SER 321 B Session

SI Session

Sunday, March 23rd 2025

7:00 pm - 8:00 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

SER 321
Gradle

Check out the recording for the solution and discussion!

Sockets/JavaSimpleSock2

Which if statement will execute with

```
gradle SocketClient -Phost=localhost -Pmessage=hi ?
```

A.
```
if (project.hasProperty("host") && project.hasProperty("message") && project.hasProperty("number")) {
  args(project.getProperty('host'),
          project.getProperty('message'),
          project.getProperty('number'));
```

B.
```
} else if (project.hasProperty("host") && project.hasProperty("message")) {
  args(project.getProperty('host'),
          project.getProperty('message'));
```

C.
```
} else if (project.hasProperty("host") && project.hasProperty("number")) {
  args(project.getProperty('host'),
          "Set by Gradle, since nothing provided: https://gph.is/2y76sj4",
          project.getProperty('number'));
```

D.
```
}  else if (project.hasProperty("host")) {
  args(project.getProperty('host'));
}
```

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Gradle

Check out the recording for the solution and discussion!

Sockets/JavaSimpleSock2

Which if statement will execute with `gradle SocketClient` ?

A.
```
if (project.hasProperty("host") && project.hasProperty("message") && project.hasProperty("number")) {
  args(project.getProperty('host'),
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} else if (project.hasProperty("host") && project.hasProperty("message")) {
  args(project.getProperty('host'),
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} else if (project.hasProperty("host") && project.hasProperty("number")) {
  args(project.getProperty('host'),
          "Set by Gradle, since nothing provided: https://gph.is/2y76sj4",
          project.getProperty('number'));
```

D.
```
}  else if (project.hasProperty("host")) {
  args(project.getProperty('host'));
}
```

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Gradle Defaults

Have we set any defaults here?

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!

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Gradle Defaults

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:

Check out the recording for the solution!

Okay, now where do we put it?

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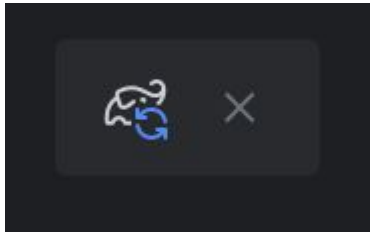
Gradle Defaults

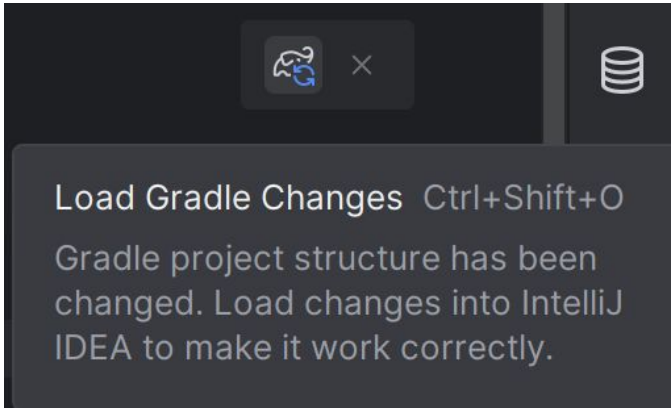
IMPORTANT NOTE!

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 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	

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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 solution!

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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

Check out the recording for the solution!

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Network Layer - IP

Given the following IP address, identify the…

Host

128.148.32.110:8080

Check out the recording for the solution!

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TCP/UDP

Check out the recording for the discussion!

TCP	UDP

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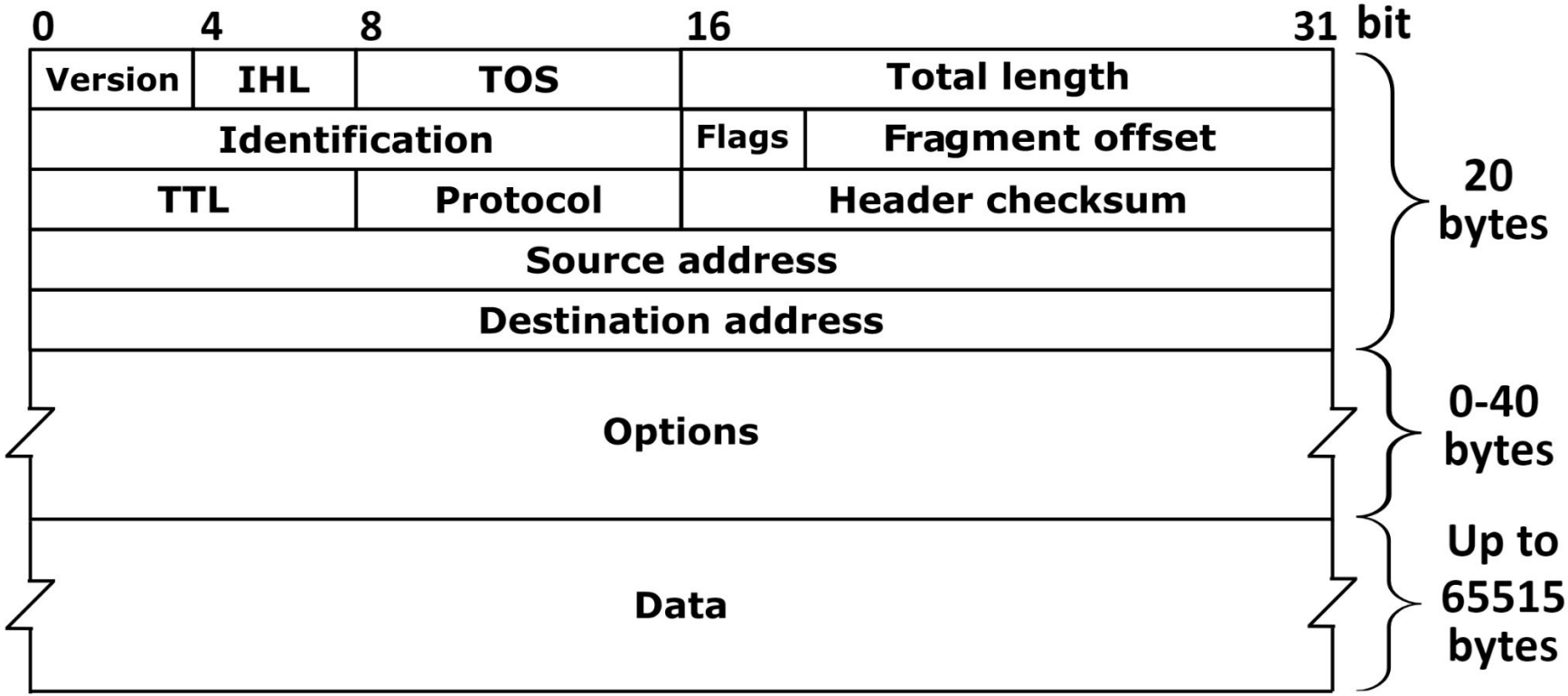
Headers

What type of header is this?

Check out the recording for the solution!



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Headers

TCP or UDP Header?

Check out the recording for the solution!

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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Headers

TCP or UDP Header?

Check out the recording for the solution!

Offset	Octet	0								1								2								3							
Octet	Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0	Source Port																Destination Port															
4	32	Length																Checksum															
8	64	Data																															
12	96																																
⋮	⋮																																

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Connections

Connections!

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Scratch Space

Upcoming Events

SI Sessions:

- Tuesday, March 25th at 10:00 am MST
- Thursday, March 27th at 7:00 pm MST
- Sunday, March 30th at 7:00 pm MST

Review Sessions:

- TBD

Questions?

Survey:

https://asuasn.info/ASNSurvey

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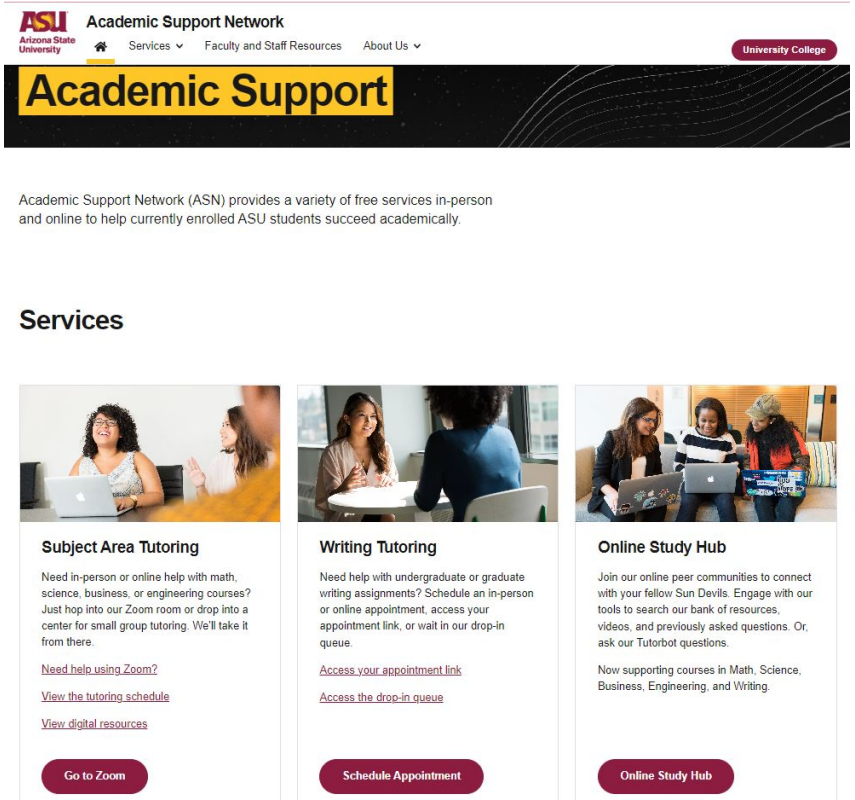
More Questions?

Check out our other resources!

tutoring.asu.edu

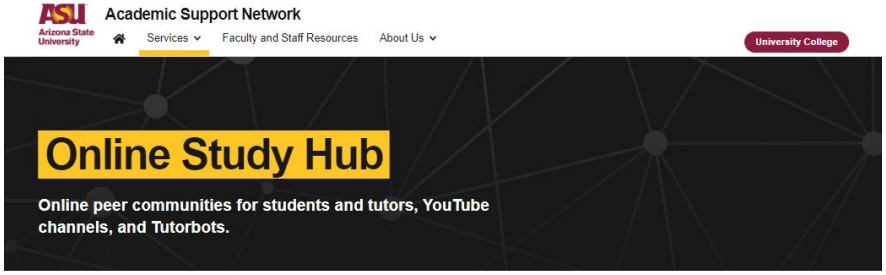


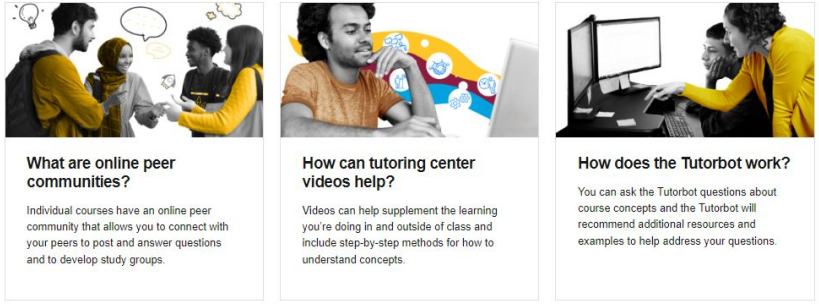
1. **Click on ‘Go to Zoom’ to log onto our Online Tutoring Center.**
2. **Click on ‘View the tutoring schedule’ to see when tutors are available for specific courses.**

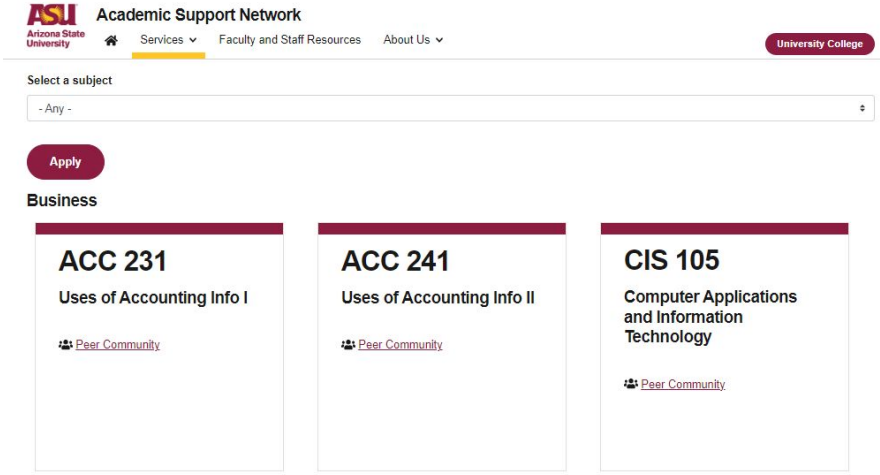
More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub



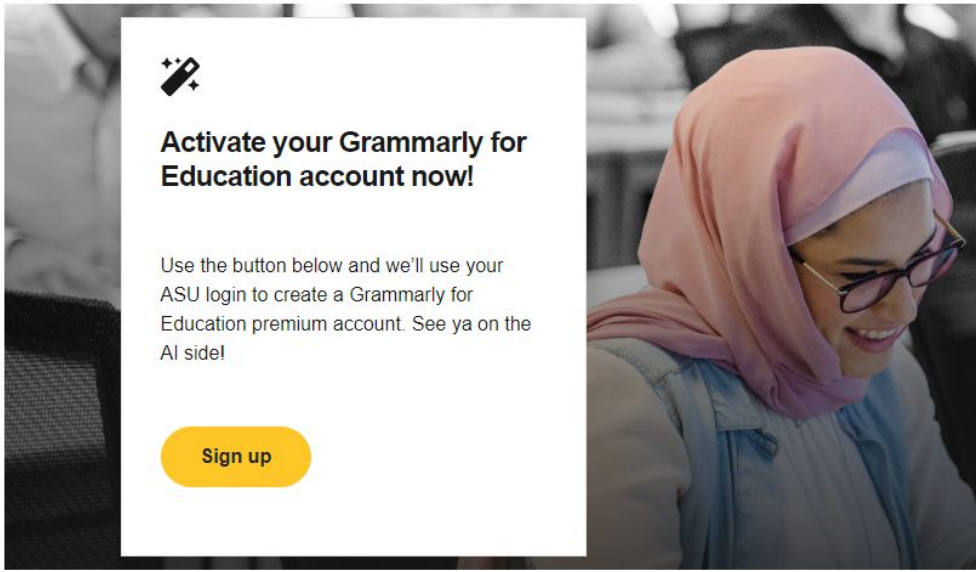




Don't forget to check out the Online Study Hub for additional resources!

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