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
- 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

Follow the Setup guide in Canvas

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Setup Review

You will need ***two*** systems

Your MAIN device

AWS Instance

Follow the Setup guide in Canvas

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Setup Review

Where will you install **Java?**

Your MAIN device

AWS Instance

Follow the Setup guide in Canvas

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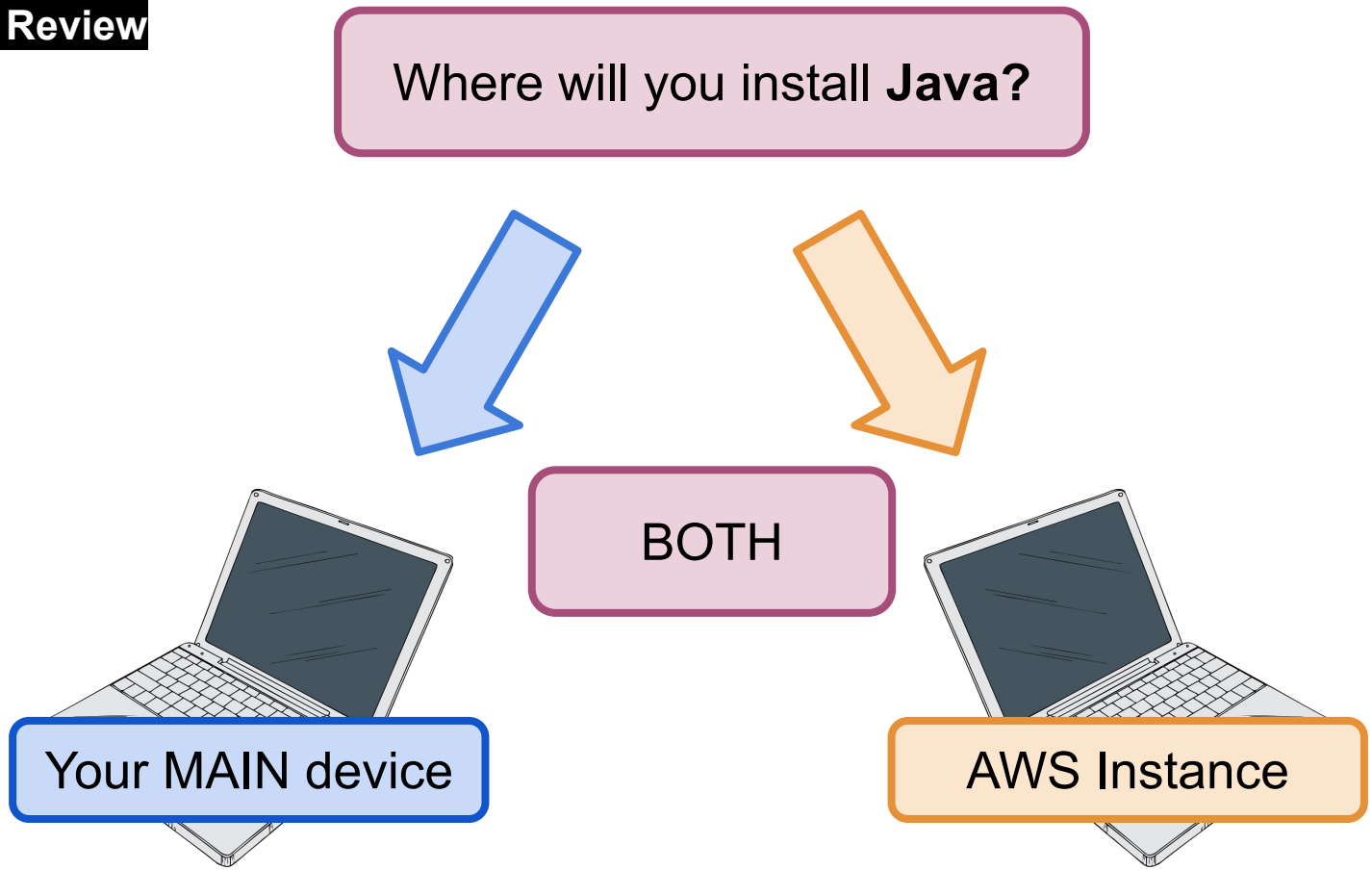
Setup Review



Follow the Setup guide in Canvas

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Setup Review

Where will you install **Gradle?**

Your MAIN device

AWS Instance

Follow the Setup guide in Canvas

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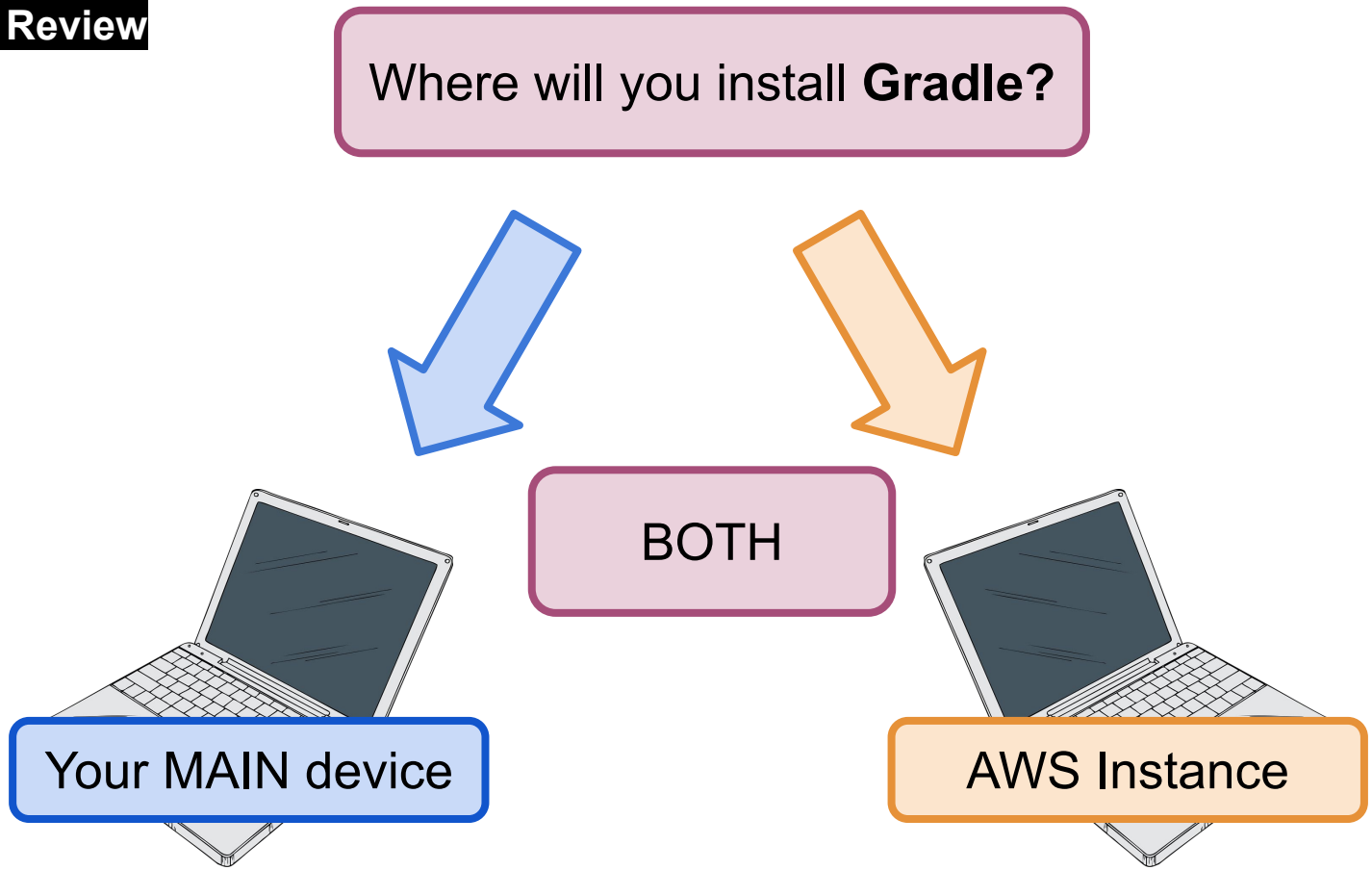
Setup Review



Follow the Setup guide in Canvas

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Setup Review

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

Your MAIN device

AWS Instance

Follow the Setup guide in Canvas

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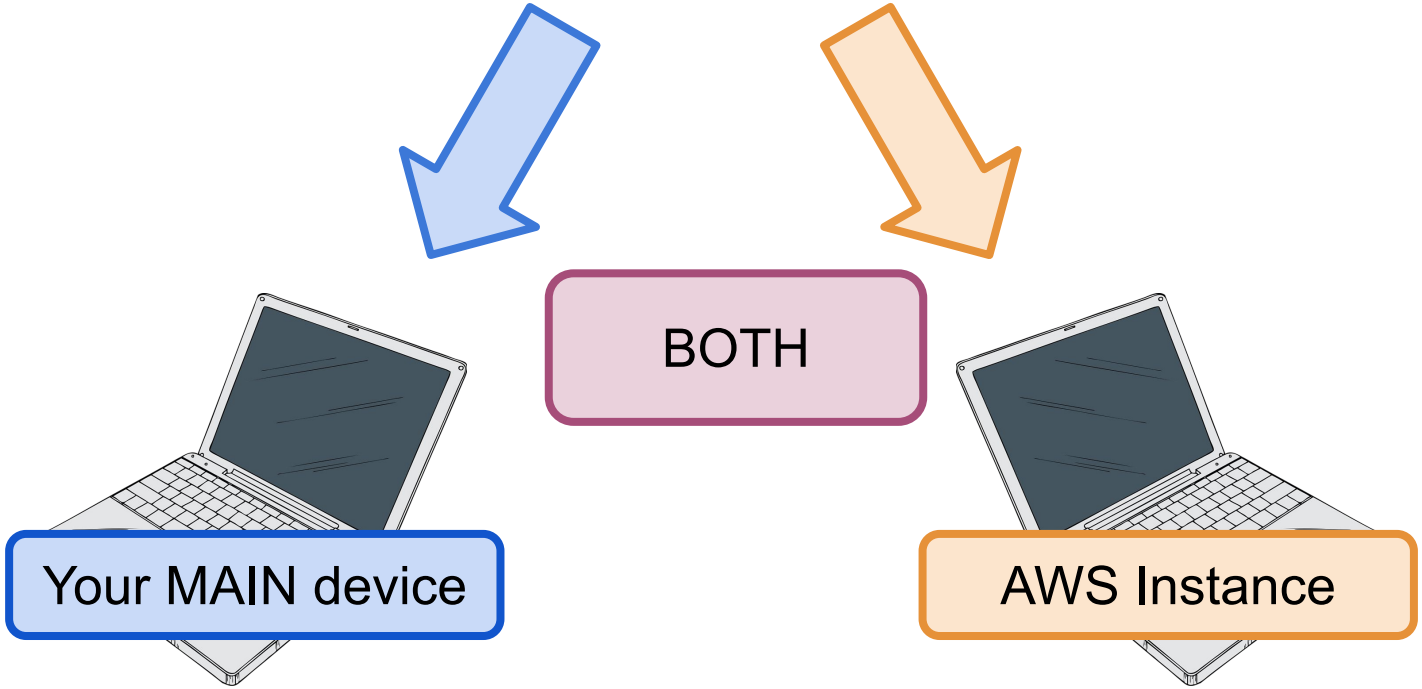
Setup Review

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



Follow the Setup guide in Canvas

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Setup Review

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

Your MAIN device

AWS Instance

Follow the Setup guide in Canvas

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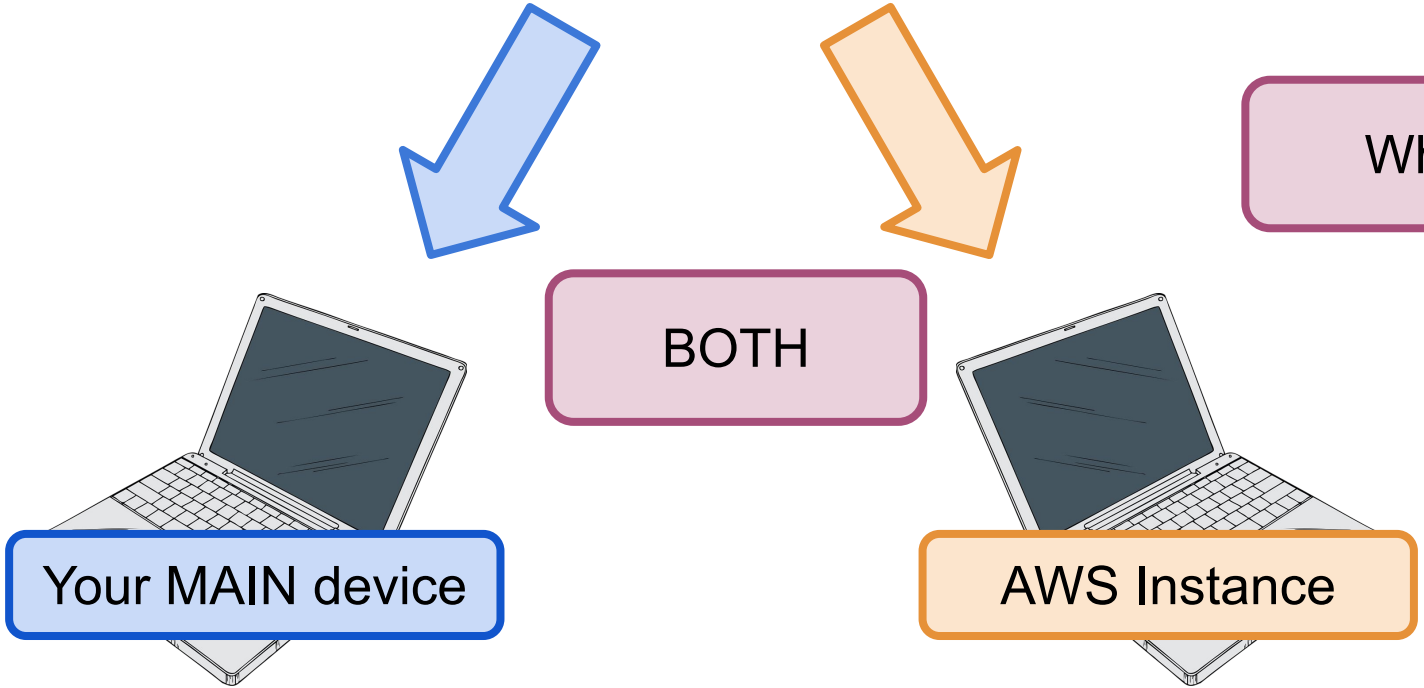
Setup Review

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

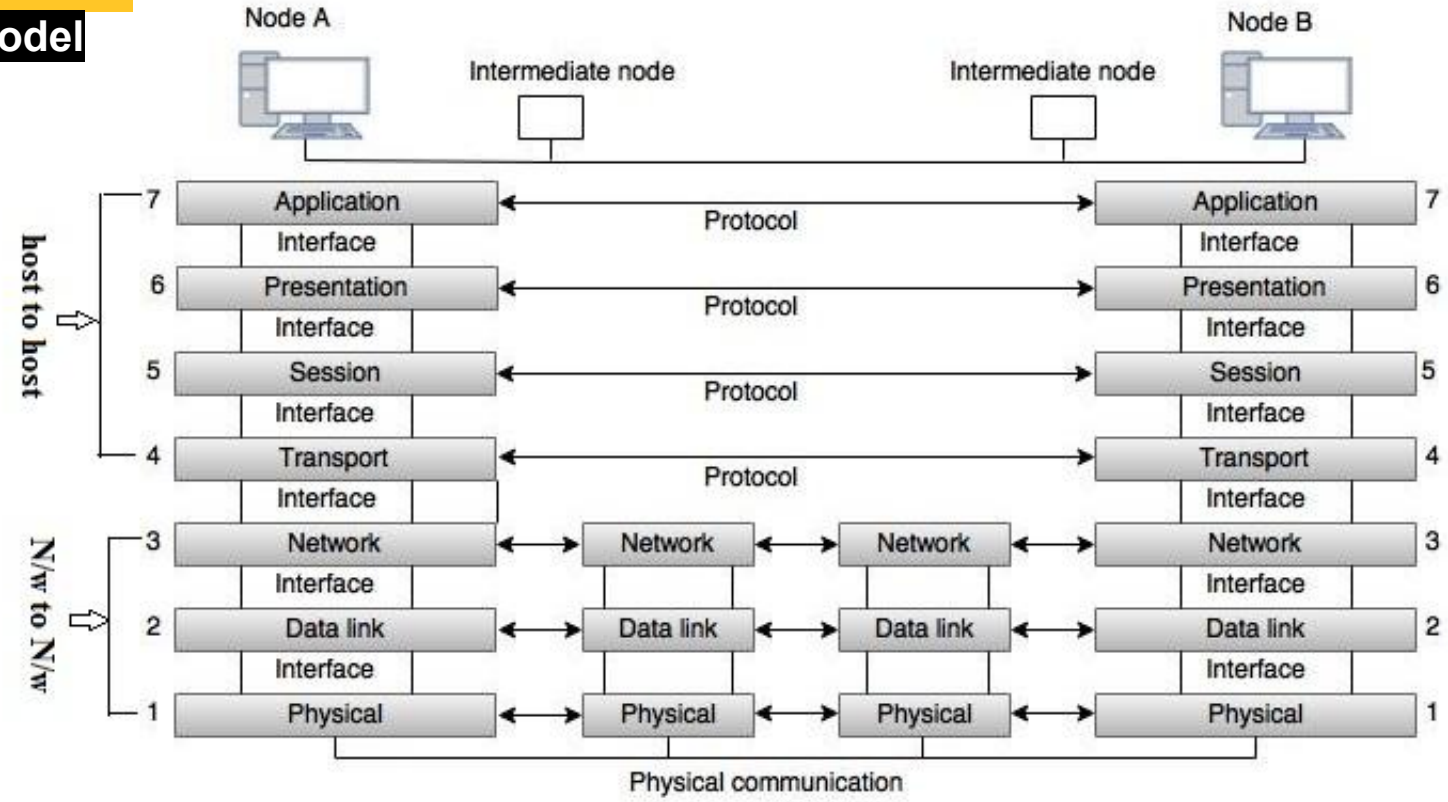

Fig: OSI Model

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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	

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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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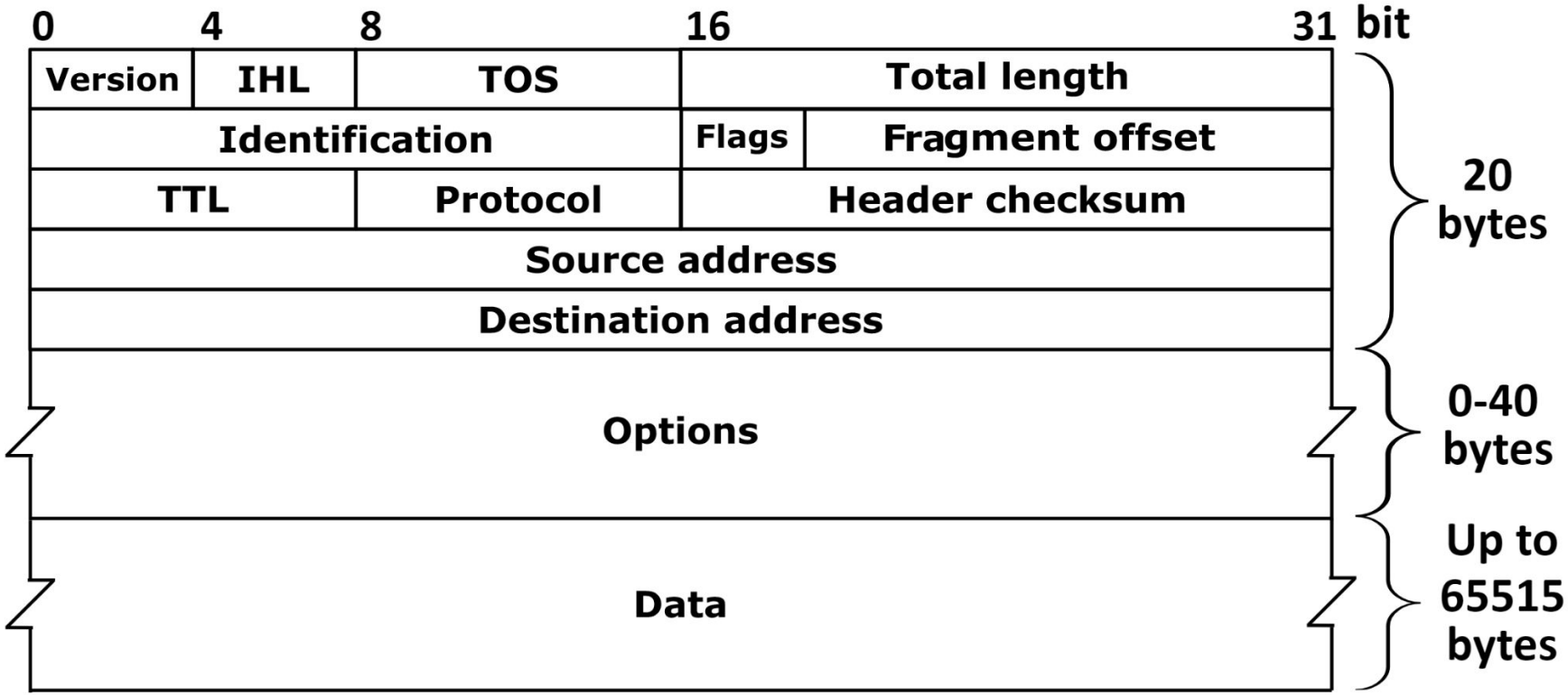
Headers

What type of header is this?

IP Header



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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				CWR	ECE	URG	ACK	PSH	RST	SYN	FIN	Window Size															
16	128	Checksum																Urgent pointer (if URG set)															
20	160	Options (if *data offset* > 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

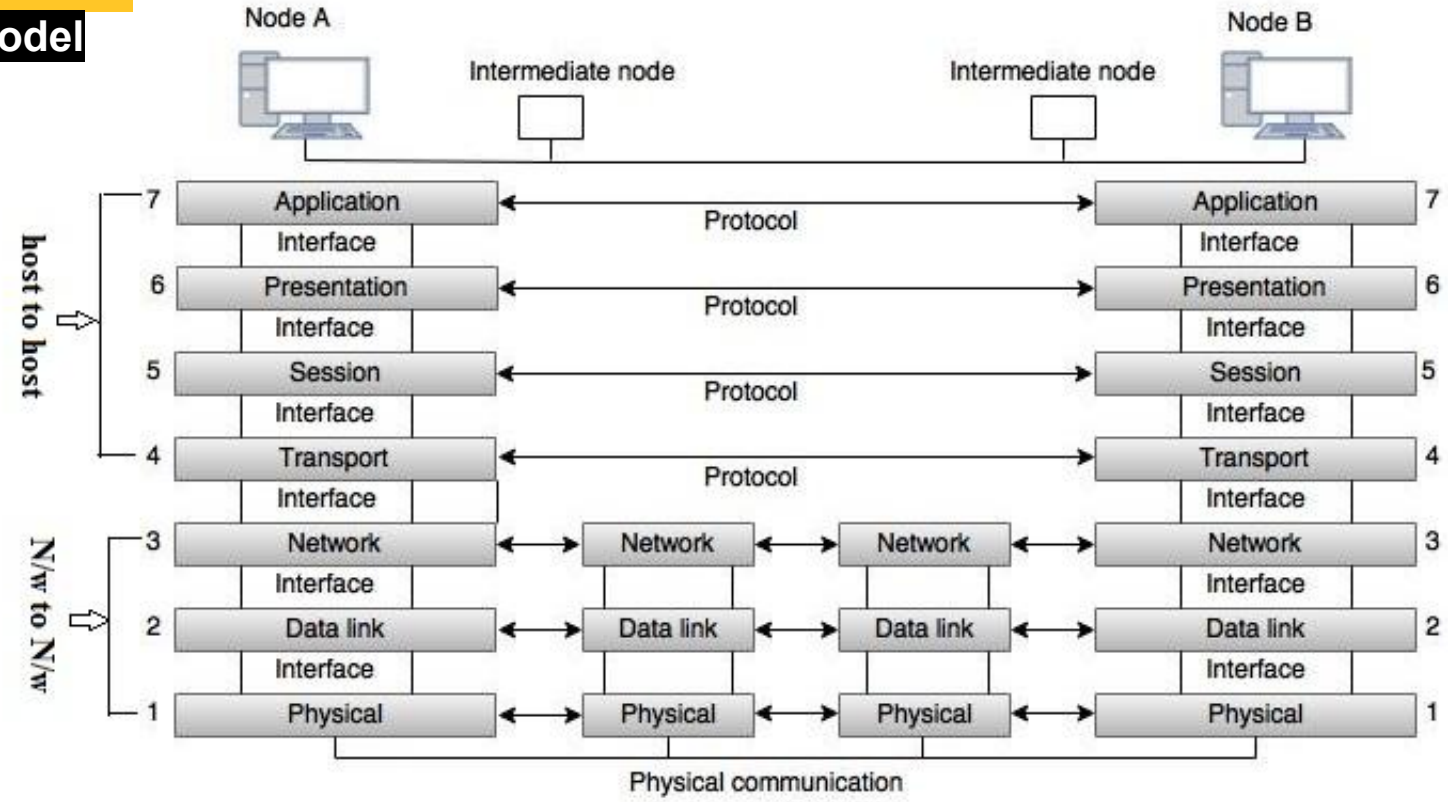

Fig: OSI Model

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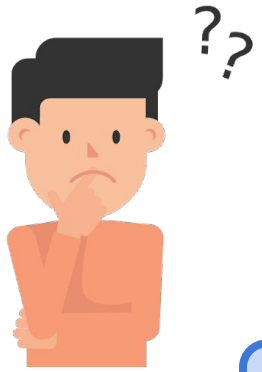
HTTP(S)



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

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HTTP Requests

MDN HTTP Request Methods

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

1.

2.

3.

4.

MDN HTTP Request Methods

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HTTP Requests

What's the difference?

1. GET
2. POST
3. PUT
4. DELETE

Idempotent

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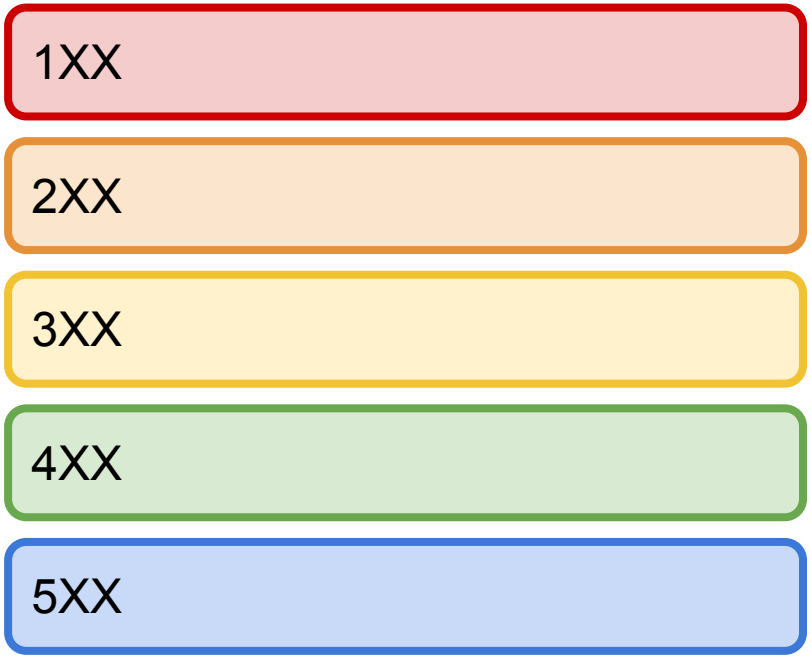
HTTP Responses

Status Codes →



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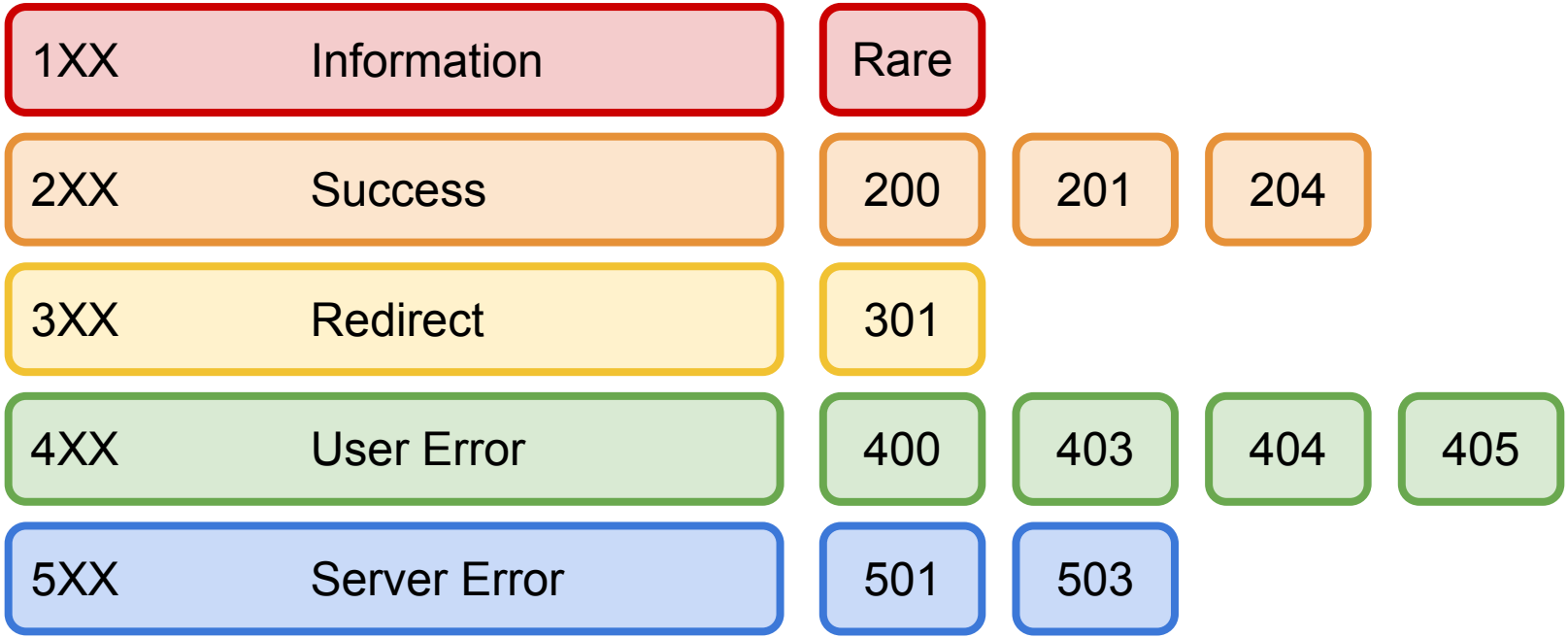
HTTP Responses



org.json Docs

JSON Guide

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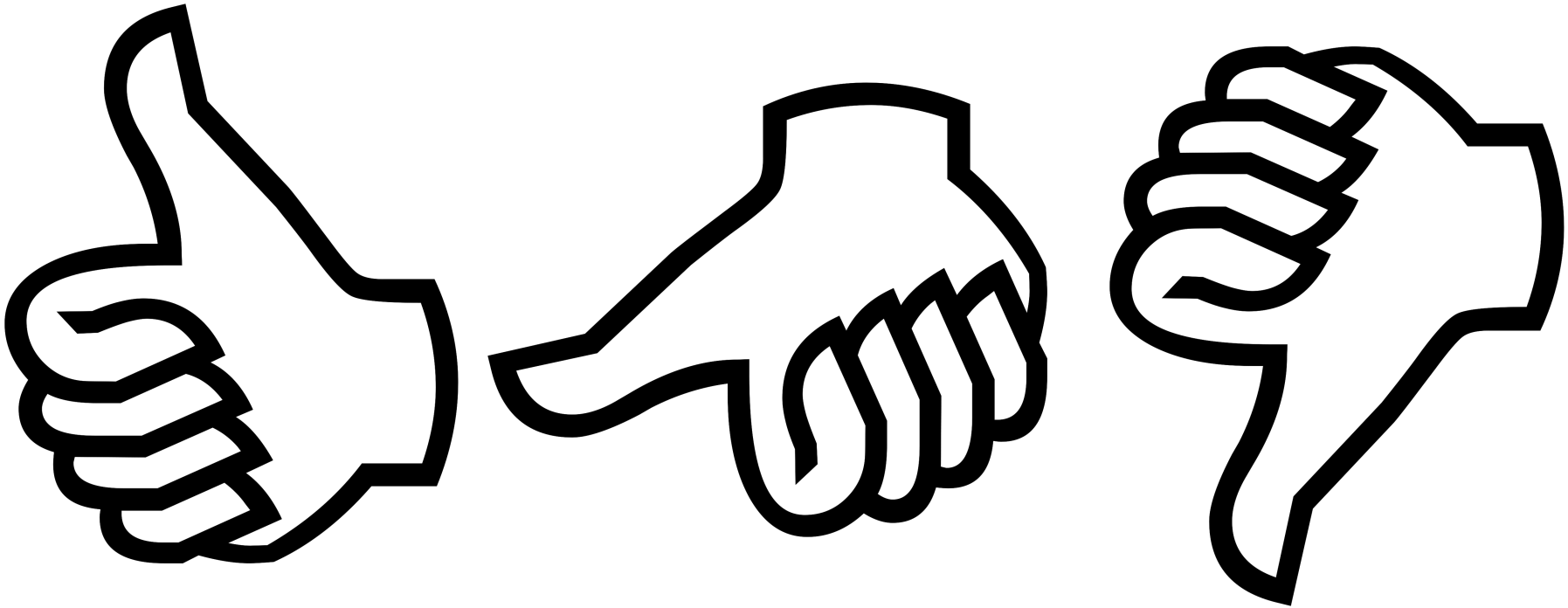
JSON

How comfortable are we with JSON?



org.json Docs

JSON Guide

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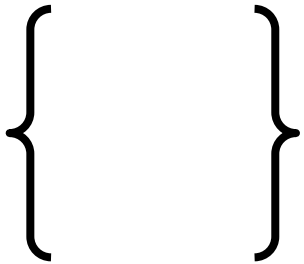
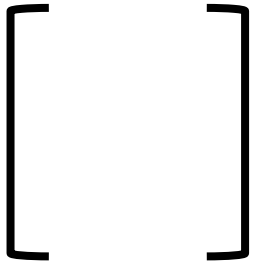
JSON

Object



Array



Member

“name” : value

org.json Docs

JSON Guide

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JSON

What do we see?

```
{
    “name” : “katie”,
    “role” : “student”,
    “course” : “ser321”
}
```

```
[{
    “name” : “katie”,
    “name” : “zac”
}]
```

```
{
    “name” : “katie”,
    “pets” : {
        “dog” : “smokey”,
        “dog” : “samie”
        }
}
```

```
{
    “submissions” : [
        {“name” : “katie”},
        {“name” : “zac”}
    ]
}
```

org.json Docs

JSON Guide

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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

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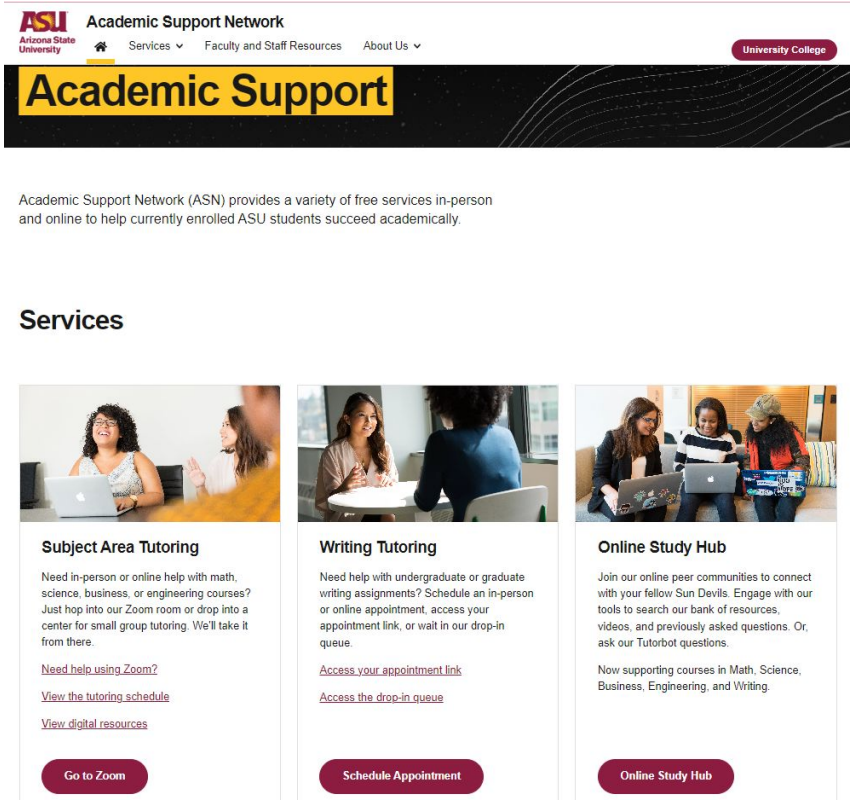
More Questions?

Check out our other resources!

tutoring.asu.edu

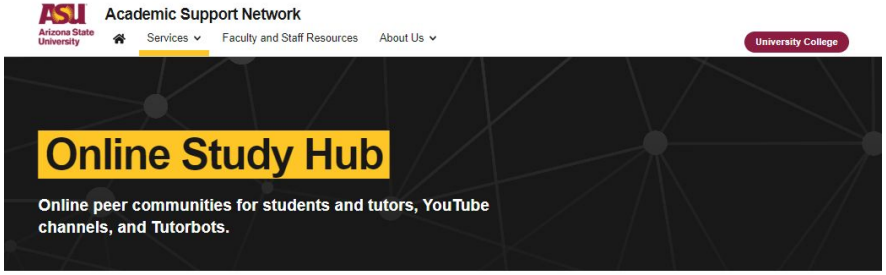


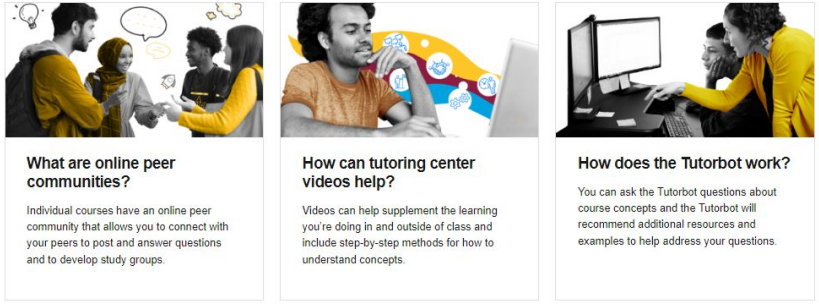
1. **Click on ‘Go to Zoom’ to log onto our Online Tutoring Center.**
2. **Click on ‘View the tutoring schedule’ to see when tutors are available for specific courses.**

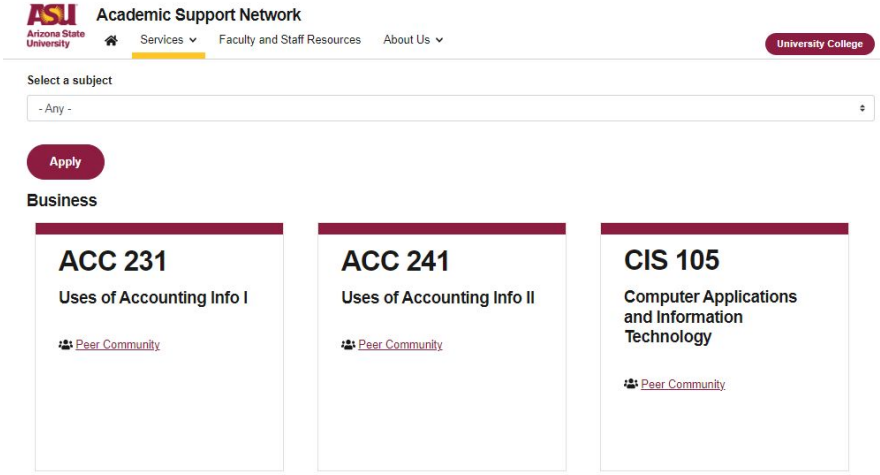
More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub



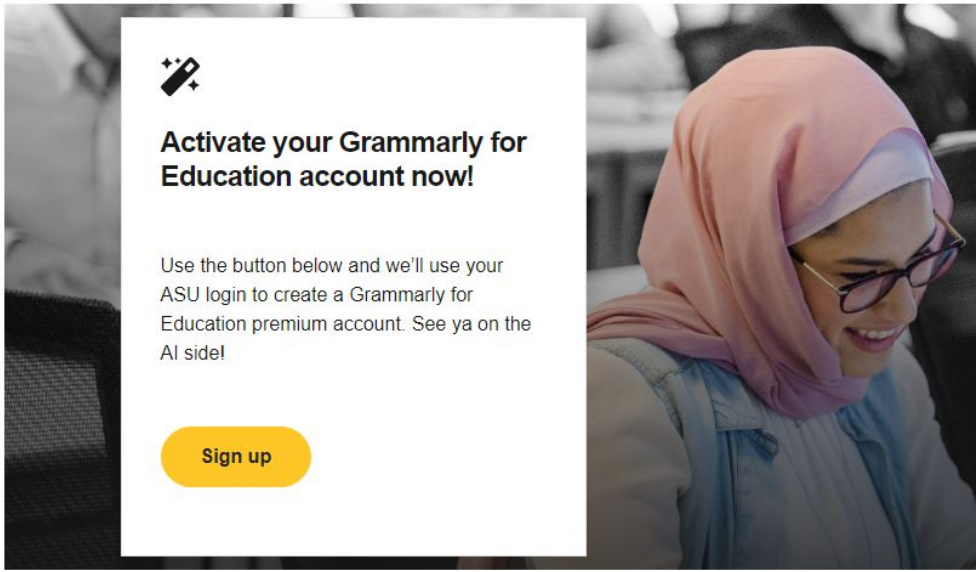




Don't forget to check out the Online Study Hub for additional resources!

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