

CSE870 Exam 2 Review

Spring 2007

- I. General SE
 - Scope of SE: phases, development tasks (RE, Design, Code, Testing, Maintenance)
 - What's included in each major development task
- II. UML Modeling
 - Structural: class and object diagrams; implementation (component and deployment)
 - Behavioral: use cases, interaction (sequence, collaboration), state diagram, activity diagram
 - Extension capabilities: (3 key mechanisms, metamodels, profiles)
- III. Design Patterns
 - 3 types of design patterns (structural, behavioral, creational)
 - Be familiar with table of patterns and purpose of each pattern
- IV. Frameworks
 - 3 types of frameworks (the differences, similarities)
 - Inversion of control
 - Open/Closed principle
 - Frameworks versus design patterns
 - What kind of reuse is possible?
- V. Security:
 - Secure vs trust
 - What does it mean to be secure?
 - 3 common (security-related) failures
 - Risk assessment
 - 4 broad categories of threats
 - Threats to data
 - Encryption and the 3 key types covered in class
 - Security Patterns
- VI. Automated Revision of Programs for fault-tolerance
 - Borzoo's lecture
 - Related paper
- VII. Aspect-oriented Development:
 - Aspect-oriented Programming (pointcuts, join point, advice, aspect definition)
 - AOP vs OOP
 - Aspect-oriented Modeling
- VIII. All 4 Parnas papers
 - Objectives/contributions of each paper
 - Impact on current SE practices
- IX. All project presentations
 - General description/objective of the protocols
 - Lessons learned with building frameworks

