

SER 321 B Session

Exam Review Session

Sunday, December 1st 2024

7:00 pm - 9:00 pm MST

Agenda



Exam Information

Study Guide PSA

Requested Content

General Review!

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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Exam Information

[Exam Info Page](#)

80 minutes

Very similar to
the quizzes

Make sure to look at
the Study Guide!

Opens: Wednesday
December 4th
@ 12:01 AM

Closes: Friday
December 6th
@ 11:59 PM

Front and Back!

MUST BE *Handwritten*



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Review Requests

It's ***not*** too late to make a topic request!

Drop a concept in the chat
and we can cover it next!

First Request:
Threads and Serialization

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Threaded Pitfalls

Check out the recording for the solution and discussion!

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

Race Condition

A thread never gains access to the resource it needs

What's the difference?

Starvation

A thread never gains access to the resource it needs

Waiting to access the **CPU**

Ready to go; never gets a chance

vs.

Deadlock

A thread is only able to acquire some of the resources it needs

Waiting to access another **resource**

Not ready to go

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Dining Philosophers

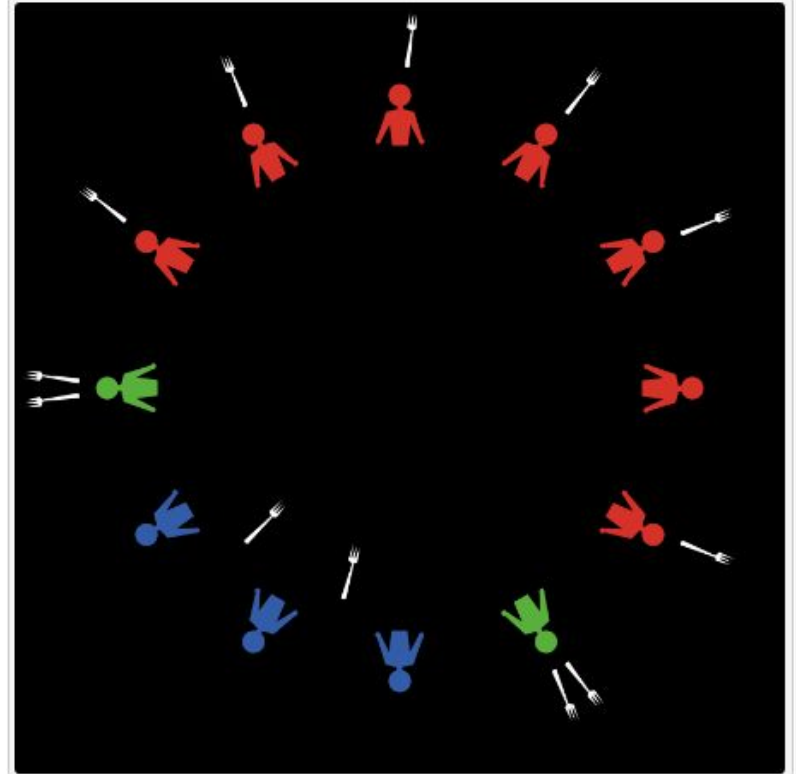
Check out the recording for the solution and discussion!

Can we take a guess at what is happening here?

What are the **BLUE** people doing?

What are the **GREEN** people doing?

What are the **RED** people doing?



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JSON Structure

Check out the recording for the discussion!

Data is stored in...

Name:Value pairs

AKA

Members

"Katie"

"student" : "Katie"

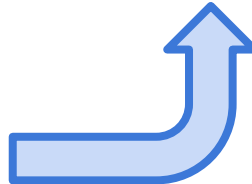
What uses curly braces?

Objects

{ }

What do Objects contain?

Members



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JSON Structure

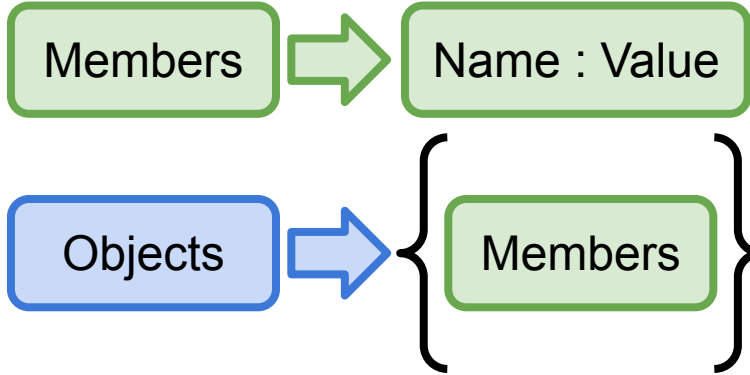
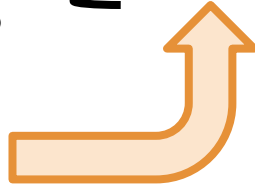
What uses brackets?

Arrays

[]

What do Arrays contain?

Any ***Valid*** Value



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JSON Structure

What is a valid value?

Strings

Booleans

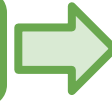
Numbers

NULL

Objects

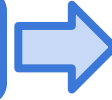
Arrays

Members



Name : Value

Objects



Members

Arrays



Values

Check out the recording for the discussion!

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Serialization

Can we recall some of the formats?

JSON

Java Object
Serialization

Protocol Buffers

XML

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Serialization

Binary

Text

Check out the recording for the discussion!

Two main
approaches for
storing the
content...

What about the data format?

JSON

Java Object
Serialization

Protocol Buffers

XML

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Serialization

Binary

Text

Check out the recording for the discussion!

Who uses ***TEXT***?

Text

JSON

Java Object
Serialization

Protocol Buffers

Text

XML

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Serialization

Binary

Text

Check out the recording for the discussion!

What does this imply?

Who uses ***BINARY***?

Text

JSON

Binary

Java Object
Serialization

Binary

Protocol Buffers

Text

XML

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Serialization

Generic
Superclass

Streams and their types

```
OutputStream out = sock.getOutputStream();
```

Buffered Stream

Bytes

Check out the recording for the discussion!

Data Stream

Primitive DATA Types

Object Stream

Java Objects

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JSON Recognition

How many Objects?

Check out the recording for the discussion!

How many Arrays?

How many Members?

```
{
  "lat": 42.3434,
  "lon": -88.0412,
  "timezone": "America/Chicago",
  "timezone_offset": -21600,
  "current": {
    "dt": 1733070576,
    "sunrise": 1733058144,
    "sunset": 1733091649,
    "temp": 18.57,
    "feels_like": 5.97,
    "pressure": 1025,
    "humidity": 63,
    "dew_point": 9.21,
    "uvi": 0.79,
    "clouds": 0,
    "visibility": 10000,
    "wind_speed": 14.97,
    "wind_deg": 280,
    "wind_gust": 21.85,
    "weather": [
      {
        "id": 800,
        "main": "Clear",
        "description": "clear sky",
        "icon": "01d"
      }
    ]
  }
}
```

Check out the recording for the discussion!

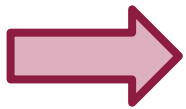
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OSI Model

Unit

Layer

What we are *really*
talking about



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Network Layer - IP

Given the following IP address, identify the...

Port

128.148.32.110 8080

Check out the recording for the discussion and memory tips!

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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

What are the main differences?

TCP	UDP

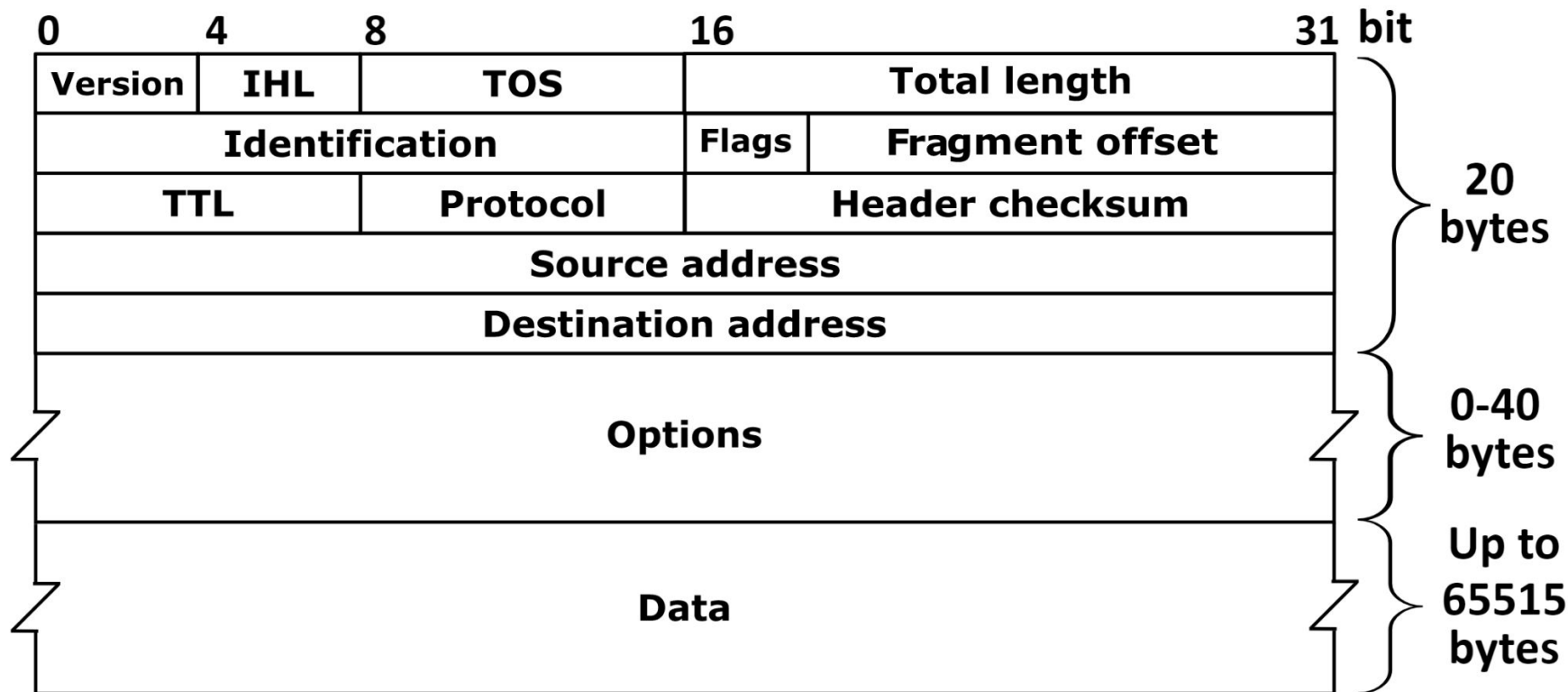
Check out the recording for the discussion!

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Headers

What type of header is this?

IP Header



Check out the recording for the discussion and memory tips!

Headers

TCP or UDP Header?

Check out the recording for the discussion and memory tips!

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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URLs

Given the following URL, identify the...

Query

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

Check out the recording for the discussion and memory tips!

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URLs

Given the following URL, identify the...

Protocol

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

Check out the recording for the discussion and memory tips!

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URLs

Given the following URL, identify the...

Path

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

Check out the recording for the discussion and memory tips!

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URLs

Given the following URL, identify the...

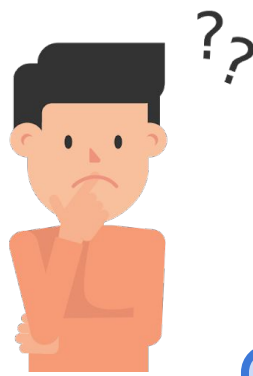
Host

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

Check out the recording for the discussion and memory tips!

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HTTP(s)



Stateful

OR

Stateless

Synchronous

OR

Asynchronous

Check out the recording for the discussion and solution!

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Socket Properties

Sockets allow our client and server to communicate!

Location

Connection
Semantics

Message Format

Need to define **3 properties** before usage

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 discussion!



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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
discussion
and solution!*

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Server Socket

Steps for the **Server Socket**

1.

2.

3.

4.

5.

6.

7.

8.

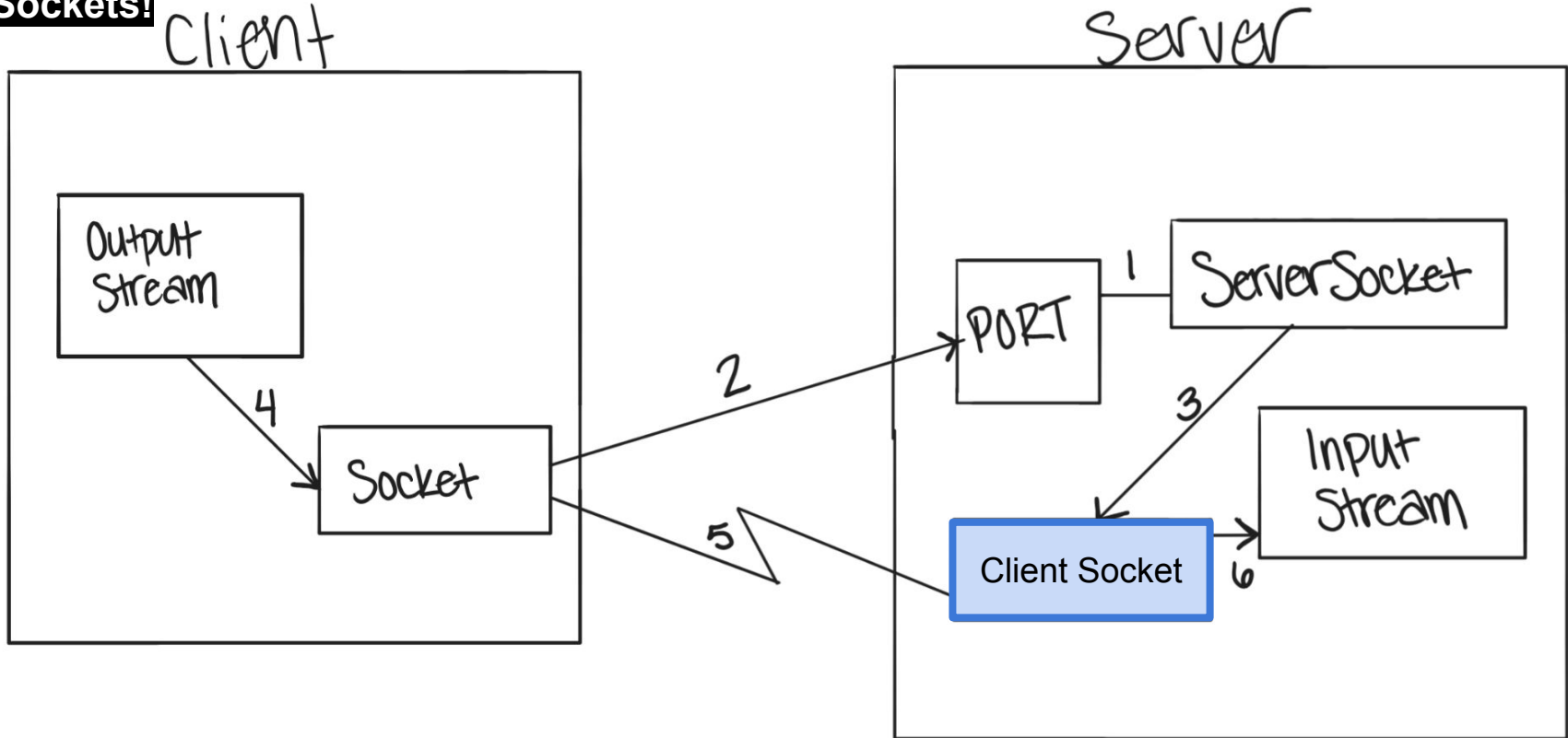
9.

*Check out
the recording
for the
discussion
and solution!*

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Sockets!

Check out the recording for the discussion!



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Scratch Space

Questions?

Survey:

<https://asuasn.info/ASNSurvey>



Upcoming Events

SI Sessions:

- Tuesday, December 3rd at 10:00 am MST - **Q&A Session**

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**

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



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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.

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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-

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[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

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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 -

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Business


ACC 231

Uses of Accounting Info I

 [Peer Community](#)

ACC 241

Uses of Accounting Info II

 [Peer Community](#)

CIS 105

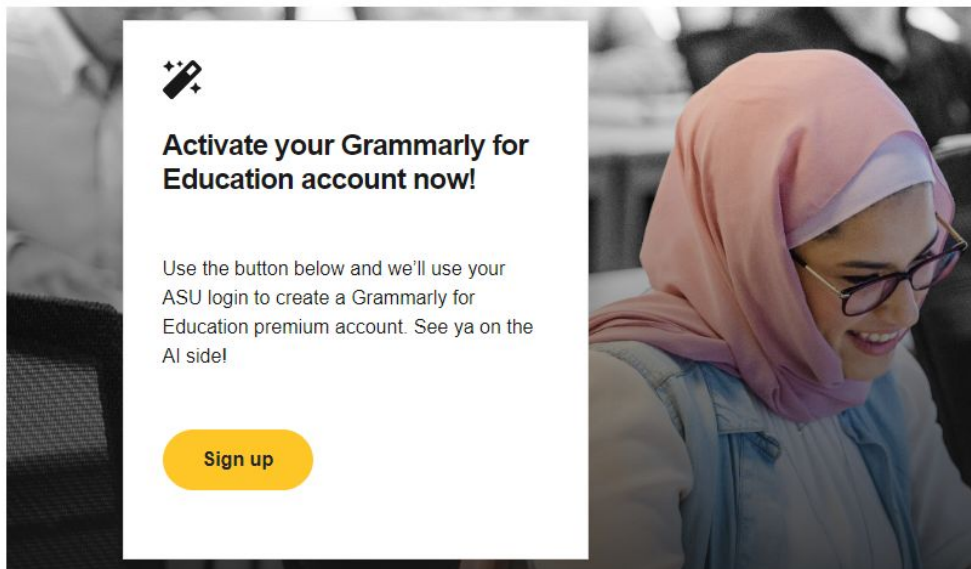
Computer Applications and Information Technology

 [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

*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](#)
- [RAFT](#)