Adopting best practices &
sharing them with others.

Software Design Patterns

DSGNPAT

typical solutions to commonly occurring problems

Course Overview

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Grading

- Identifying Design Problems w/ Previous Projects - 20%
- Refactoring of Previous Projects - 20%
- Research Exercise - 20%
- Contribution to Team - 10%
- Final Exam - 30%

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Schedule

ONLINE	ONSITE
MONDAY	THURSDAY
20-Jan	**23-Jan**
Review of OOP Part 2 Discussion	Code Smells
27-Jan	**30-Jan**
Asynch Design Problem Presentation (ASYNC)	Code Smells Part 2
3-Feb	**6-Feb**
Asynch Design Problem Presentation	Design Problem Presentation
10-Feb	**13-Feb**
Design Patterns Discussion	Design Problem Presentation
17-Feb	**20-Feb**
Design Patterns Discussion	Refactoring Presentation Preparation
24-Feb	**27-Feb**
Refactoring Presentation Preparation	Research Problem Discussion
3-Mar	**6-Mar**
ILW	ILW
10-Mar	**13-Mar**
Refactoring Presentation	Refactoring Presentation
17-Mar	**20-Mar**
Research Problem Preparation (ASYNC)	Research Problem Preparation
24-Mar	**27-Mar**
Research Problem Preparation (ASYNC)	Research Problem Preparation
31-Mar	**3-Apr**
Research Presentation	Research Presentation
7-Apr	**10-Apr**
Final Exam Review Time (ASYNC)	Final Exam

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Identifying Design Problems w/ Previous Projects

- Group work
- Choose 3 - 4 previous projects
- Identify application-level or client-side maintainability or performance issues in the code
  - Not database-level issues
- Propose appropriate refactorings, including proposed design patterns
  - Propose 2 or more design patterns to apply from the list provided
- Present solution to class in 20 minutes

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Refactoring of Previous Projects

- Group work
- Choose 2 patterns from the 1st list provided in the sign-up sheet, which you can apply to any of your projects from the previous presentation
  - No more than 2 groups per section can select the same pattern, but you are free to implement more than 2 patterns.
  - You can apply the 2 patterns to just 1 project, or to more.
  - No need to present all the previous projects, just the ones you will be applying the patterns to.
- Refactor by applying the appropriate patterns & design principles
- Presentation, 20 minutes.
  - Discuss the 2 patterns in class
    - What problem does each solve?
    - How does each solve the problem?
  - Show how you applied the 2 patterns and other patterns & principles to your projects

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Research Exercise

- Group work
- Pick a design pattern from the 2nd list provided
- Look for at least 2 open source frameworks or libraries that implement the pattern
- Presentation, 20 minutes
  - Discuss the pattern
    - What problem does it solve?
    - How does it solve the problem?
  - Discuss how the chosen frameworks or libraries implement the pattern
    - Show the of the open source project, and/or demonstrate how it is used

Exam

Coverage

- Lecture content
- Patterns discussed in class

Allowable References

- Any reference except for AI, previous exams, or other people (except for instructors or exam proctors)

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