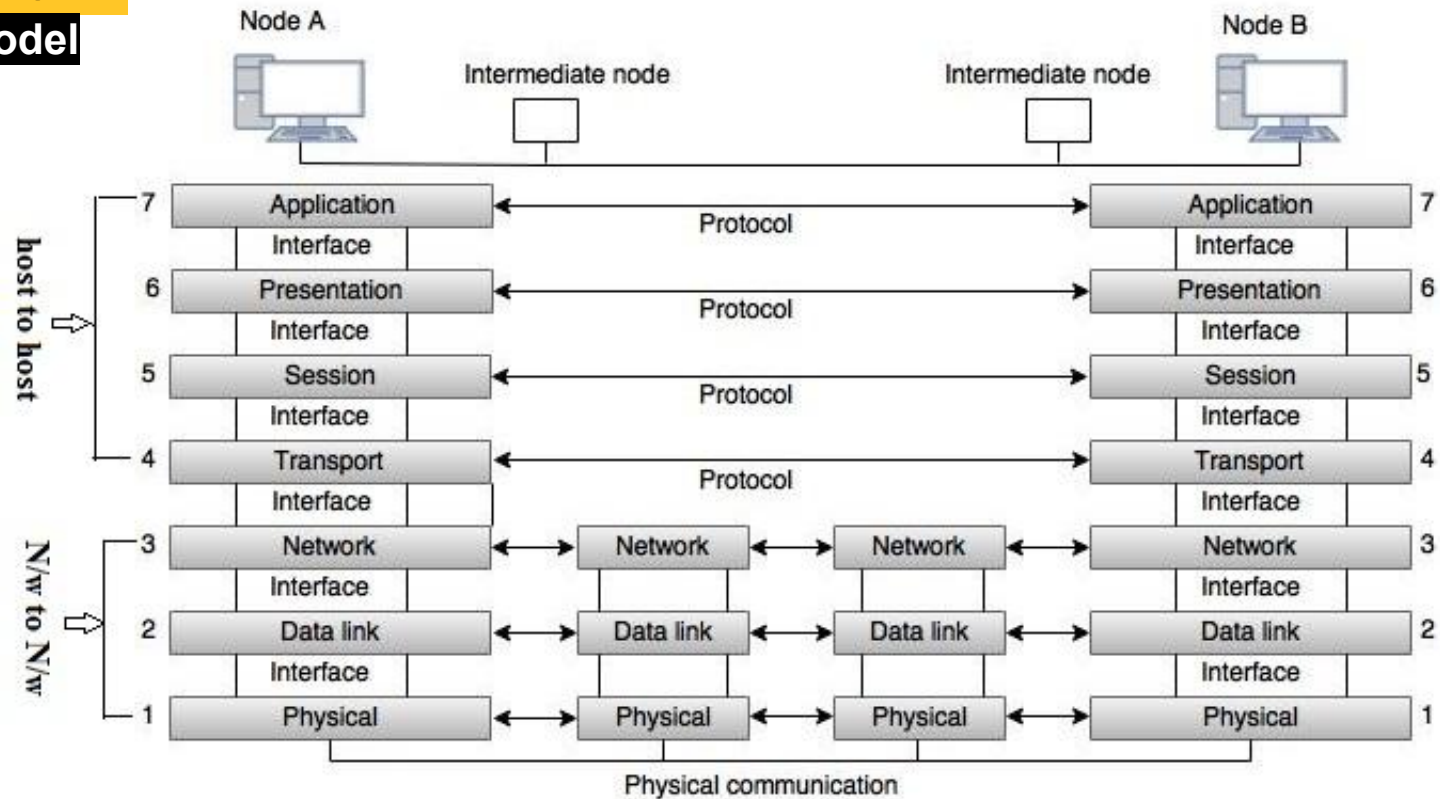
What **is** the  
OSI Model?



Can someone give a  
TL;DR summary?

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## OSI Model



**Fig: OSI Model**

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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	



**SER 321**

**Network Layer - IP**

Given the following IP address, identify the...

Port

128.148.32.110 8080

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**Network Layer - IP**

Given the following IP address, identify the...

Subnet

128.148.32.110:8080

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**Network Layer - IP**

Given the following IP address, identify the...

Network

128.148.32.110:8080

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**Network Layer - IP**

Given the following IP address, identify the...

Host

128.148.32.110:8080

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**TCP/UDP**

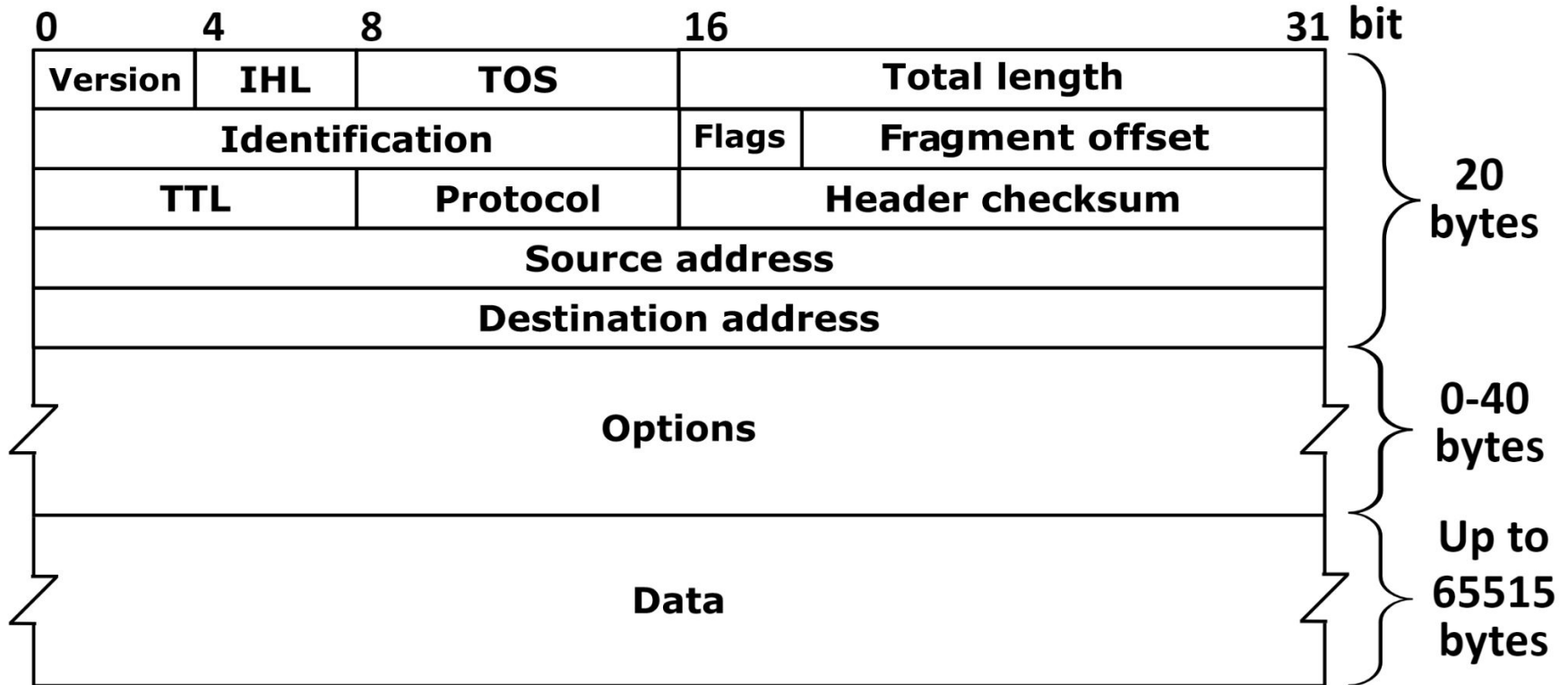
TCP	UDP

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**Headers**

What type of header is this?

IP Header



## Headers

TCP or UDP Header?

Offsets		0								1								2								3							
Octet	Bit	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
0	0	Source port																Destination port															
4	32	Sequence number																															
8	64	Acknowledgment number (if ACK set)																															
12	96	Data offset				Reserved 0 0 0 0				C W R	E C E	U R G	A C K	P S H	R S T	S Y N	F I N	Window Size															
16	128	Checksum																Urgent pointer (if URG set)															
20	160	Options (if <i>data offset</i> > 5. Padded at the end with "0" bits if necessary.)																															
:	:																																
56	448																																

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## OSI Model

Unit

Layer

What we are *really*  
talking about

Data	Application	
Data	Presentation	
Data	Session	
Segment	Transport	TCP/UDP
Packet	Network	IP address, routing and delivery
Frame	Data Link	LLC, MAC, data transmission in LAN
Bits	Physical	Signal, Binary transmission



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## OSI Model

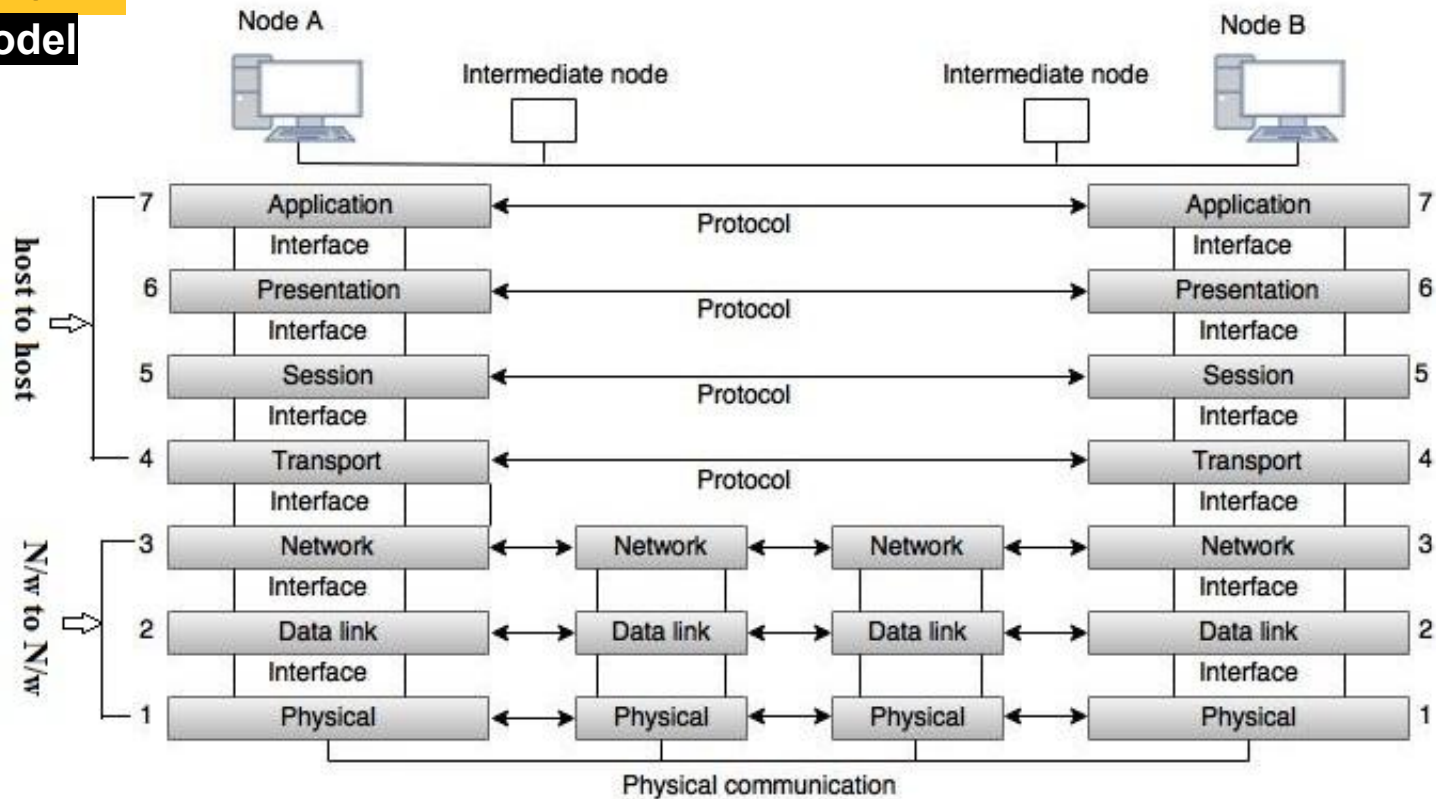
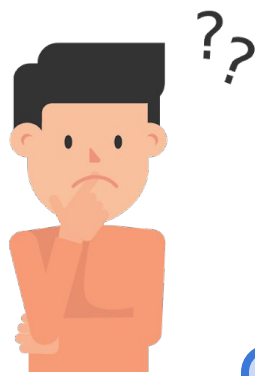


Fig: OSI Model

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**HTTP(S)**



Stateful

OR

Stateless

Synchronous

OR

Asynchronous

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**URLS**

Given the following URL, identify the...

**Query**

<https://www.google.com/search?q=asu>

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**URLS**

Given the following URL, identify the...

**Protocol**

**https://www.google.com/search?q=asu**

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**URLS**

Given the following URL, identify the...

**Path**

<https://www.google.com/search?q=asu>

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**URLS**

Given the following URL, identify the...

**Host**

<https://www.google.com/search?q=asu>

We will focus on ***FOUR*** request types

1.

2.

3.

4.

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### HTTP Requests

What's the difference?

1. GET

2. POST

3. PUT

4. DELETE

Idempotent



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## HTTP Responses

Status Codes →

1XX

2XX

3XX

4XX

5XX

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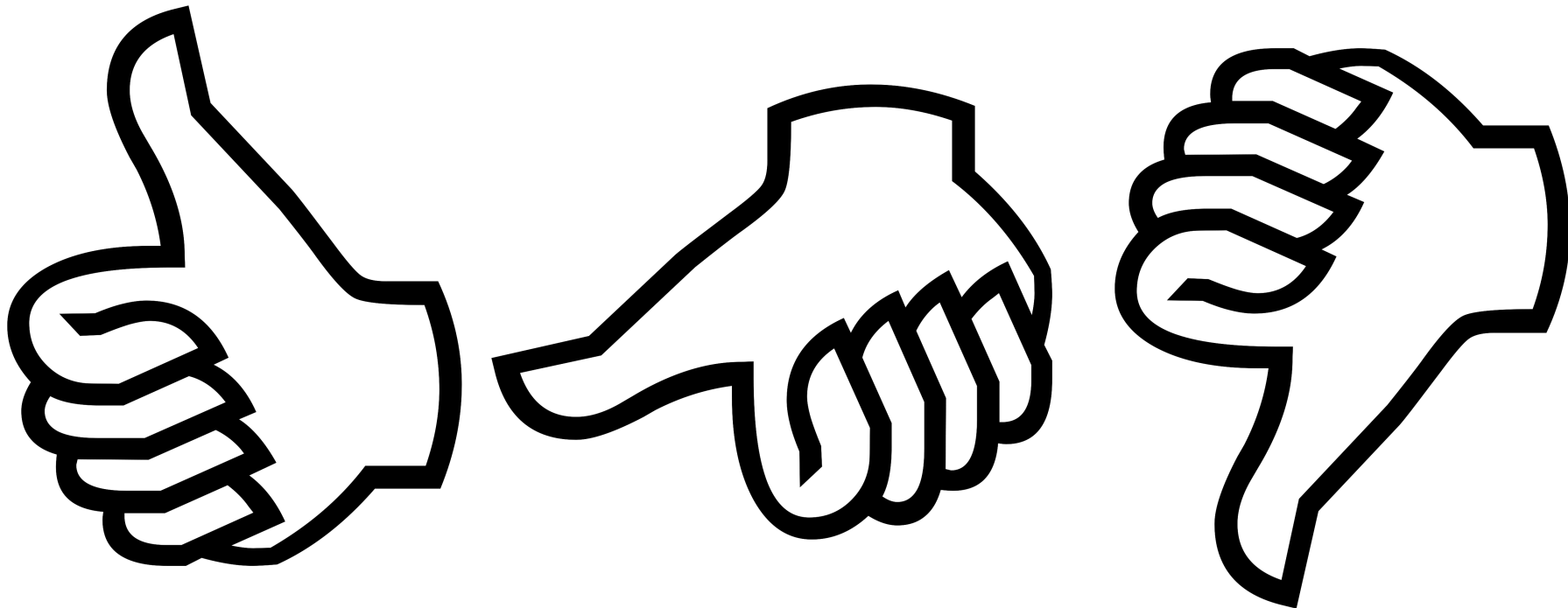
## HTTP Responses

1XX	Information	Rare			
2XX	Success	200	201	204	
3XX	Redirect	301			
4XX	User Error	400	403	404	405
5XX	Server Error	501	503		

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**JSON**

How comfortable are we with JSON?



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**JSON**

**Object**

**Array**

**Member**

{ }

[ ]

“name” : value

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**JSON**

What do we see?

```
{  
  "name" : "katie",  
  "role" : "student",  
  "course" : "ser321"  
}
```

```
{  
  "name" : "katie",  
  "pets" : {  
    "dog" : "smokey",  
    "dog" : "samie"  
  }  
}
```

```
[{  
  "name" : "katie",  
  "name" : "zac"  
}]
```

```
{  
  "submissions" : [  
    {"name" : "katie"},  
    {"name" : "zac"}  
  ]  
}
```

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**JSON**

How many Objects?

How many Arrays?

How many Members?

```
{  
  "name": "lab3vue_act3_kgrinne3",  
  "version": "0.0.0",  
  "private": true,  
  "scripts": {  
    "dev": "vite",  
    "build": "vite build",  
    "preview": "vite preview"  
  },  
  "dependencies": {  
    "vue": "^3.3.4"  
  },  
  "devDependencies": {  
    "@vitejs/plugin-vue": "^4.3.1",  
    "vite": "^4.4.9"  
  }  
}
```

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**Scratch Space**

## Upcoming Events

### SI Sessions:

- Thursday, October 24th 2024 at 7:00 pm MST
- Sunday, October 27th 2024 at 7:00 pm MST
- Tuesday, October 29th 2024 at 10:00 am MST

### Review Sessions:

- TBD



# 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.

[Need help using Zoom?](#)

[View the tutoring schedule](#)

[View digital resources](#)

Go to Zoom



#### 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-

[Need help using Zoom?](#)

[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](https://tutoring.asu.edu/online-study-hub)

 **Academic Support Network**

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[University College](#)

## 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 -

Apply



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Select a subject

- Any -

Apply

Business

### ACC 231

Uses of Accounting Info I

 [Peer Community](#)

### ACC 241

Uses of Accounting Info II

 [Peer Community](#)

### CIS 105

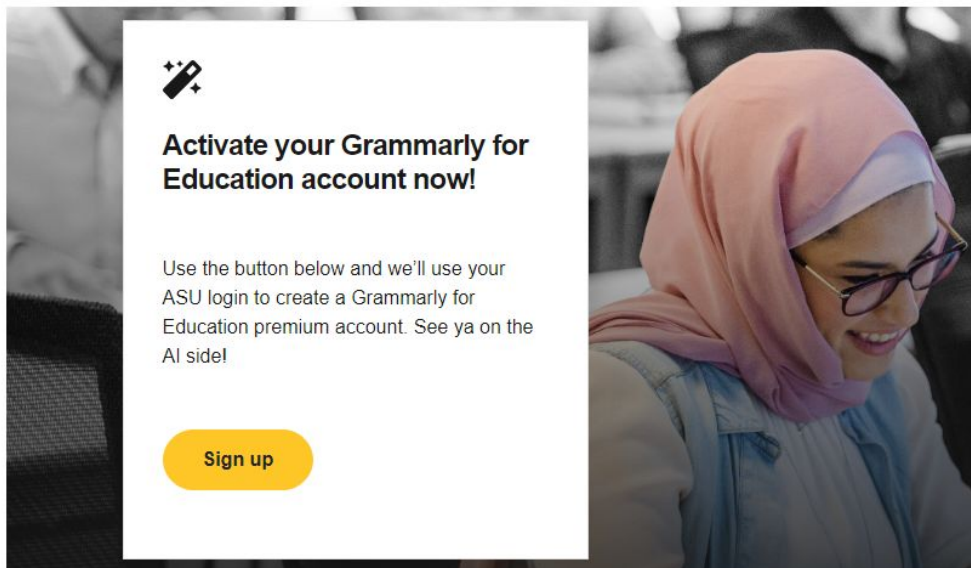
Computer Applications and Information Technology

 [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](https://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](#)