SER 321 A Session

SI Session

Tuesday, January 21st 2025

11:00 am - 12:00 pm MST

Agenda

- Gradle Review
- OSI Model
  - Importance/Why We Care
  - Lower & Upper Layers
- HTTP
- JSON

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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Have we set any defaults here?

Network/HTTP-JSON

Let's modify this code to have *both* defaults and command line properties!

```
task API(type: JavaExec) {
  classpath = sourceSets.main.runtimeClasspath
  main = 'API'
  // default args
  args 'kgary' // port
}
```

First let's make the *if* statement:

Check out the recording for the solution and discussion!

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Check out the recording for the solution and discussion!

Let's modify this code to have *both* defaults and command line properties!

```
task API(type: JavaExec) {
  classpath = sourceSets.main.runtimeClasspath
  main = 'API'

  //OPTION 1

  // default args
  args 'kgary' // port

  //OPTION 2

}
```

First let's make the *if* statement:

Okay, now where do we put it?

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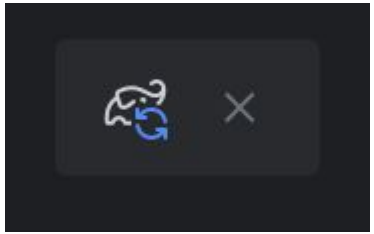
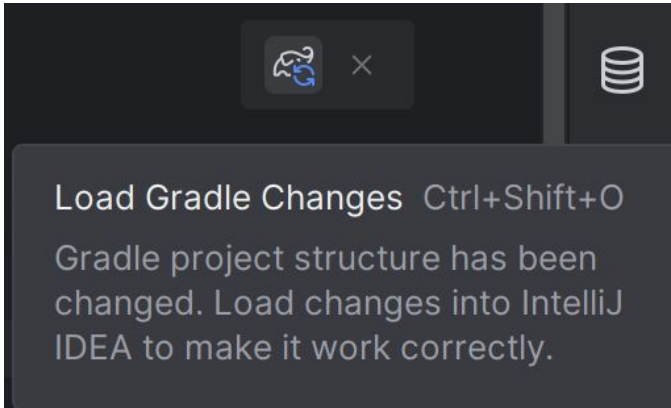
IMPORTANT NOTE!

So you need to *refresh* the project in your IDE!

```
task API(type: JavaExec) {
  classpath = sourceSets.main.runtimeClasspath
  main = 'API'

  //OPTION 1

  // default args
  args 'kgary' // port

  //OPTION 2
  if (project.hasProperty("port")) {
    args(project.getProperty("port"));
  }
}
```

We changed the content of `build.gradle`





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	

What ***is*** the OSI Model?

Can someone give a TL;DR summary?

Check out the recording for the solution and discussion!

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OSI Model

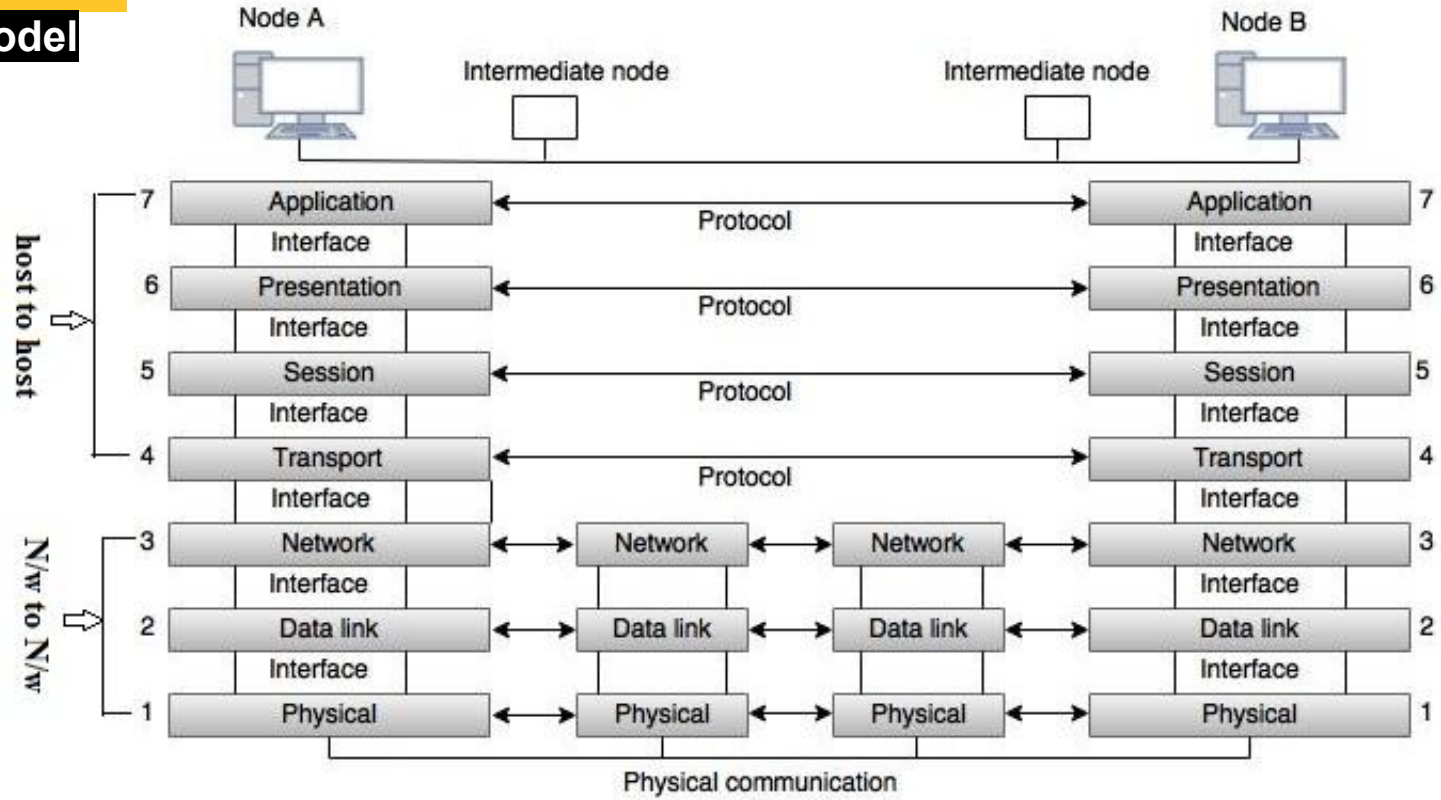

Fig: OSI Model

Check out the recording for the solution and discussion!

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OSI Model

Unit	Layer	What we are *really* talking about
Data	Application	
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Data	Session	
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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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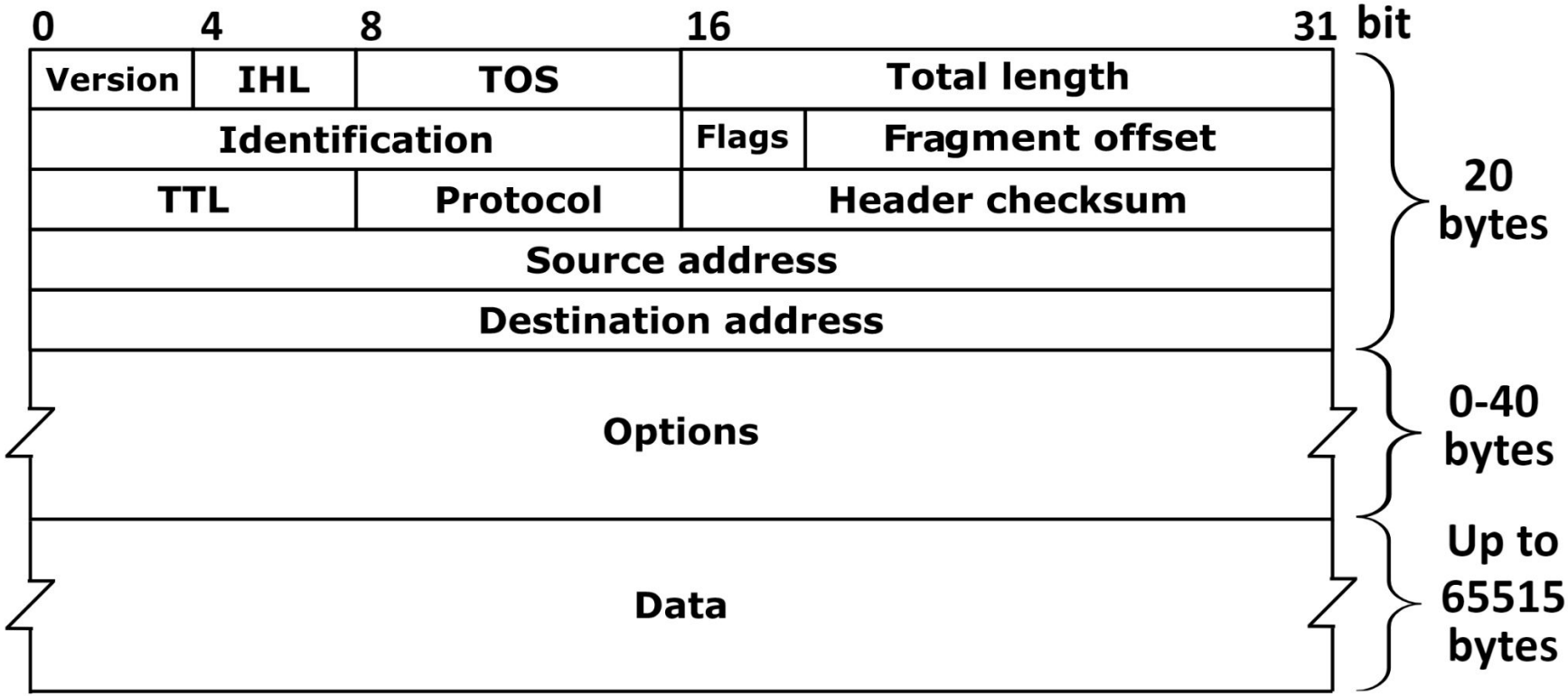
Headers

What type of header is this?



Check out the recording for the solution and discussion!

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Headers

TCP or UDP Header?

Check out the recording for the solution and discussion!

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																																

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	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

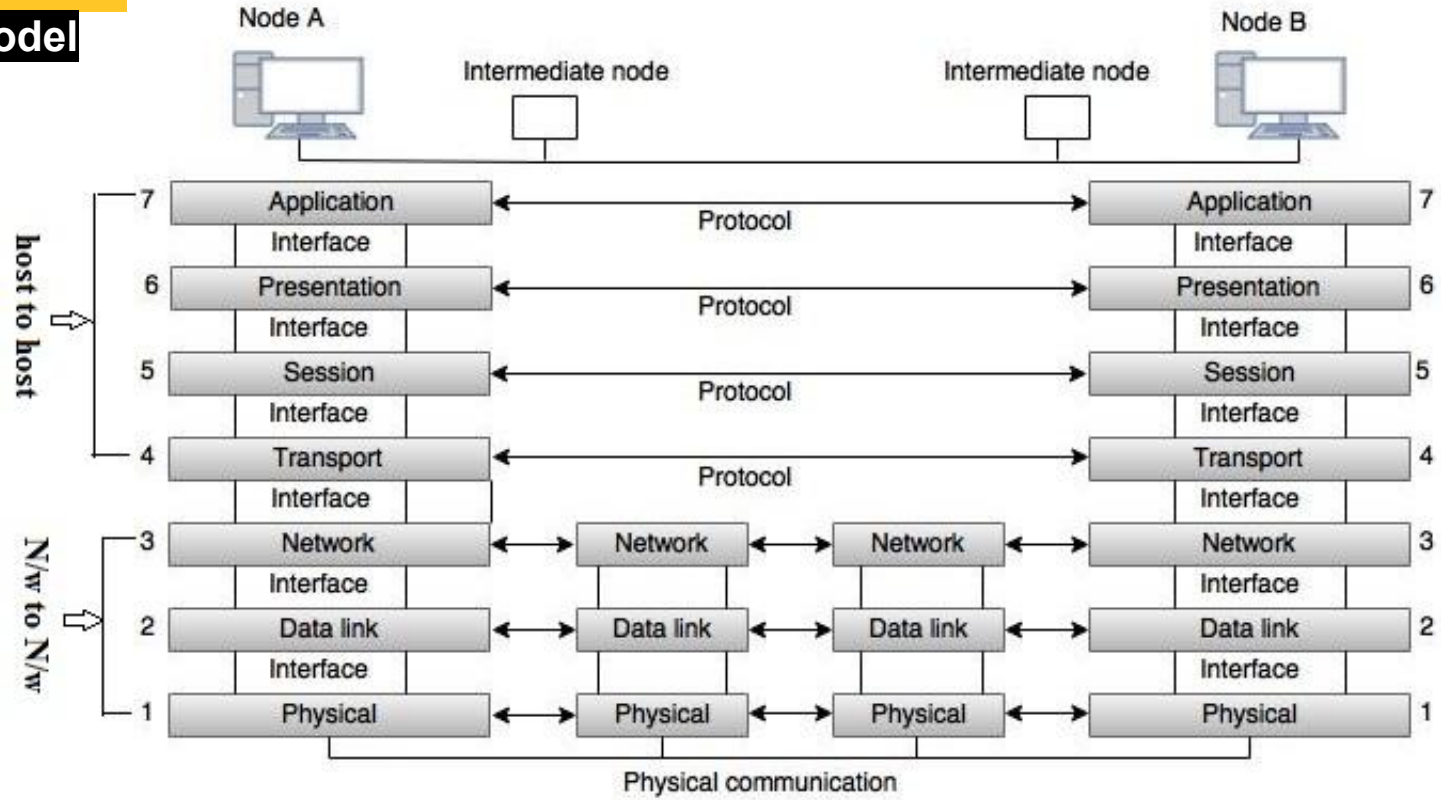

Fig: OSI Model

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Scratch Space

Upcoming Events

SI Sessions:

- Thursday, January 23rd at 7:00 pm MST
- Sunday, January 26th at 7:00 pm MST
- Tuesday, January 28th at 11:00 am MST

Review Sessions:

- TBD

Questions?

Survey:

https://asuasn.info/ASNSurvey

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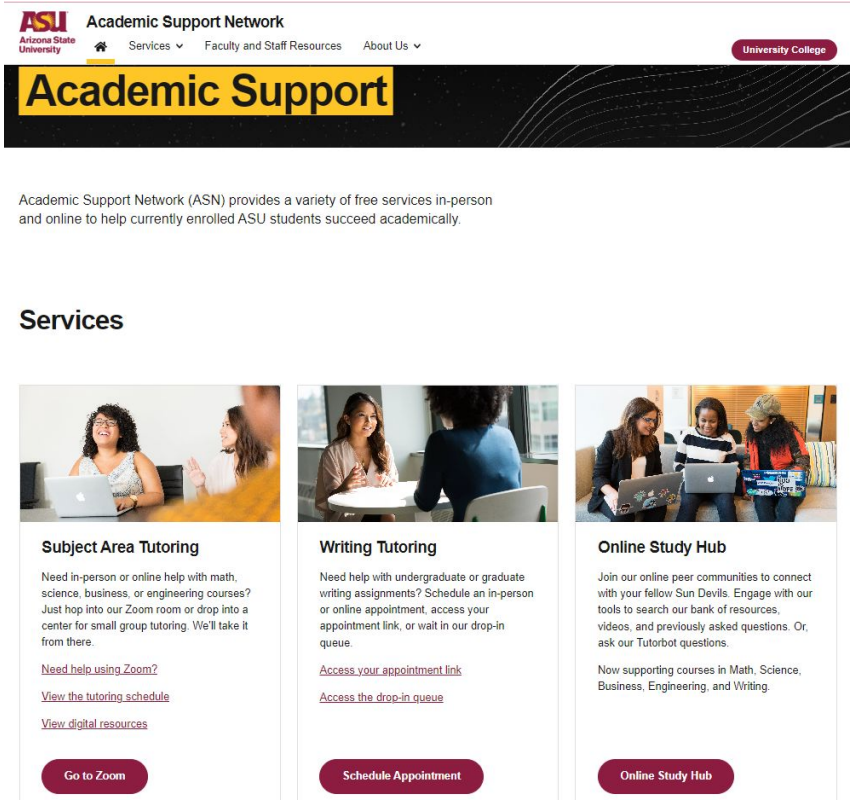
More Questions?

Check out our other resources!

tutoring.asu.edu

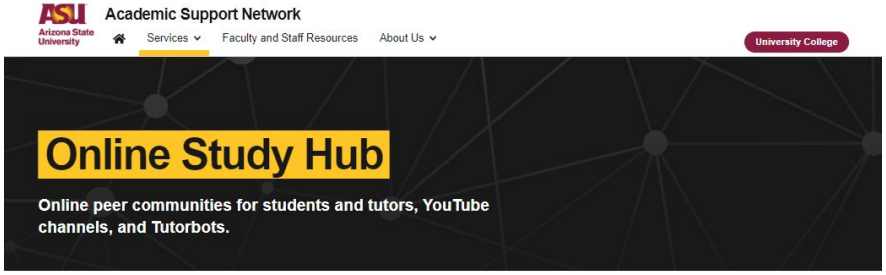


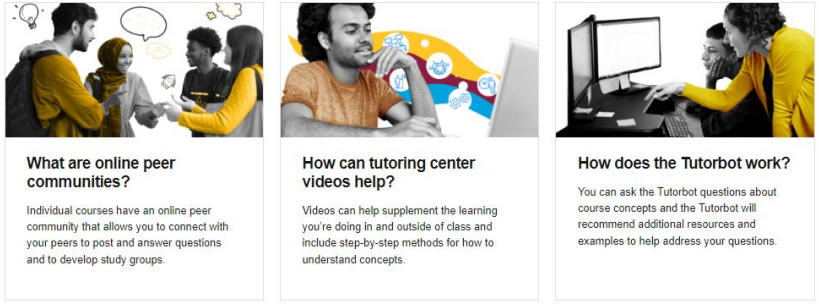
1. **Click on ‘Go to Zoom’ to log onto our Online Tutoring Center.**
2. **Click on ‘View the tutoring schedule’ to see when tutors are available for specific courses.**

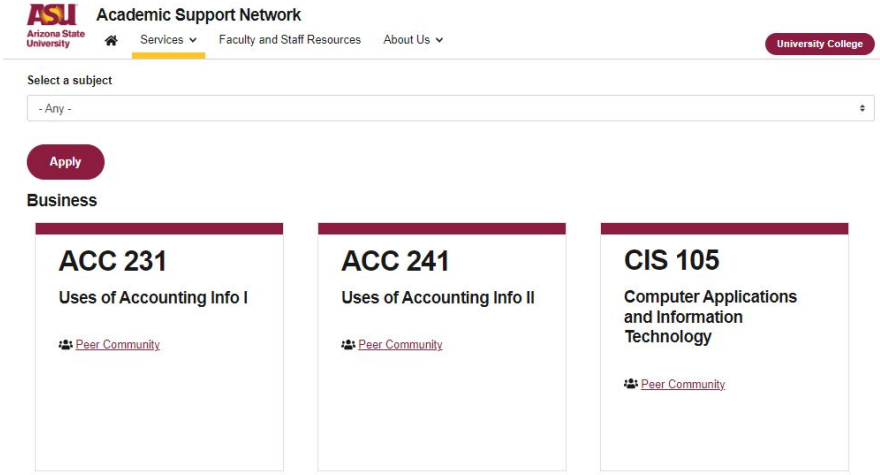
More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub



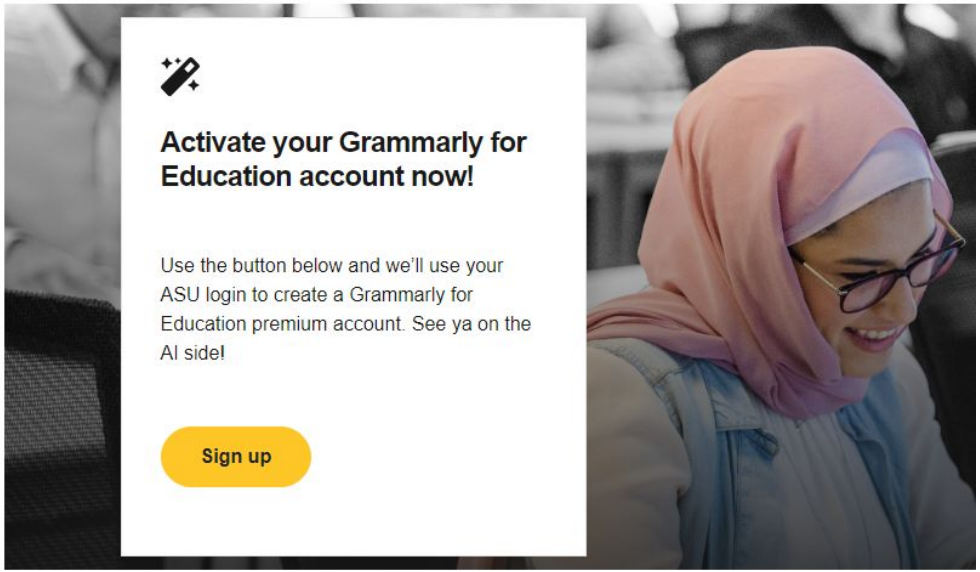




Don't forget to check out the Online Study Hub for additional resources!

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