Implementing a Test Pyramid Strategy in Java

INTRODUCING SOFTWARE TESTING

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Overview

- Software testing and its purpose

- Types of testing

- High-level testing, low-level testing

- Manual testing

- Test automation

- What to test?

- The test pyramid

- Tools, frameworks, environments

- Starting with a non-tested application
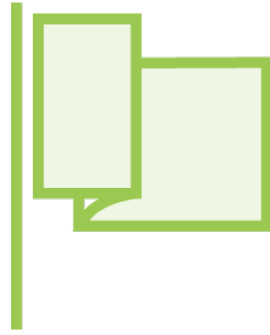
Software Testing

Making **objective judgments** regarding the extent to which the **system meets**, exceeds or fails to meet **stated objectives**.

Purpose of Testing

Verify

Uncover

Mitigate

Why Use Testing?

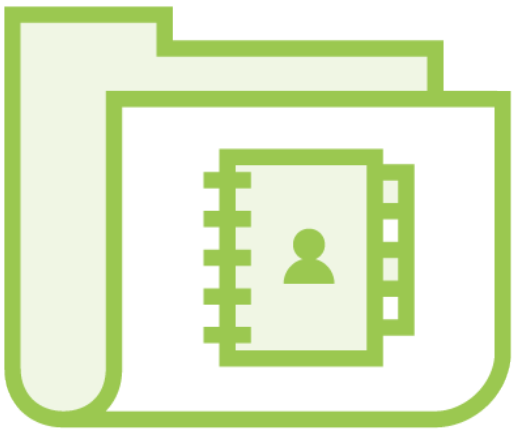**Understand**
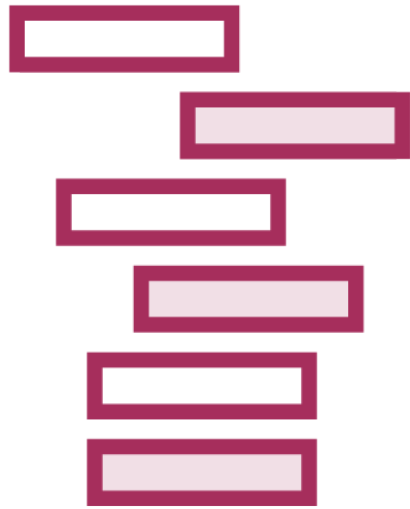
Stability

Expectations
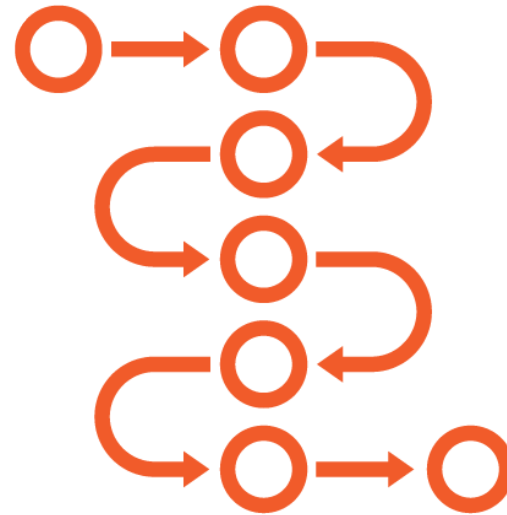
Regressions

Quality

Work

Types of Testing

Unit

Integration

System

Acceptance

High Level vs. Low Level Testing

High level

Low level

Manual Testing

F. C. Baia Mare	– C. S. Tirgoviște	5–0	(1–0)
Jiul Petroșani	– Steaua	1–0	(0–0)
F. C. Bihor	– Gloria Buzău	2–1	(0–1)
Dinamo	– F. C. Argeș	3–4	(1–2)
A.S.A. Tg. Mureș	– S. C. Bacău	3–1	(2–0)
U. T. Arad	– Politehnica Iași	6–2	(2–2)
Corvinul Hunedoara	– „Poli" Timișoara	3–1	(1–0)
Olimpia Satu Mare	– Sportul studențesc	1–0	(1–0)
Univ. Craiova	– Chimia Rm. Vîlcea	4–1	(1–0)

Input

1. F. C. ARGEȘ	34	20	5	9	54–29	45
2. Dinamo	34	16	9	9	51–28	41
3. Steaua	34	18	4	12	57–32	40
4. Univ. Craiova	34	15	8	11	40–25	38
5. F. C. Baia Mare	34	17	4	13	42–38	38
6. Sportul stud.	34	14	7	13	42–41	35
7. C. S. Tîrgoviște	34	15	5	14	38–38	35
8. S. C. Bacău	34	14	6	14	37–38	34
9. A.S.A. Tg. Mureș	34	13	6	15	49–59	32
10. Olimpia	34	14	4	16	38–52	32
11. „Poli" Timișoara	34	13	5	16	35–37	31
12. Politehnica Iași	34	11	9	14	37–44	31
13. Gloria Buzău	34	13	5	16	34–46	31
14. Jiul	34	13	5	16	38–51	31
15. Chimia Rm. V.	34	13	5	16	38–54	31
16. Corvinul	34	13	4	17	45–50	30
17. U. T. Arad	34	11	7	16	45–46	29
18. F. C. Bihor	34	10	8	16	37–49	28

Output

Test Automation

Bug   **Manual**   **Automated**

What to Test?

Business logic	Unexpected conditions	Boundary conditions
Invariants	Bad input values	Regressions

Unit testing

Integration testing

System testing

Acceptance testing

Tools, Frameworks, and Environments

JUnit, TestNG	Mockito, PowerMock
Arquillian	Cucumber, JBehave

Demo

Flights management application

No tests

Business logic

Classes