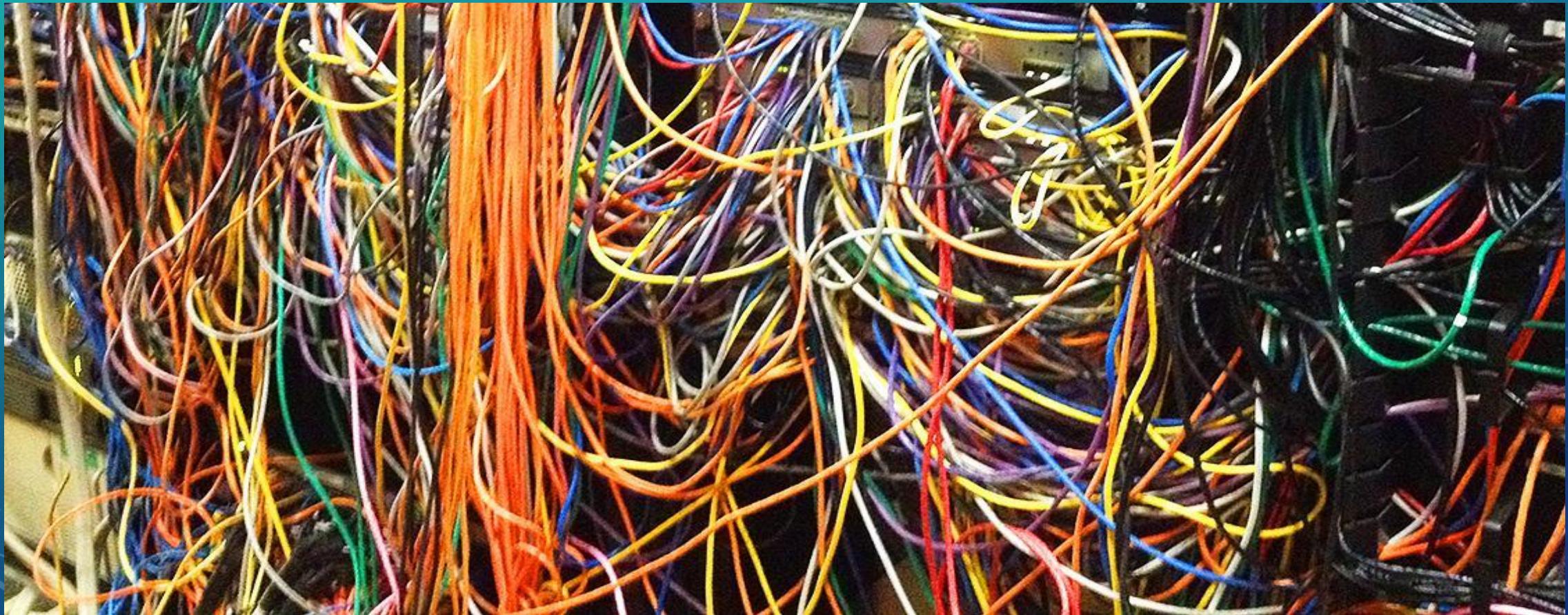


CS260: COMPUTER NETWORKS I

Interprocess Communication



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What is Network Programming

Card Game Design Database and Playtest Printer

Web Portal Development

Cyberattack Forensics

Distributed System Architecture

Content Management Service

Code Redemption Server

Turn-Based Game State Synchronization

Realtime Game State Synchronization

Customer Service Messaging System

Peer-to-Peer Digital Rights Management

Social Media Connectivity

MMO Live Service Maintenance

Collaborative Level Editor

Realtime Location Sharing

Security Audits

Achievements and Leaderboards

“
*A distributed system is one in which
two or more processes work together
to achieve a result.*
”

KEY DEFINITIONS

- Processes are generically called “nodes”
- A collection of nodes forms a “network”
- Nodes communicate with each other via “messages”
- Messages are composed of fragments called “packets”
- The formal definition of a message format is a “protocol”

WHY CREATE DISTRIBUTED SYSTEMS?

- Resource sharing / locality
- Performance
- Security
- Reliability / fault tolerance
- Scalability / economics
- Mobility

What is Network Programming



THE COURSE AHEAD

CS260 OBJECTIVES

- Socket programming [introduced and reinforced]
 - How Internet sockets work
 - How to program sockets, on both Windows and Linux
- Information security [introduced]
- Basics of distributed systems [introduced]

GRADING

- 40% Projects
- 36% Exams (midterm and final)
- 24% Participation

ASSIGNMENTS (40%)

- Four, spaced across the semester
- Opportunity to resubmit
- Each builds atop the previous
- Put concepts from class into practice and receive feedback

Tips:

- Read and ***follow the instructions***
- Test your code
- Develop and follow a style
- Ask questions!

EXAMS (36%)

- About equal parts vocabulary, concepts and application
- Pulled from all lectures and reading assignments
- Midterm 12%, final 24%

Tips:

- Attend class
- Listen
- Take notes
- Ask questions!

PARTICIPATION (24%)

- 10% Discussion and activities
- 14% Entrance and exit tickets

BARRIERS TO PARTICIPATION

- Shyness, fear of being wrong
 - *This is a respectful and safe environment.
Also, be sure to use the online forums!*
- Not used to it.
- Don't know the answer.
- It's new for me too!
- *I want wrong answers.
Save the right answers for the exam!*

E

CS 260 EXIT TICKET – Week 1 First Lecture

Name: _____

1. Explain the acronym DUST and give one *brief* example for each letter.

2. What do you hope to get out of this class? Why are you here?

TICKET

- view
ch
ng
- Tips:
- Do
 -
 -
 - The

CS 260 ENTRY TICKET – Week 1 Second Lecture

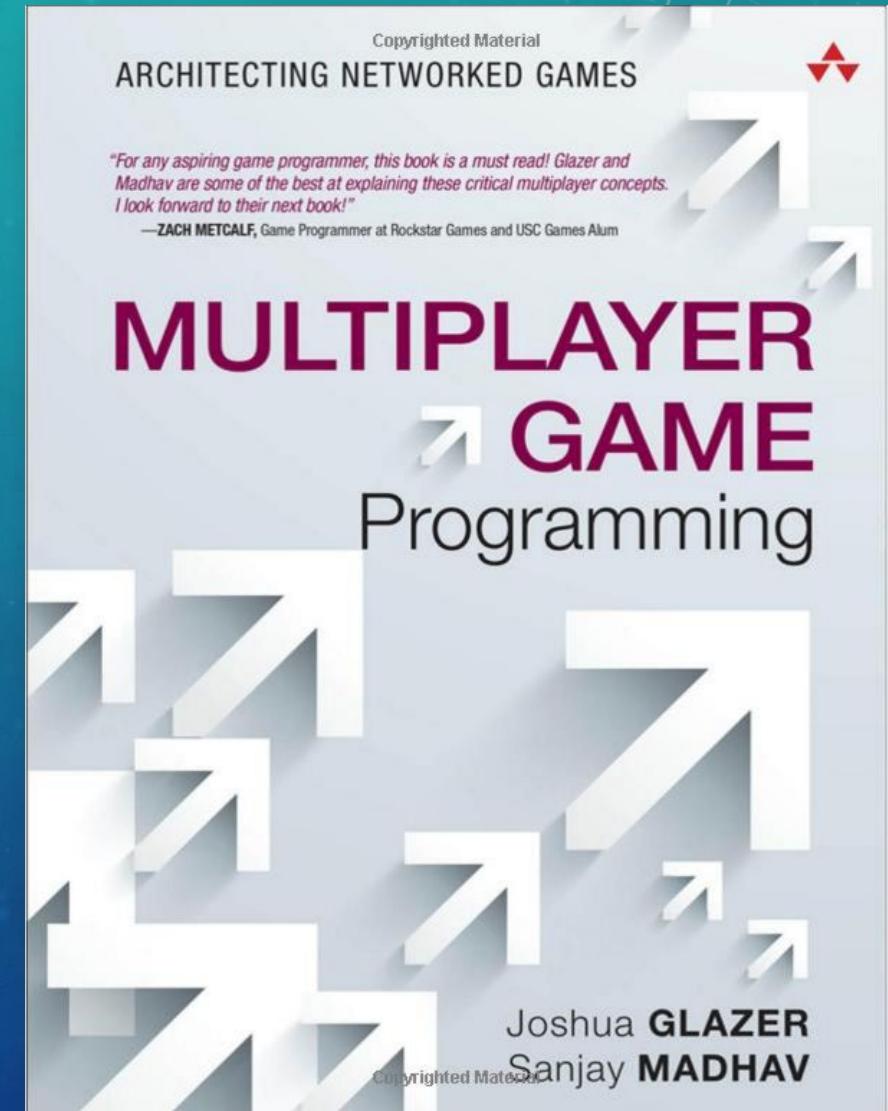
Name: _____

1. When we explored the telegraph, we broke its operation up into four distinct layers: the *medium*, the *code*, the *address*, and the *message*. How would those layers map to the generic terms of the Internet model?

Be sure to also bring a QQC—quote, question or comment—to class!

READING

- Separate from the lectures—you’re responsible for both!
- Textbook reading assignments listed in syllabus, with a reminder on the entry tickets.



ATTENDANCE

- Life happens.
- Missing a class is okay.
 - Talk to me about make-up work.
- Missing a class without talking to me about it is not.
- Excused absences carry no penalty (within reason).
- Every unexcused absence past the second is -10%.

What is Network Programming



DUST: DANGER, UNCERTAINTY, SCALE AND TIME

DANGER

If a system changes its behavior in response to external input, it can be hacked.





UNCERTAINTY

You know nothing.

SCALE

A million users isn't cool.

*A **billion** users is cool.*



Vala Afshar
@ValaAfshar



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923

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TIME
300,000 km/sec:
It's not just a good idea,
IT'S THE LAW.



DUST: DANGER, UNCERTAINTY, SCALE AND TIME

