

Software Engineering Design

Autumn Term 2025

Dr Robert Chatley

Director, Software Engineering Education

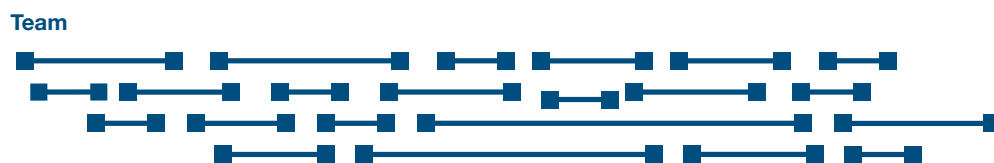
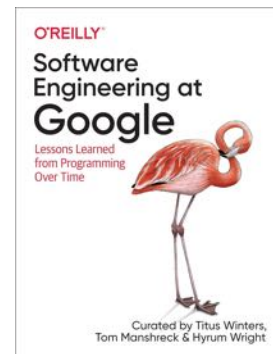
About me...



Dr Robert Chatley
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“Software engineering can be thought of as ‘programming integrated over time’.”
— Hyrum Wright, Google



Java Application Development Lead



The Role

Key Responsibilities:

Software Development & System Design

- Design, develop, and maintain robust, scalable, and high-performance applications.
- Implement based development practices to enable continuous integration and rapid delivery.
- Develop clean, maintainable, and testable code following SOLID principles and software design best practices.
- Ensure high levels of unit test coverage, test-driven development (TDD), and behavior-driven development (BDD).
- Actively contribute to hands-on coding, code reviews, and refactoring to maintain high engineering standards.

Engineering Excellence & Best Practices

- Drive the adoption of modern engineering ways of working, including Agile, DevOps, and CI/CD.
- Advocate for automated testing, infrastructure as code, and continuous monitoring to enhance software reliability.
- Apply Behavior-Driven Development (BDD), Test-Driven Development (TDD), and unit testing to ensure code quality and functionality.
- Conduct thorough code reviews, ensuring adherence to best practices in readability, performance, and security.
- Implement and enforce secure coding practices, performing vulnerability assessments and ensuring compliance with security standards.
- Collaborate effectively in agile environments, embracing DevOps principles and fostering a culture of continuous delivery and improvement.

Senior Software Engineer — Java — Fintech



About the job

Senior Software Engineer – Java - FinTech

Remote First | London (UK) | Up to £120k + Equity + Benefits

Are you a Java developer comfortable working in **Core Java** not relying on frameworks?

Someone who thrives in a collaborative, TDD environment?

Do you believe in XP Principles, pair programming, CI/CD and clean, maintainable code?

If so, we'd love to hear from you. Our FinTech client could be the challenge you are looking for....

Experience:

- Good tenure demonstrating depth of involvement in projects
- A proven background as Java Software Engineer
- Desirable: Performance based software / Real-time software
- Desirable: High availability / Low Latency / Concurrency
- We value growth and flexibility, welcoming developers from all backgrounds.

Skills:

- Strength with **Core Java** - (monolithic environment)
- Ansible, Aeron, Jenkins
- Strong understanding of TDD / BDD
- Clear communication and teamwork
- Desirable: Engineers with C++ background generally do well

Environment:

- Extreme Programming (XP) principles, with a strong focus on TDD, BDD, and DDD.
- Pair programming culture ensures high-quality code and continuous learning.
- Continuous integration—every commit is releasable, and automation is key.

What You'll Be Doing

- Building resilient and adaptable fintech platforms in Java
- Refactoring to improve code design
- Writing comprehensive tests for every commit
- Automating processes to improve efficiency
- Rotating across teams to enhance collaboration

Topics

Module Software Engineering

modules timeline wellbeing pastoral care Y1 tutorial sessions

Modules > 50002 > Exercises

Software Engineering Design

On this page, you can manage the resources for the module 50002.

- The **Materials** section is for study resources only (e.g. slides, links) which are visible to all students subject to the visibility date you choose.
- Specifications, model answers and reference solutions should be attached to exercises directly.

Materials Exercises

New exercise

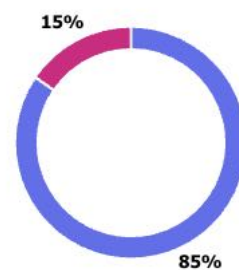
1 CW: TDD	13%
2 CW: Mock Objects	13%
3 CW: Re-use and Extensibility	13%
4 CW: Creation and Dependency	14%
5 CW: Concurrency	14%
6 CW: Interactive Applications	14%
7 CW: System Integration	14%
8 TUT: Continuous Delivery	0%
9 CW: Reflection and Rotation	5%

CW component total: 100/100

3. We split the coursework for this module into weekly exercises. Did you prefer this approach, or do you prefer the approach of having one or two larger courseworks?

[More details](#)

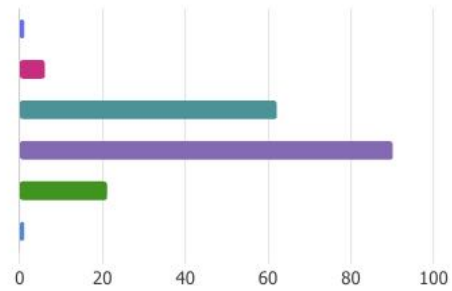
- Preferred weekly exercises 153
- Would have preferred fewer, larger, exercises 28



4. On average, how much time did you spend on the exercise each week?

[More details](#)

up to 30 mins	1
up to 1 hour	6
up to 2 hours	62
up to 3 hours	90
up to 6 hours	21
more than 6 hours	1



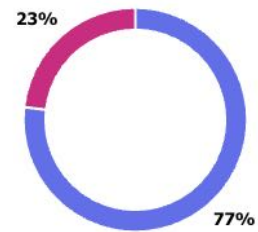
Pair Programming



5. Did doing the exercises in pairs help you in understanding the material?

[More details](#)

- Yes, pair programming was a good experience 139
- No, I prefer individual work 42



Weekly Schedule...

today < > Oct 13 - 19, 2025 📅					
	Mon 10/13	Tue 10/14	Wed 10/15	Thu 10/16	Fri 10/17
all-day					
7am					
8am					
9am	9:00 AM - 10:00 AM CO Pre-recorded (COMP50002 - Software Engineering Design)				
10am					
11am					
12pm					
1pm					
2pm					
3pm					
4pm		4:00 PM - 6:00 PM COMP50002 - Software Engineering Design		4:00 PM - 5:00 PM COMP50002 - Software Engineering Design	
5pm		COMP50002 - Software Engineering Design T - Laboratory Session			
6pm					
7pm					

Ways you'll get Feedback...

- 1. Discuss deeply during Labs**
- 2. Automated feedback on submissions**
- 3. Class discussion on EdStem**
- 4. Discuss key points in lectures**
- 5. Screencast video demos**

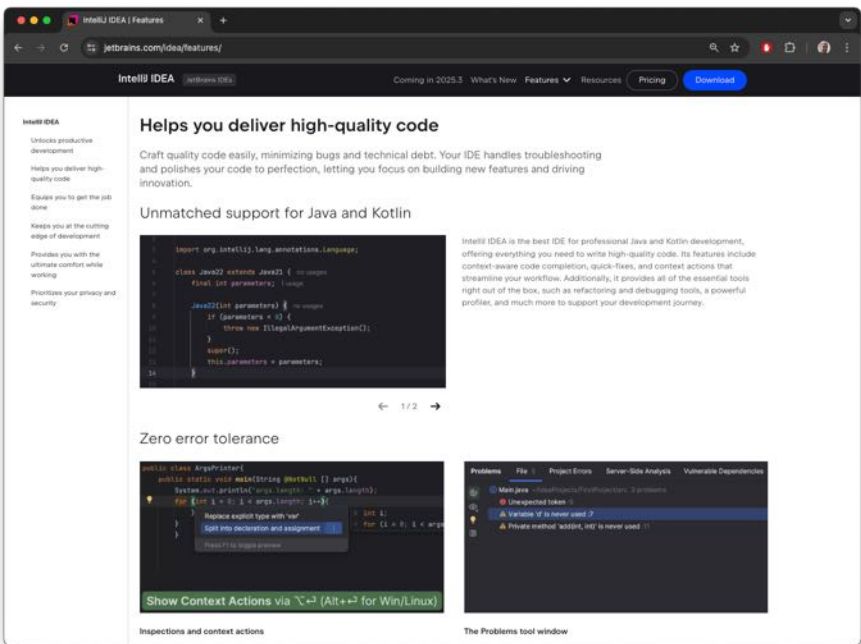
Programming in...



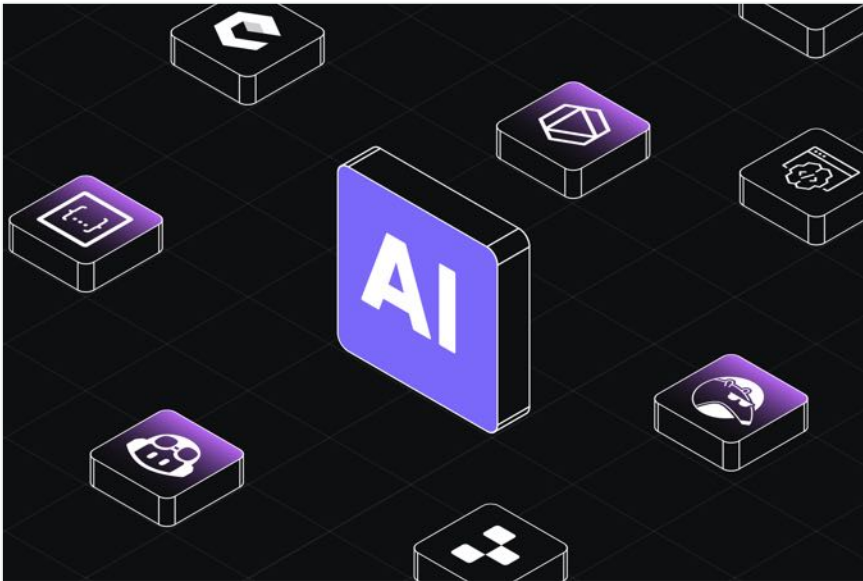
Prevalence in industry

Maturity of tools

Power Tools...



Power Tools...



Poll

How many people wrote code for money over the summer?

Poll

How many people used an AI agent to help with development work?

Poll

None

ChatGPT

CoPilot

Cursor

Claude

Other



Time for Your Questions...

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