

Identifying Legacy Code Kata

Week 2: Practical Session

Advanced Software Engineering

Learning Objectives

- Identify characteristics of legacy code
- Assess code for testability
- Plan initial refactoring steps

Kata Instructions

Work in pairs to analyze and improve the following code examples.

C++ Starting Point

```
1  class OrderProcessor {
2  private:
3      static OrderProcessor* instance;
4      Database* db;
5      EmailService* emailService;
6
7      OrderProcessor() {
8          db = new Database("production_db");
9          emailService = new EmailService();
10     }
11
12 public:
13     static OrderProcessor* getInstance() {
14         if (instance == nullptr) {
15             instance = new OrderProcessor();
16         }
17         return instance;
18     }
19
20     bool processOrder(Order order) {
```

Tasks

1. Code Analysis (30 minutes)
 - Identify all dependencies in the code
 - List specific legacy code characteristics
 - Document potential risks in making changes
2. Testability Assessment (30 minutes)
 - Identify what makes the code hard to test
 - List specific changes needed to enable testing
 - Prioritize which parts need testing first
3. Refactoring Plan (30 minutes)
 - Create a step-by-step plan for adding tests
 - Identify seams that could be used
 - Document potential breaking points
4. Discussion (30 minutes)
 - Present findings to another pair
 - Compare different approaches
 - Agree on best practices for similar situations

Success Criteria

- Comprehensive list of dependencies identified
- Clear testing strategy documented
- Practical refactoring plan created
- Risks and mitigation strategies outlined

Notes for Facilitators

- Ensure pairs rotate roles during the exercise
- Encourage discussion of real-world examples
- Focus on identifying patterns that can be applied to actual work situations
- Emphasize the importance of small, safe steps

Follow-up

Prepare for next week's session on:

- Building a safety net
- Writing characterization tests
- Understanding test coverage strategies