SER 321 C Session

SI Session

Thursday, May 23rd 2024

6:00 pm - 7:00 pm MST

Agenda

- OSI Model
  - Lower Layers
  - 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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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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OSI Model

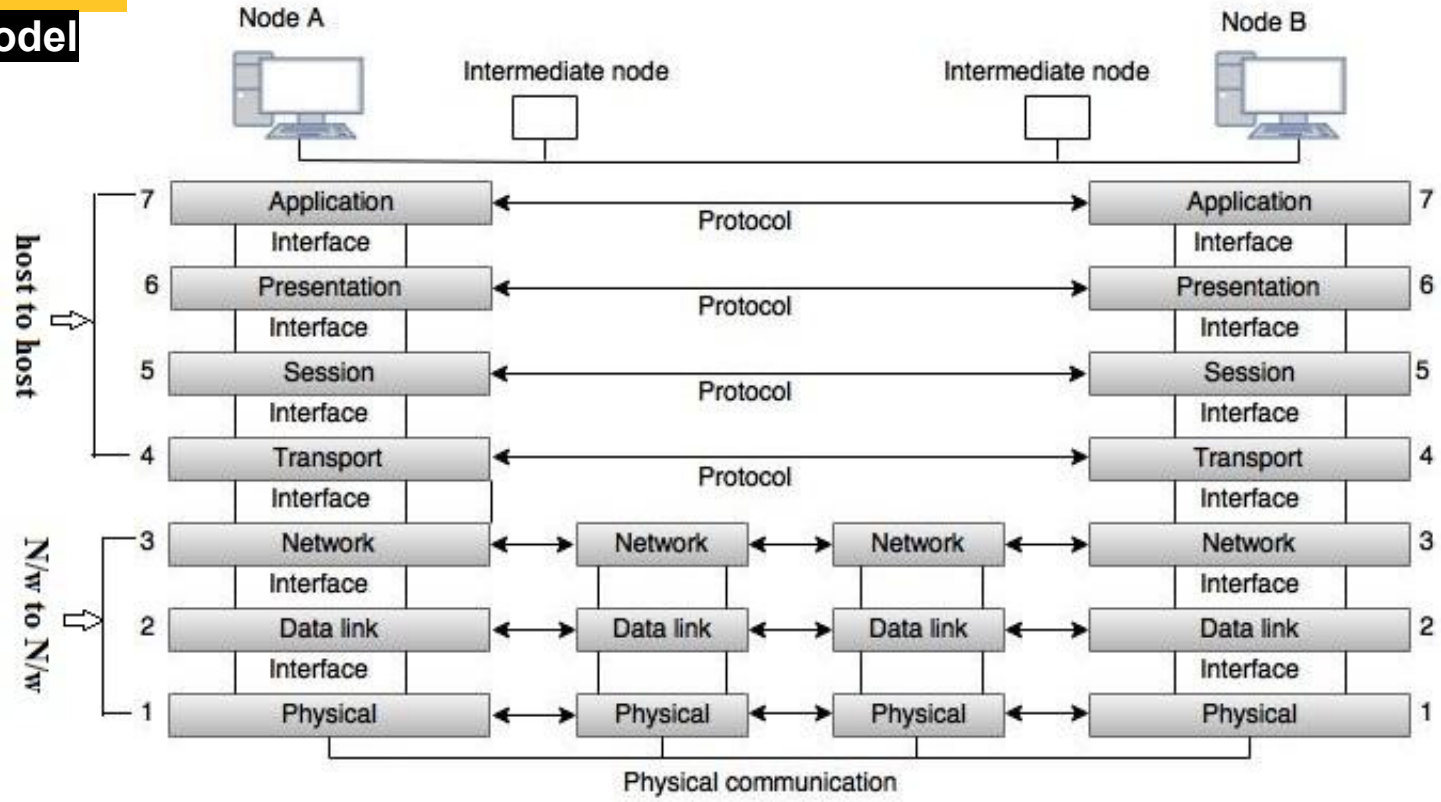

Fig: OSI Model

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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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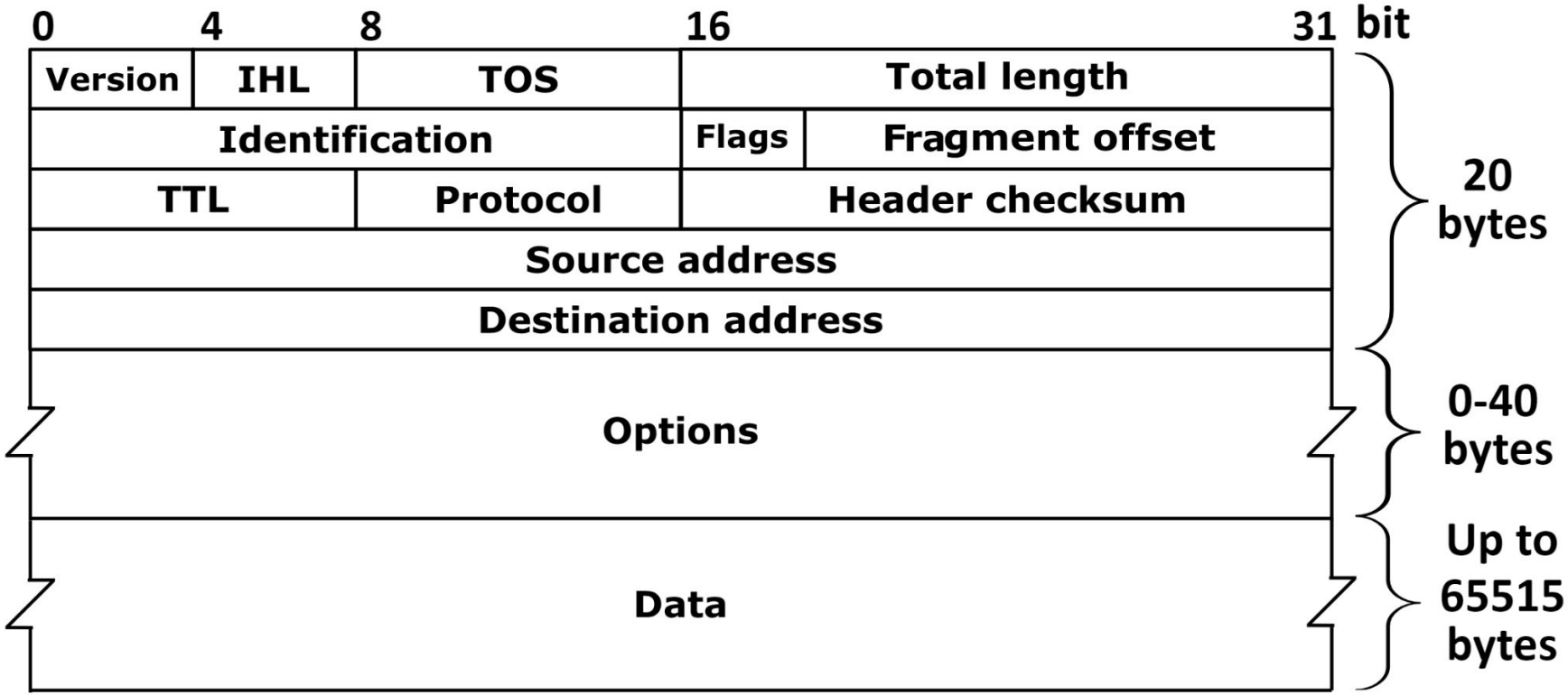
Headers

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

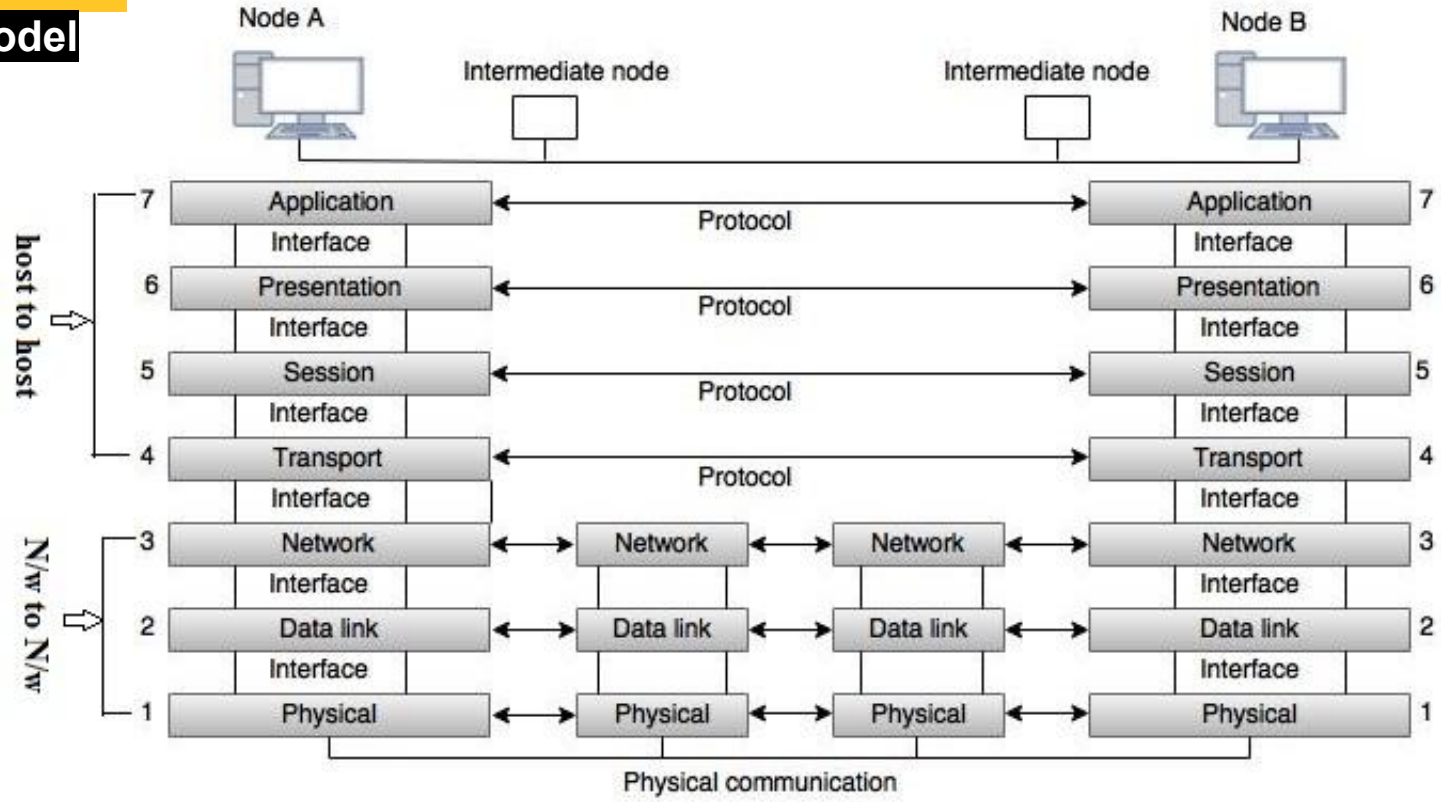

Fig: OSI Model

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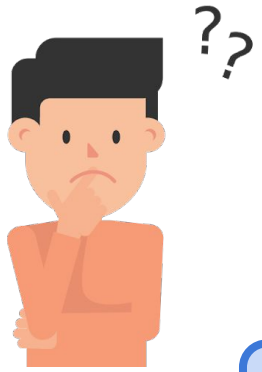
HTTP(S)



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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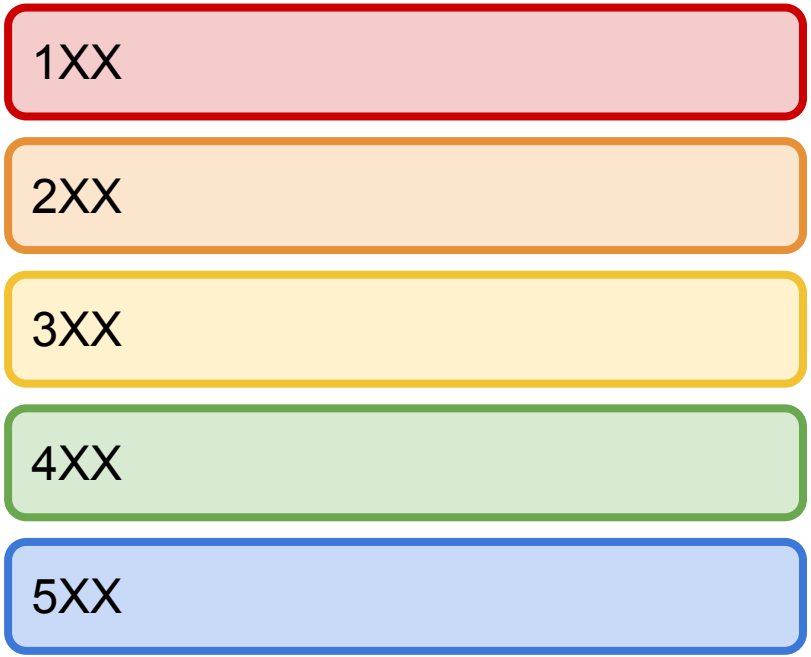
HTTP Responses

Status Codes →



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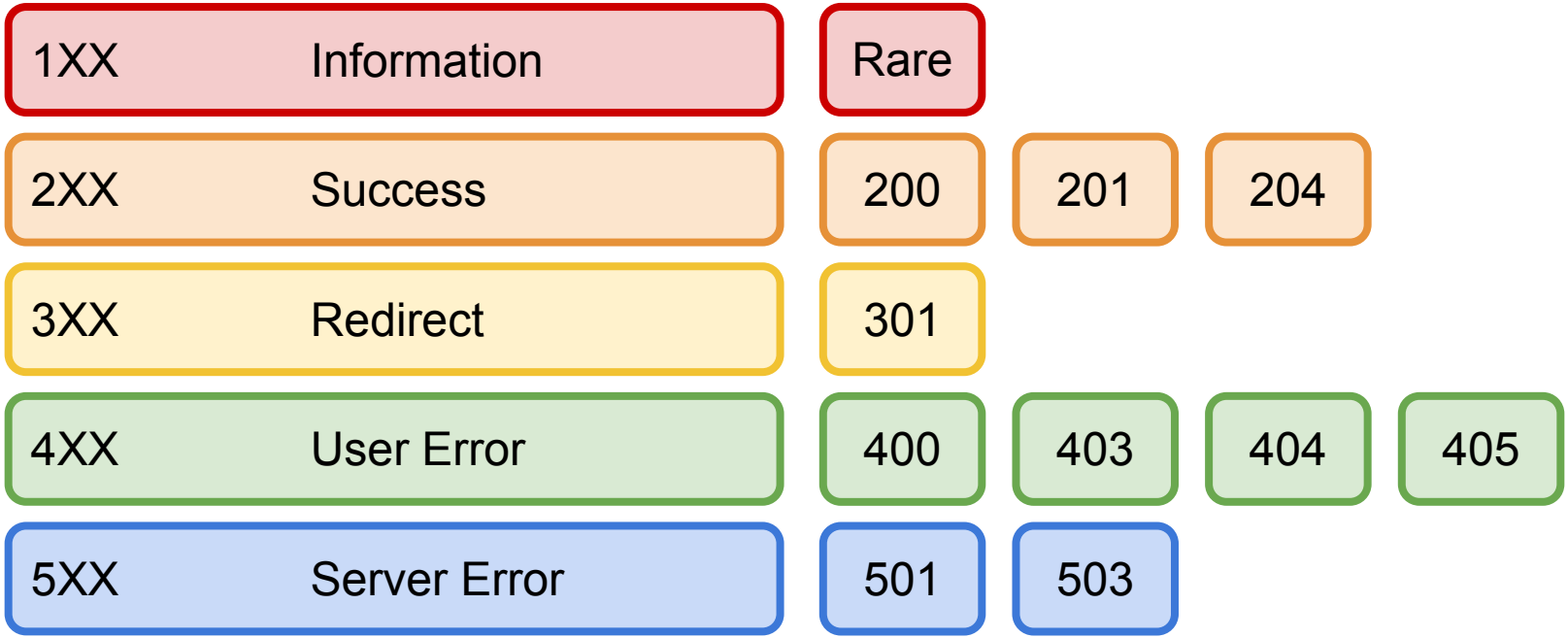
HTTP Responses



org.json Docs

JSON Guide

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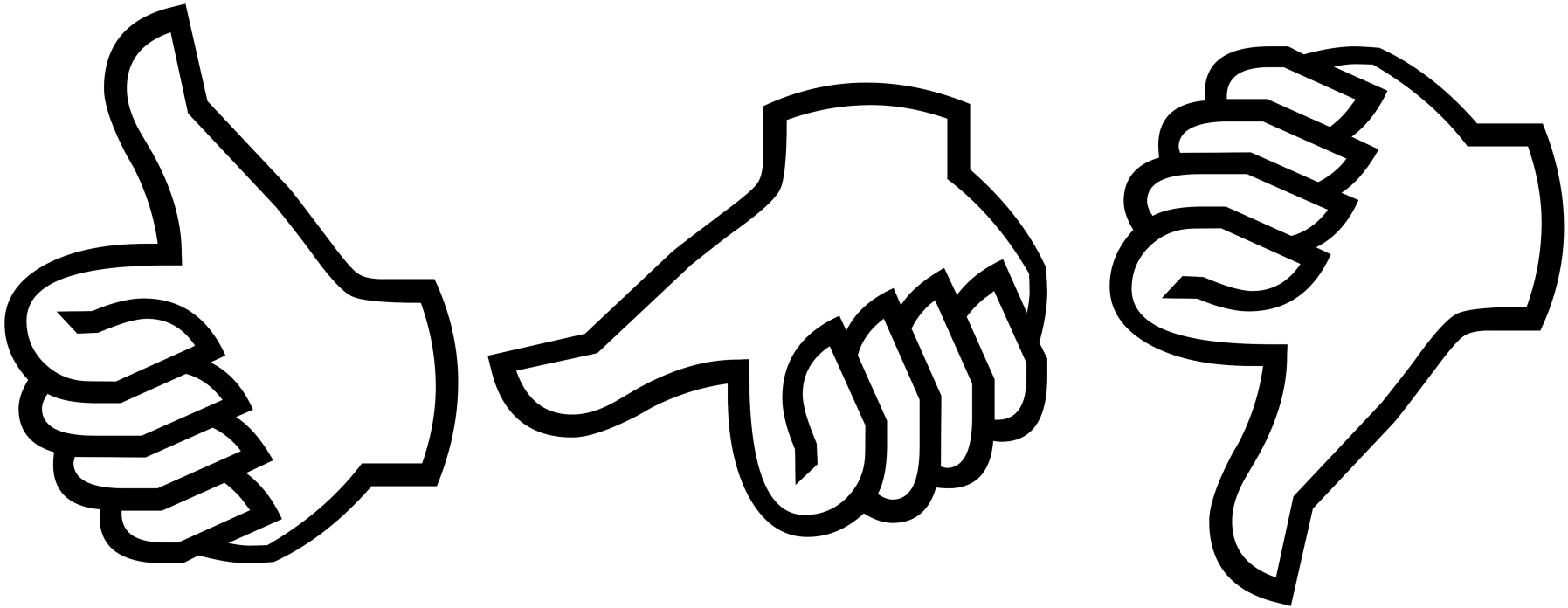
JSON

How comfortable are we with JSON?



org.json Docs

JSON Guide

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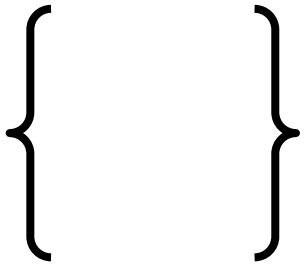
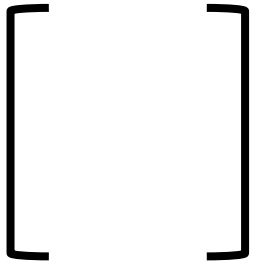
JSON

Object



Array



Member

“name” : value

org.json Docs

JSON Guide

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Scratch Space

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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Scratch Space

How many Objects?

How many Arrays?

How many Members?

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Scratch Space

Questions?

Survey:

http://bit.ly/ASN2324

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Upcoming Events

SI Sessions:

- ~~Sunday, May 26th at 6:00 pm MST~~ - **CANCELLED (Closed for Memorial Day)**
- ~~Monday, May 27th at 6:00 pm MST~~ - **CANCELLED (Closed for Memorial Day)**
- Thursday, May 30th at 6:00 pm MST

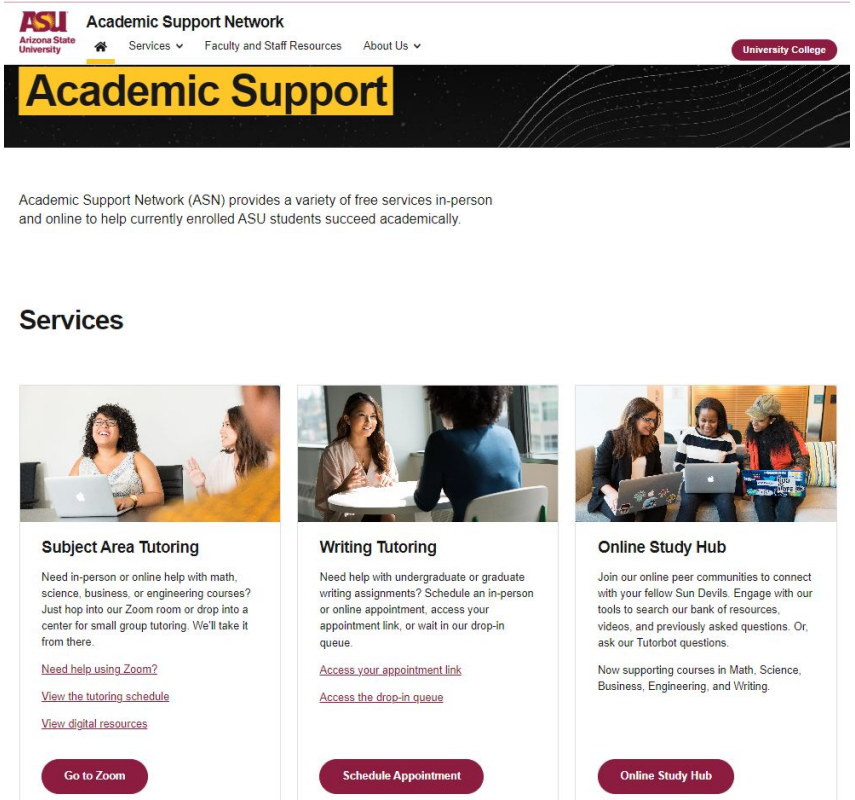
Review Sessions:

- TBD

More Questions?

Check out our other resources!

tutoring.asu.edu

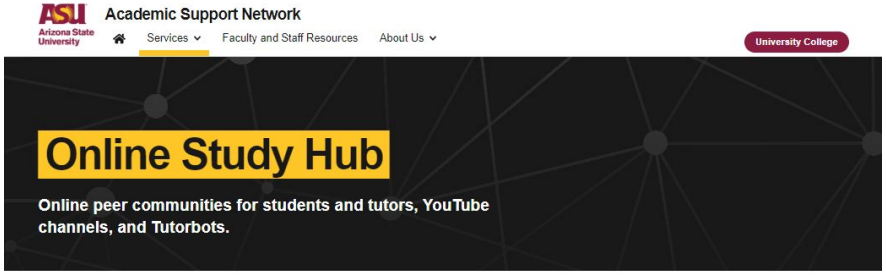


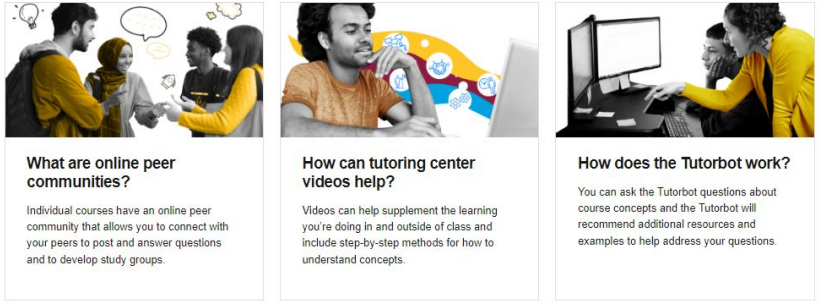
1. **Click on ‘Go to Zoom’ to log onto our Online Tutoring Center.**
2. **Click on ‘View the tutoring schedule’ to see when tutors are available for specific courses.**

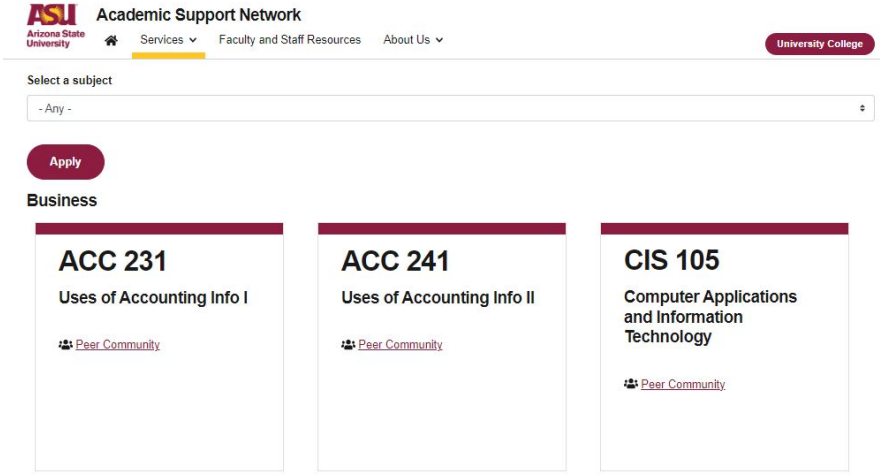
More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub



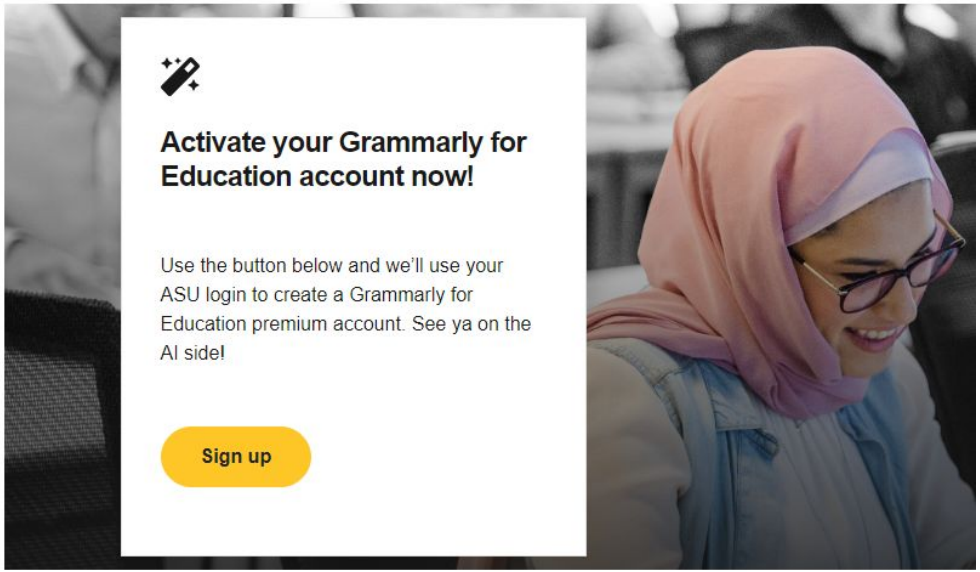




Don't forget to check out the Online Study Hub for additional resources!

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