

SER 321 B Session

SI Session

Thursday, October 19th 2023

7:00 - 8:00 pm MST

Agenda



OSI Upper Layers

URLs & HTTP(S)

JSON

Example Code

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

OSI from Memory

Let's see how much of the OSI Model we can pull directly from memory!

[illegible]

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OSI - Upper Layers

Host Layers

data unit

layers

Data

Application

Network Process to Application

Data

Presentation

Data Representation
and Encryption

Data

Session

Interhost Communication

Segments

Transport

End-to-End Connections
and Reliability

Media Layers

Packets

Network

Path Determination and
Logical Addressing (IP)

Frames

Data Link

Physical Addressing
(MAC and LLC)

Bits

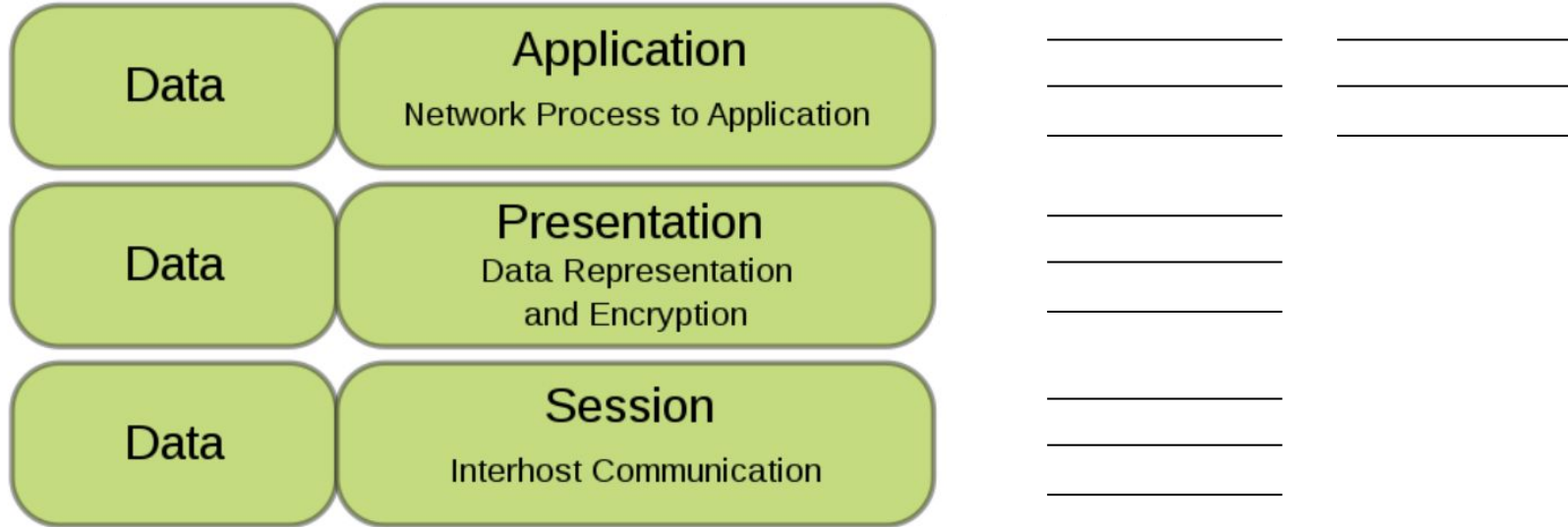
Physical

Media, Signal and
Binary Transmission

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OSI - Upper Layers

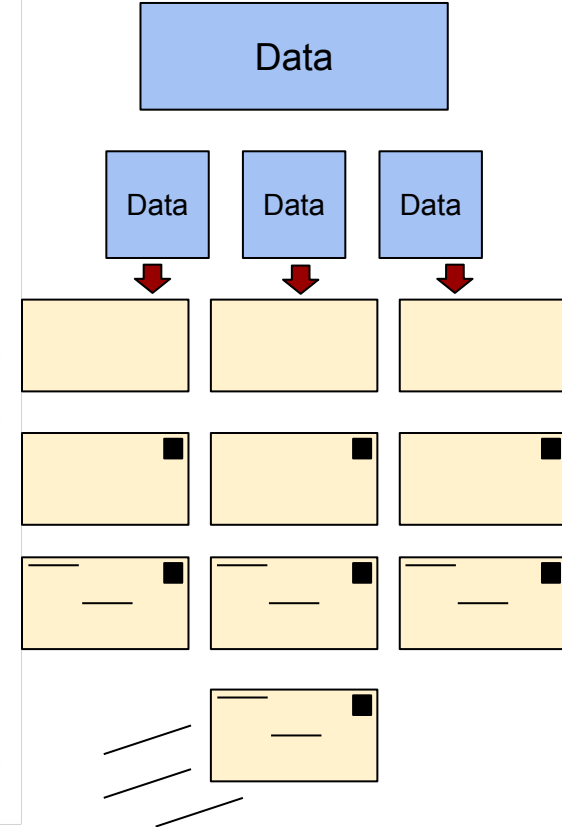
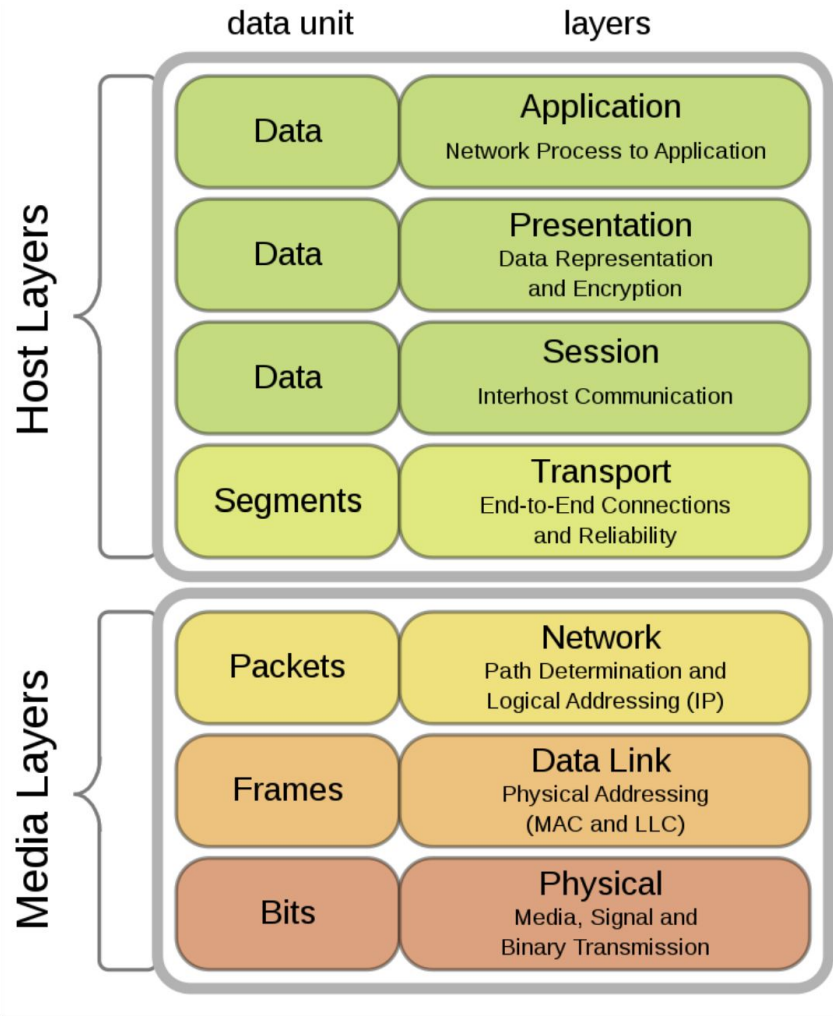
What are the responsibilities and/or protocols of each layer?



Check out the recording for the solution!

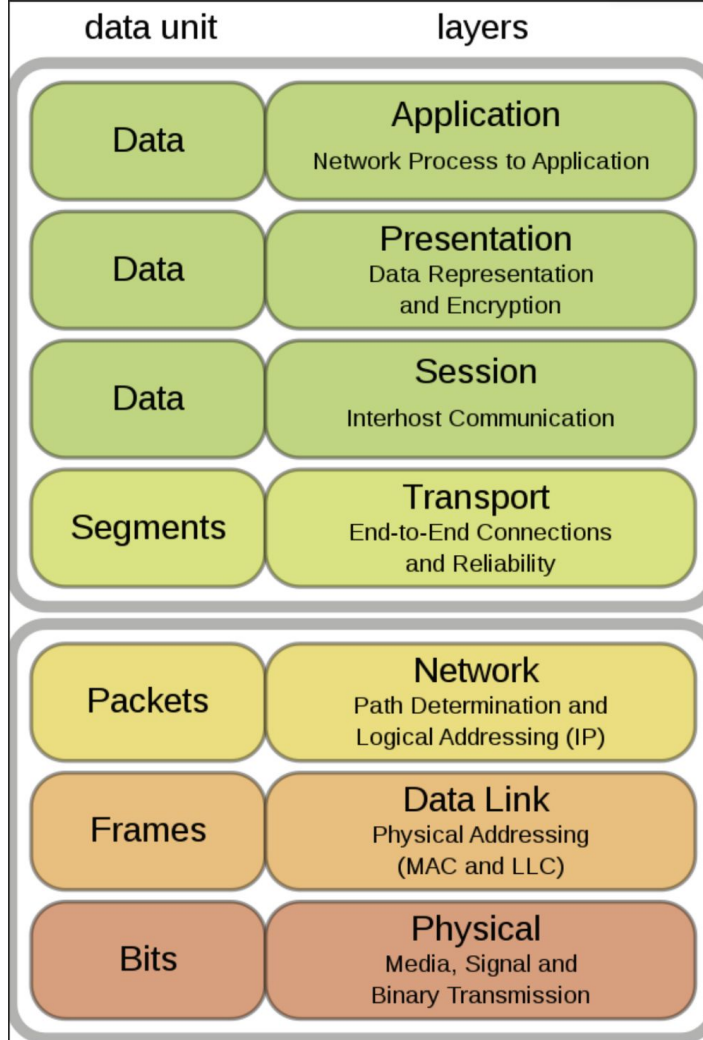
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OSI Model



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OSI Model



e.g. HTTP request

Data

Translate, Compress

Data

Setup Session

Data

Ready for end-to-end comm



Add addressing



Local Addressing



Make bits

011010000110010101101100

0110110001101111

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URLs

Protocol: 

Host: 

Path: 

Query: 

Think fast! Which of the following correctly identifies the different pieces of a URL?

A.

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

B.

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

C.

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

D.

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

Check out the recording for the solution!

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HTTP(S)

Stateful

OR

Stateless

Synchronous

OR

Asynchronous

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HTTP(S)



Stateful

OR

Stateless

Synchronous

OR

Asynchronous

Check out the recording for the solution!

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HTTP(S) Requests

We really only discuss the **four** main types of requests

1.

2.

3.

4.

Check out the recording for the solution!

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HTTP(S) Responses

What about Responses?

→ Status Codes

1XX

2XX

3XX

4XX

5XX

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HTTP(S) Responses

What about Responses?

→ Status Codes

1XX

2XX

3XX

4XX

5XX

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HTTP(S) Responses

Some common status codes you either have seen or will see

1XX Information

Rare

2XX Success

200

201

204

3XX Redirect

301

4XX Client Error

400

403

404

405

5XX Server Error

501

503

Check out the recording for the solution!

How comfortable are we with JSON?



```
{  
  "name" : "katie",  
  "role" : "student",  
  "course" : "ser321"  
}
```

```
{  
  "name" : "katie",  
  "pets" : {  
    "dog" : "smokey",  
    "dog" : "sammie"  
  }  
}
```

```
[{  
  "name" : "katie",  
  "name" : "zac",  
  "name" : "john"  
}]
```

```
{  
  "submissions" : [  
    {"name" : "katie"},  
    {"name" : "zac"},  
    {"name" : "john"}  
  ]  
}
```

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HTTP-JSON

First prints what was returned, shown below

Now we just need to pull out what we need!

```
[{"id": "1686725", "node_id": "MDEwOlJlcG9zaXRvcnkxNjYyZmI0OQ==", "name": "AQMDDev", "full_name": "kgary/AQMDDev", "private": false, "owner": {"login": "kgary", "id": "1686725", "node_id": "MDQ6VXNlcnRjcE2ODV3MjU=", "avatar_url": "https://avatars.githubusercontent.com/u/1686725?v=4", "gravatar_id": "", "url": "https://api.github.com/users/kgary", "html_url": "https://github.com/kgary", "followers_url": "https://api.github.com/users/kgary/followers", "following_url": "https://api.github.com/users/kgary/following{/other_user}", "gists_url": "https://api.github.com/users/kgary/gists{/gist_id}", "starred_url": "https://api.github.com/users/kgary/starred{/owner}{/repo}", "subscriptions_url": "https://api.github.com/users/kgary/subscriptions", "organizations_url": "https://api.github.com/users/kgary/orgs", "repos_url": "https://api.github.com/users/kgary/repos", "events_url": "https://api.github.com/users/kgary/events{/privacy}", "received_events_url": "https://api.github.com/users/kgary/received_events", "type": "User", "site_admin": false}, "html_url": "https://github.com/kgary/AQMDDev", "description": "Dev copy of AQM repo", "fork": false, "url": "https://api.github.com/repos/kgary/AQMDDev", "forks_url": "https://api.github.com/repos/kgary/AQMDDev/forks", "keys_url": "https://api.github.com/repos/kgary/AQMDDev/keys/{key_id}", "collaborators_url": "https://api.github.com/repos/kgary/AQMDDev/collaborators{/collaborator}", "teams_url": "https://api.github.com/repos/kgary/AQMDDev/teams", "hooks_url": "https://api.github.com/repos/kgary/AQMDDev/hooks", "issue_event_source_url": "https://api.github.com/repos/kgary/AQMDDev/issues/events{/number}", "events_url": "https://api.github.com/repos/kgary/AQMDDev/events", "assignees_url": "https://api.github.com/repos/kgary/AQMDDev/assignees{/user}", "branches_url": "https://api.github.com/repos/kgary/AQMDDev/branches{/branch}", "tags_url": "https://api.github.com/repos/kgary/AQMDDev/tags", "blobs_url": "https://api.github.com/repos/kgary/AQMDDev/git/blobs{/sha}", "git_tags_url": "https://api.github.com/repos/kgary/AQMDDev/git/tags{/sha}", "git_refs_url": "https://api.github.com/repos/kgary/AQMDDev/git/refs{/sha}", "trees_url": "https://api.github.com/repos/kgary/AQMDDev/git/trees{/sha}", "statuses_url": "https://api.github.com/repos/kgary/AQMDDev/statuses/{sha}", "languages_url": "https://api.github.com/repos/kgary/AQMDDev/languages", "stargazers_url": "https://api.github.com/repos/kgary/AQMDDev/stargazers", "contributors_url": "https://api.github.com/repos/kgary/AQMDDev/contributors", "subscribers_url": "https://api.github.com/repos/kgary/AQMDDev/subscribers", "subscription_url": "https://api.github.com/repos/kgary/AQMDDev/subscription", "commits_url": "https://api.github.com/repos/kgary/AQMDDev/commits{/sha}", "git_commit_comments_url": "https://api.github.com/repos/kgary/AQMDDev/git/commits{/sha}/comments", "comment_urls": "https://api.github.com/repos/kgary/AQMDDev/issues/comments{/number}", "content_urls": "https://api.github.com/repos/kgary/AQMDDev/contents/{+path}", "compare_url": "https://api.github.com/repos/kgary/AQMDDev/compare/{base}...{head}", "merges_url": "https://api.github.com/repos/kgary/AQMDDev/merges", "archive_url": "https://api.github.com/repos/kgary/AQMDDev/archive/{format}/{ref}.tar.gz", "downloads_url": "https://api.github.com/repos/kgary/AQMDDev/downloads", "issues_url": "https://api.github.com/repos/kgary/AQMDDev/issues{/number}", "pulls_url": "https://api.github.com/repos/kgary/AQMDDev/pulls{/number}", "milestones_url": "https://api.github.com/repos/kgary/AQMDDev/milestones{/number}", "notifications_url": "https://api.github.com/repos/kgary/AQMDDev/notifications?since=all,participating", "labels_url": "https://api.github.com/repos/kgary/AQMDDev/labels{/name}", "releases_url": "https://api.github.com/repos/kgary/AQMDDev/releases{/id}", "deployments_url": "https://api.github.com/repos/kgary/AQMDDev/deployments", "created_at": "2014-02-07T18:22:26Z", "updated_at": "2014-04-04T20:02:14Z", "pushed_at": "2014-04-04T20:02:14Z", "git_url": "git://github.com/kgary/AQMDDev.git", "ssh_url": "git@github.com:kgary/AQMDDev.git", "clone_url": "https://github.com/kgary/AQMDDev.git", "svn_url": "https://github.com/kgary/AQMDDev", "homepage": null, "size": 13039, "stargazers_count": 0, "watcher_count": 0, "forks_count": 0, "permissions": {"admin": true, "push": true, "pull": true}}]
```

HTTP-JSON from course repo

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HTTP-JSON

```
// saving it as JSON array (if it were not an array it would need to be a JS
JSONArray repoArray = new JSONArray(json);

// new JSON which we want to save later on
JSONArray newJSON = new JSONArray();

// go through all the entries in the JSON array (so all the repos of the use
for(int i=0; i<repoArray.length(); i++){

    // now we have a JSON object, one repo
    JSONObject repo = repoArray.getJSONObject(i);

    // get repo name
    String repoName = repo.getString( key: "name");
    System.out.println(repoName);

    // owner is a JSON object in the repo object, get it and save it in own v
    JSONObject owner = repo.getJSONObject( key: "owner");
    String ownername = owner.getString( key: "login");
    System.out.println(ownername);

    // create a new object for the repo we want to store add the repo name ar
    JSONObject newRepo = new JSONObject();
    newRepo.put("name",repoName);
    newRepo.put("owner",ownername);

    // fetch all the branches from the repo and save and branches JSONArray
    String jsonBranches = fetchURL( aUrl: "https://api.github.com/repos/"
        + user + "/" + repoName + "/branches");
    JSONArray branches = new JSONArray(jsonBranches);

    // create a new branch JSON object
    JSONArray newBranchJSON = new JSONArray();

    // iterate through all branches and save the branch name
    for(int j=0; j<branches.length(); j++){
        JSONObject branch = branches.getJSONObject(j);
        String branchName = branch.getString( key: "name");
        System.out.println("    "+ branchName);
        JSONObject newBranch = new JSONObject();
        newBranch.put("name", branchName);

        // add new branch to branch array
        newBranchJSON.put(newBranch);
    }

    // add the branches array to the repo
    newRepo.put("branches", newBranchJSON);
    newJSON.put(newRepo);
}
```

Questions?

Survey:

https://bit.ly/asn_survey



Upcoming Events

SI Sessions:

- Sunday, October 22nd 2023 at 7:00 pm MST
- Monday, October 23rd 2023 at 4:00 pm MST
- Thursday, October 26th 2023 at 7:00 pm MST

Review Sessions:

- TBD

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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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.

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2-

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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.

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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!

Additional Resources

[CoureRepo](#)

[GitHub SSH Docs](#)

[Gradle Documentation](#)

[Interactive OSI Model](#)

[org.json API Docs](#)

[JSON Helper](#)