CSE 373

SEPTEMBER 27 – COURSE INTRODUCTIONS;
ADTS; STACKS AND QUEUES
WELCOME!

• Administrative Minutiae
• Course Objectives
• Review of Stacks and Queues
• Abstract Data Types (ADT)
WAITLIST/OVERLOAD

• Because many students move around in the first week, the overload form will come out on Monday

• Please plan to attend lectures until then
COURSE INFO

• Evan McCarty (ejmcc@uw.edu)

• Office hours (CSE 214)
  • Mondays and Fridays: 3:30 – 5:00
  • By appointment or over email
PIAZZA

- Primary method of course information
- Great place to answer questions
- Feedback to other students/Tas
- Preferred because it allows all students to see answers when there are common problems
COURSE STAFF

• TAs will posted on the course website, along with their office hours
• TAs for sections will be posted this evening
• Office hours will start on Monday
HOMEWORK

• Homework in this course will be broken down into 3 projects and 2 written assignments

• 40% of your total grade
PROJECTS

• Partners allowed
  • If you complete the projects as a partner, there will also be a small written portion of the project
  • Partners are highly recommended
PROJECTS

- Multiple parts
  - Even though there are only 3 projects, they will span multiple weeks and have deliverables due each week
WRITTEN ASSIGNMENTS

• Written assignments must be completed alone
• One week from assignment to due date
LATE POLICY

- Each student will have 3 late days
- If used by a team, both students must have a late day remaining
- Max of 2 late days per assignment
- No benefit for left over late days
LATE POLICY

• 15% per day late if the student has no late days left
• Late days automatically deducted, no choosing 15%
• 0% given for assignments turned in more than 3 days after due date
• All assignments due at 11:30 pm, I am fairly lenient with a minute or two
HOMEWORK

- Regrade requests
  - Catalyst survey will be up this week and put onto the course webpage
  - Must be completed before midterm (for HW in first half) or before final (for HW in second half)
HOMEWORK

• Academic honesty
  • High level discussion
  • Fully understand submission

• Reasonable effort and office hours
LECTURES

• Lecture slides will be posted online after class
• Questions are strongly encouraged
• All material fair game for exams
• Weiss textbook
LECTURE STYLE

• Slides are largely for information
• Not necessarily enough for understanding
• Document projector
• Peer instruction
• Ask questions!
LECTURE STYLE

• Slides are largely for information
• Not necessarily enough for understanding
• Document projector
• Peer instruction
• Ask questions! Point out mistakes!
SECTIONS

• Conducted by TAs
• Practice problems
  • Analysis and Implementation
• Supplementary instruction
• Section tomorrow
EXAMS

- Midterm exam (25%)
  - 2:30 – 3:20; Friday, November 3

- Final Exam (35%)
  - 2:30-4:20; Tuesday, December 12

- Exam review in lecture before exams
PROJECT 0

- Ungraded
- Install Eclipse
  - Required for this course, project files will be in eclipse project format
  - JGrasp will not handle project packages
- Ensure that you have Java 8
  - (Java 9 has just come out)
- Instructions out tonight
DATA STRUCTURES
AND ALGORITHMS
DATA STRUCTURES AND ALGORITHMS

- Understand and recognize behavior of key data structures
- Understand and solve common data structure problems
- Analyze operations and algorithms
- Implement data structures and understand design trade-offs
CSE 143

- Object-oriented Programming
  - Classes and Inheritance
  - Methods, variables and conditions
  - Loops and recursion
  - Linked lists and simple trees
  - Basic Sorting and Searching
  - Concepts of Analysis $O(n) \text{ v } O(n^2)$
  - Client v. Implementer
CSE 373

- Design decisions
- Critical thinking
- Implementations
- Debugging and Testing
- Abstract Data Types
- Code-base development
ABSTRACTION

• Software engineering v. Computer Science

• Applicable across languages and implementations

• Behavior focus
  • How can you recognize an ADT?
What is a stack?
STACK?

• What is a stack?
  • Outside of CS?
STACK?

• What is a stack?
  • Outside of CS?
  • From 143?
DEFINITIONS

• Abstract Data Type (ADT)
  • Operations and expected behavior

• Data Structure
  • Specific organization of data
  • Can be analyzed

• Implementation
  • Language specific application
DESIGN DECISIONS

• Between an ADT and its implementation, there are design decisions

• Constraints of the problem
  • Memory v. Speed
  • One function v. another
  • Generality v. Specificity
DESIGN DECISIONS

• Linked List v Array
  • From 143, what are some advantages/disadvantages?
  • Why?
DESIGN DECISIONS

• Linked List v Array
  • Overhead
  • Memory use
  • Adding to middle
  • Traversal
  • Insertion
DESIGN DECISIONS

• Shopping list?
DESIGN DECISIONS

• Shopping list?
  • What sorts of behavior do shoppers exhibit?
  • What constraints are there on a shopper?
  • What improvements would make a better shopping list?
DESIGN DECISIONS

• Shopping list?
  • Behavior
DESIGN DECISIONS

• Shopping list?
  • Constraints
DESIGN DECISIONS

• Shopping list?
  • Improvements