

Design Defects & Restructuring

Week 8: 29 Oct 22

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Midterm 2 Syllabus

- ▶ Mid is on Thursday 3rd Nov 2022 at 10 am in Main Campus
- ▶ Syllabus
 - ▶ Refactoring Book Chapter 2
 - ▶ Assignment 2
 - ▶ Design Patterns/Principles/Concepts:
 - ▶ Dependency Injection
 - ▶ Factory Method
 - ▶ Observer Pattern
 - ▶ Composite Pattern
 - ▶ Exercises covered in Class
 - ▶ Today's lecture - (Decorator Pattern & Basic refactoring methods)

Exercise

- ▶ **Problem:** Create a program that reads new records from the database based on certain filter criteria and generates a file in a specified fixed length format on a location.
- ▶ **First Version:**
 - ▶ A console based application is made
 - ▶ The following is set through configuration (what is configuration??)
 - ▶ Database connection string
 - ▶ Query that provides the new records
 - ▶ Output file folder location
 - ▶ A single file code that carries out following:
 - ▶ Establishes connection with database. Throws error and exits if it cant connect
 - ▶ Runs the query and stores the result in memory. Throws error and exits if there is error
 - ▶ Verifies that query returns the correct number of column, otherwise reports error and exits.
 - ▶ Iterates over each row of the result and carries out validation (certain fields need to be present) and ignores those rows that do not fulfill the validation criteria. If all is well with a row, it converts the row into the required fixed format record for writing to file.
 - ▶ Opens file for writing and write all the converted records

Question 1:

- ▶ What are the design goals of client?
- ▶ What should be the design goals of the architect/designer to create a robust program?

Question 2

- Provide a design

Project

- ▶ Make Groups of 3
- ▶ Make Groups Now!
- ▶ Choose a topic
 - ▶ Design Pattern (other than GOF and other than covered in the class)
 - ▶ Refactoring method (other than mentioned in the text book)
- ▶ Deliverables
 - ▶ Make a Poster
 - ▶ Make a Video (could be a presentation and voiceover converted to video)
 - ▶ Make a Git submission available publicly
- ▶ All class work exercises would now be done in project groups

Decorator Pattern

- ▶ From GOF book
- ▶ Example from Headfirst book

Basic Refactorings

- ▶ Extract Function
- ▶ Inline Function
- ▶ Extract Variable
- ▶ Inline Variable