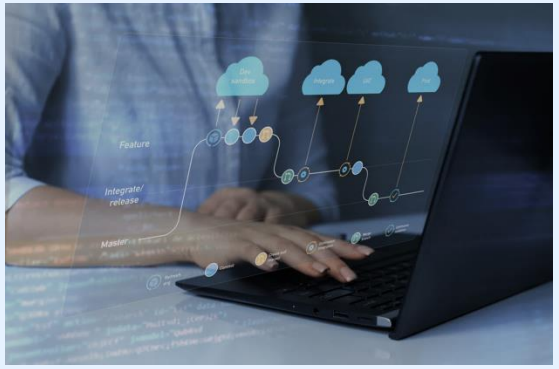
IMPLEMENTING AND SCALING AI IN SOFTWARE TESTING AT COCA COLA HBC

The Evolution of QA: From Regular to AI-Driven Excellence



The Traditional QA Era

Java/C# with Selenium

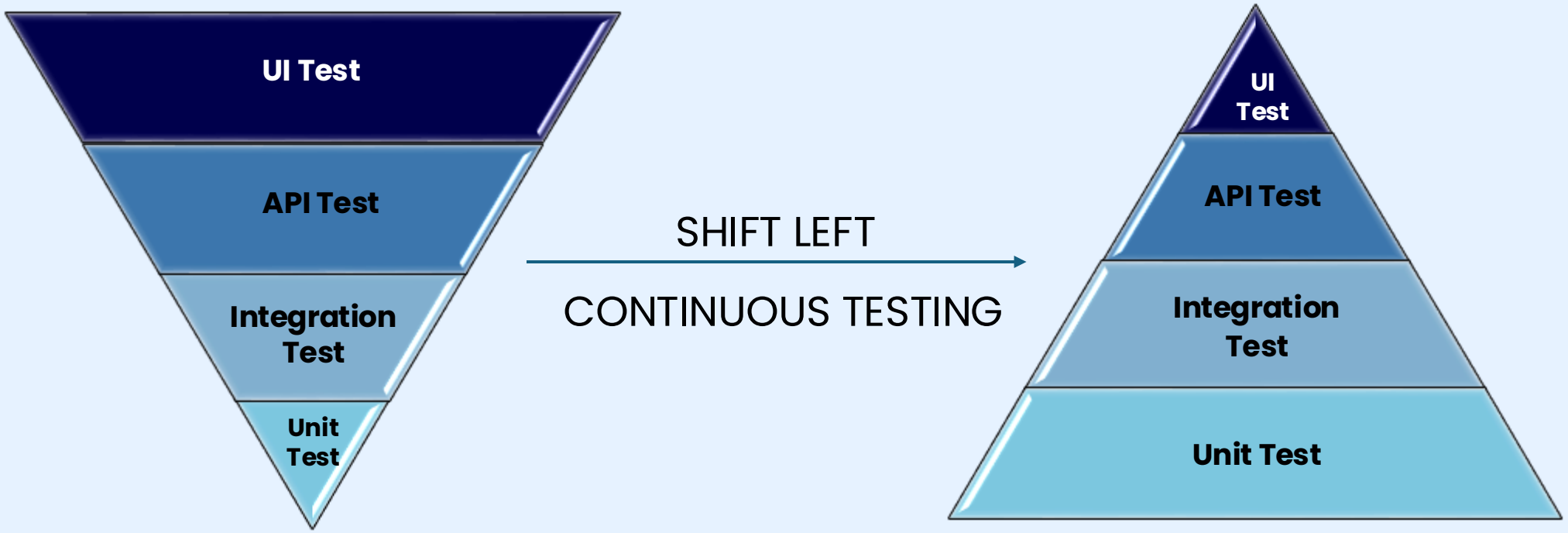
The New Age QA

Cypress & Playwright with TypeScript

The AI-Powered QA Revolution

True Shift-Left Testing

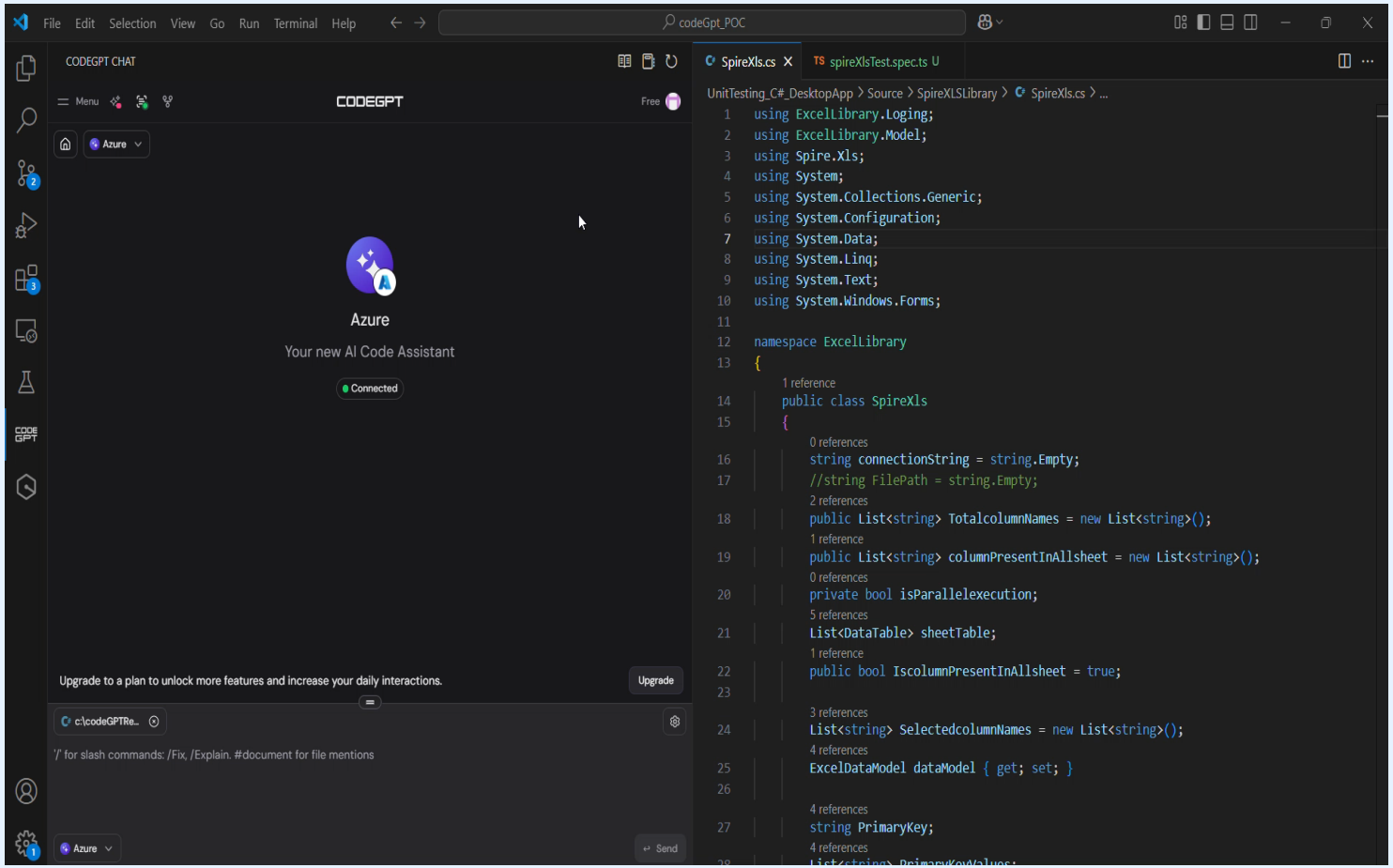
AI–Powered QA Revolution

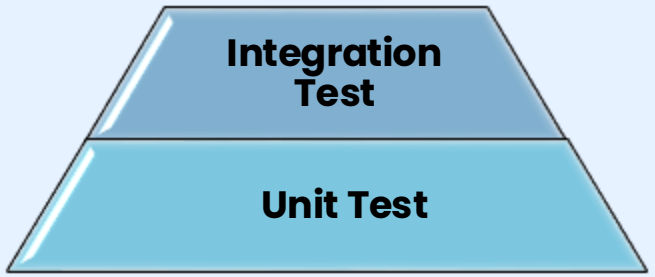


Traditional Testing

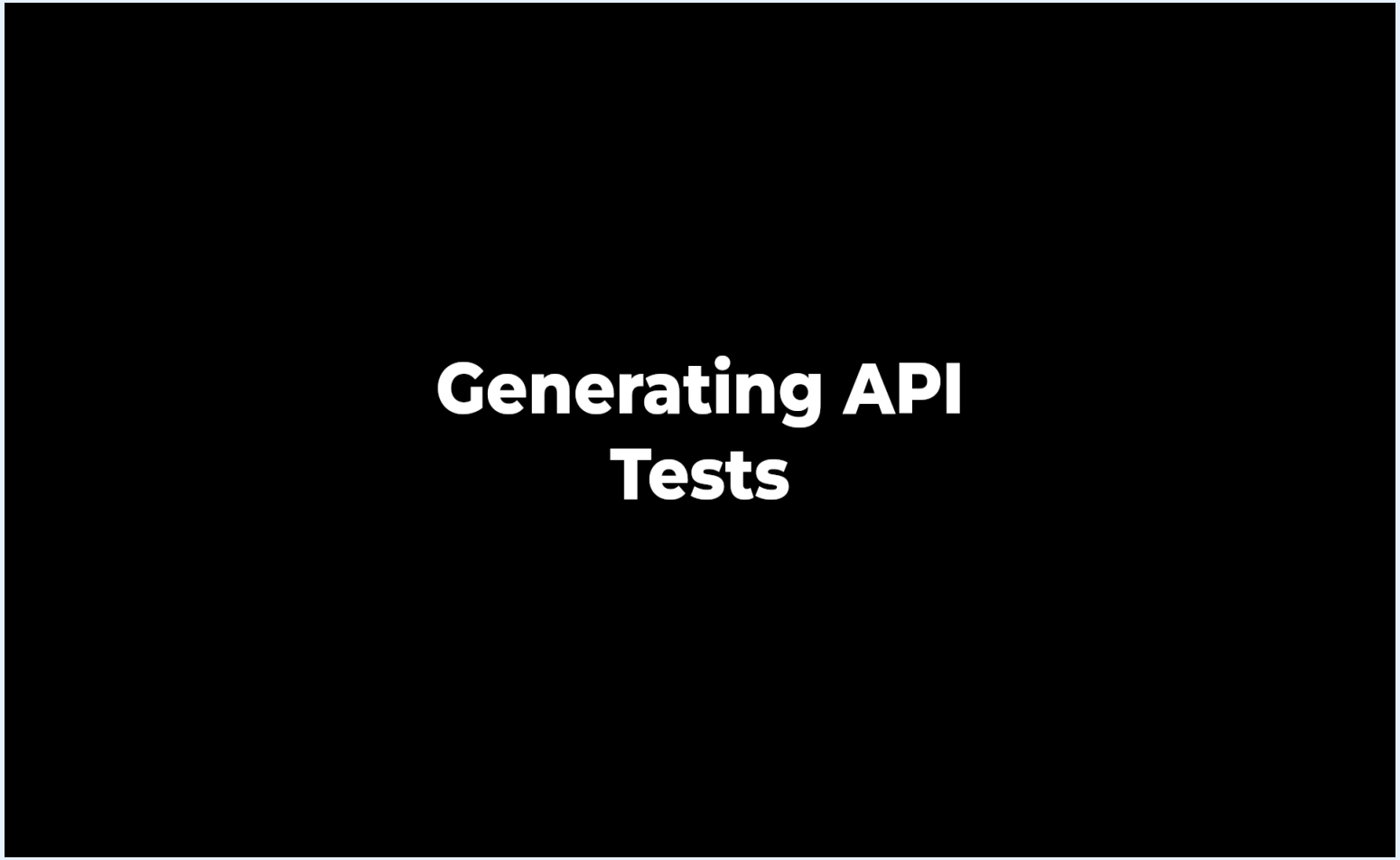
Modern Testing

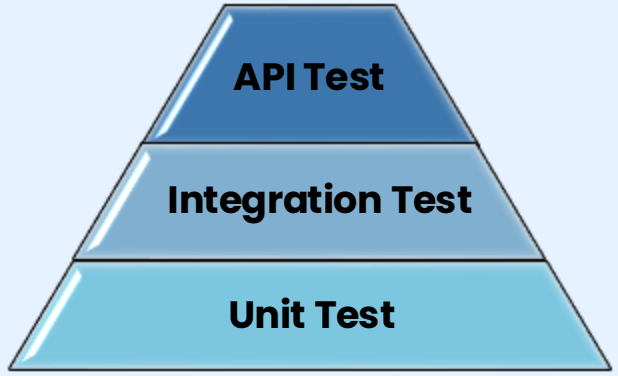
AI-powered Test Case Generation - Unit Tests



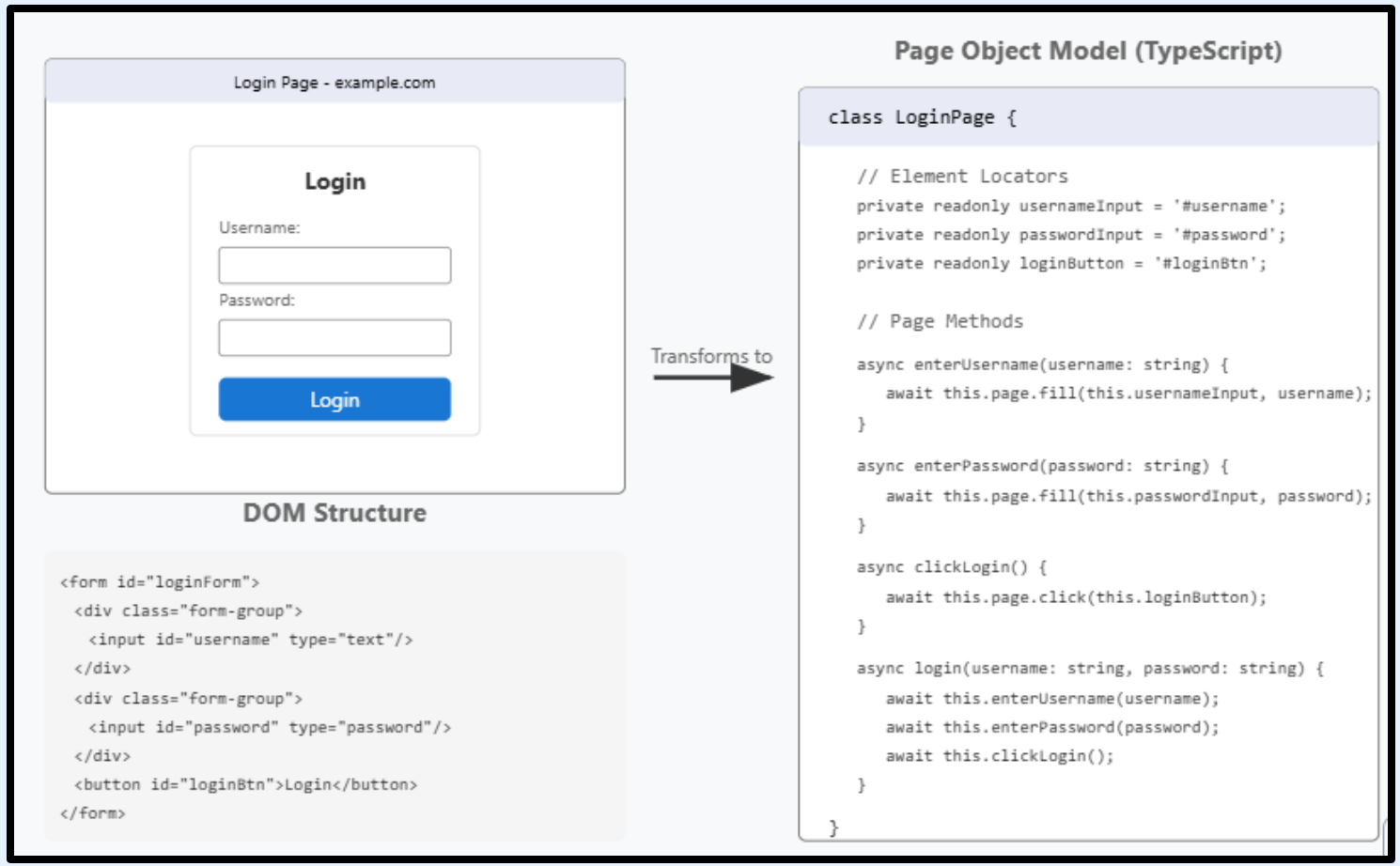


AI-powered Test Case Generation - API Tests

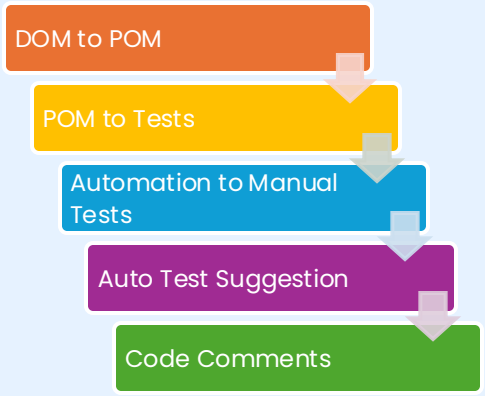


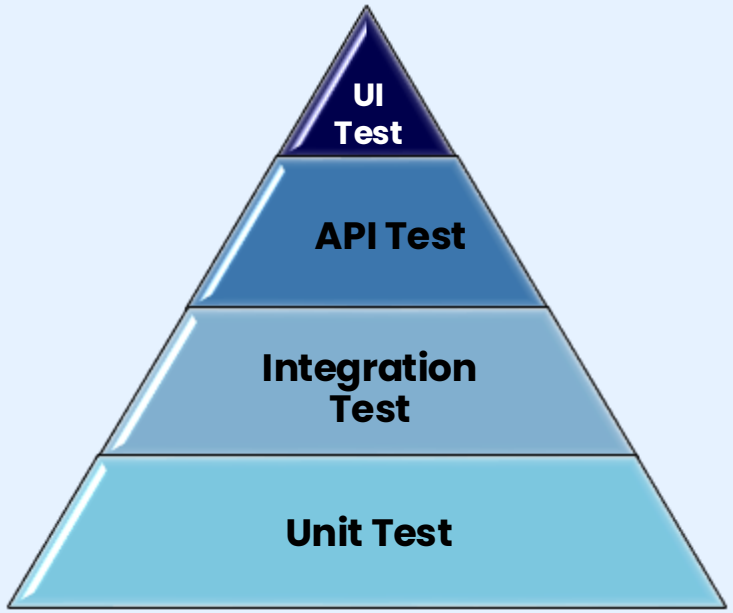


DOM to POM Transformation



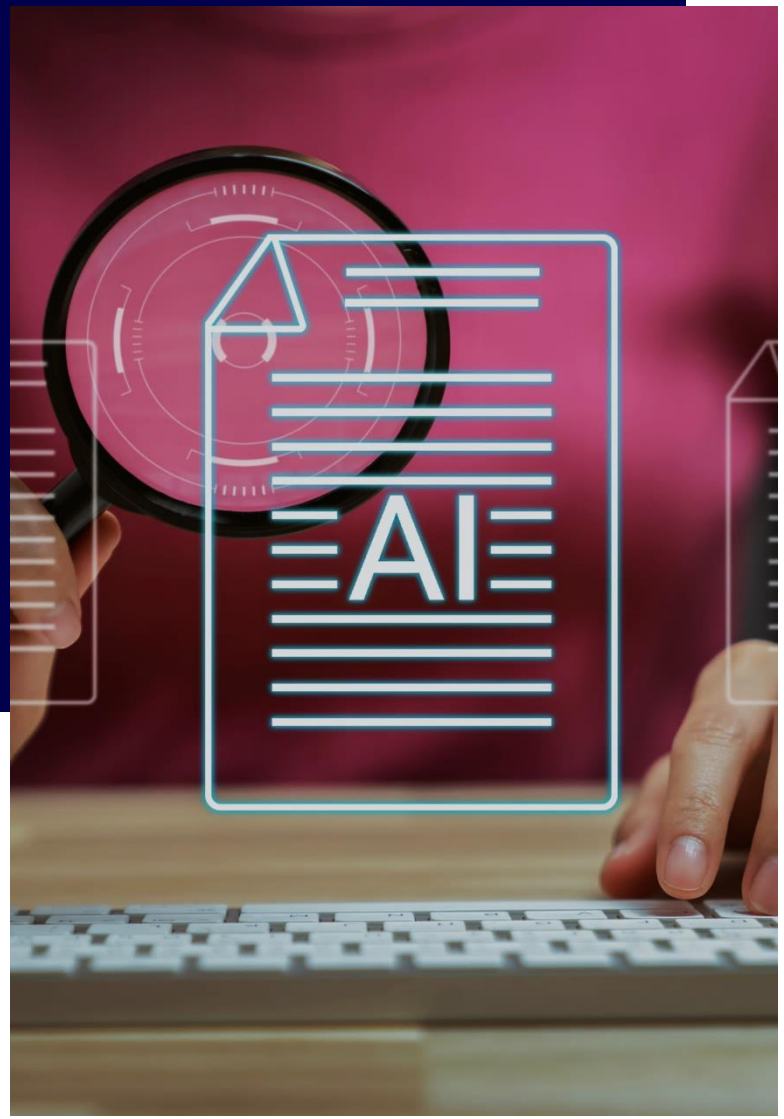
AI-powered Test Case Generation





Challenges in our experience

- **Lack of Awareness –** Employees and leadership may not fully understand AI.
- **Organizational Change –** AI impacts people, processes and technology.
- **AI's Future Impact –** Uncertainty about how AI will shape the company.



Key Outcomes from Our Projects

Execution time
30% – 50% reduction

Test Maintenance
40% -60% reduced

Flaky Tests
~80% reduced

Defect Identification
30% - 40% increase

Scenarios Tested
~70% increase

Time to Market
~40% faster

Manual Test Cost
~50% reduced

Feedback Cycles
~30% faster

AI Adoption Framework – Setup vision & strategy

Phase 1: Awareness & Readiness in Testing

Focus points

AI training focused on real-world testing use cases

Key Bottlenecks [flaky tests, slow regression cycles]

Barrier

Skepticism from teams

Solution

Showed quick wins (AI for log analysis, flaky test detection)

Phase 2: Defining AI Strategy for Testing & Quality

Focus points

Identifying high value AI use cases engaging key test teams

Prioritized predictive defect analysis, self-healing automation, and test case generation

Conducted PoCs on real test environments

Barrier

Initial AI PoCs lacked tangible ROI for testing teams

Solution

Selected narrow, high-impact use cases instead of trying AI everywhere

AI Adoption Framework – Setup vision & strategy

Phase 3: Implementation & Experimentation in AI-Driven Testing

Focus points

Built an AI-in-Testing team with QA experts + AI engineers

AI-powered risk-based test selection and self healing

Ran real-world pilots in production-like environments

Barrier

AI-generated tests were unreliable & lacked domain understanding

Solution

Created a hybrid AI +human validation process

Phase 4: Scaling AI in Testing

Focus points

Expanded AI testing use cases across multiple projects

Set up a Center of Excellence (CoE) for AI in Testing

Standardized AI-driven testing strategies and best practices

Barrier

Scaling AI-driven testing was expensive & slow

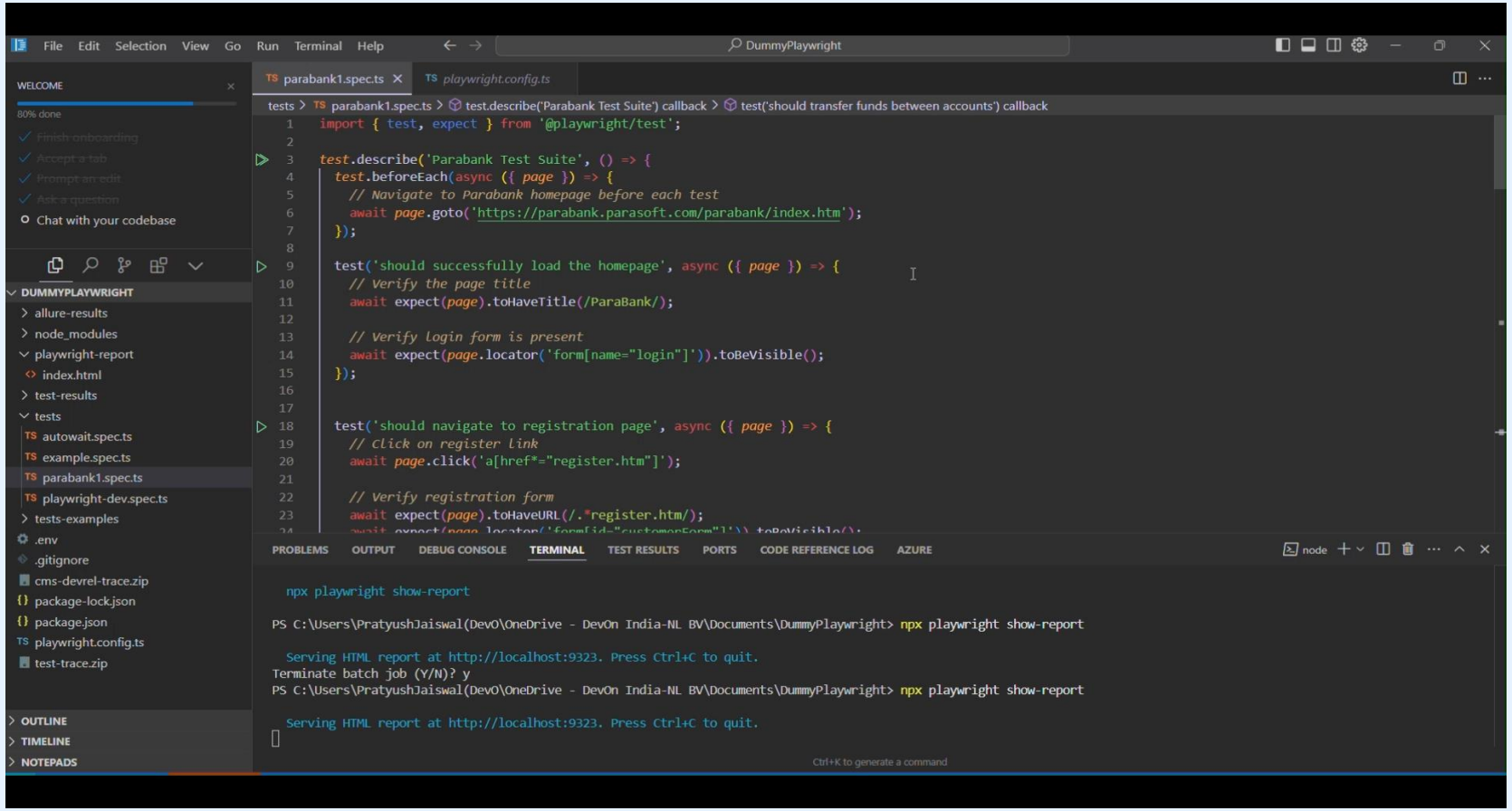
Solution

Started with critical test suites and gradually expanded AI use cases

3 take aways

- AI is not a magic wand but a mission wand
- AI works strong on Agile-DevOps foundation
- AI is a rapid prototyping; Tools alone don’t deliver results—*skilled and experienced people* make the difference

AI-powered Test Case Generation – Parallel runs

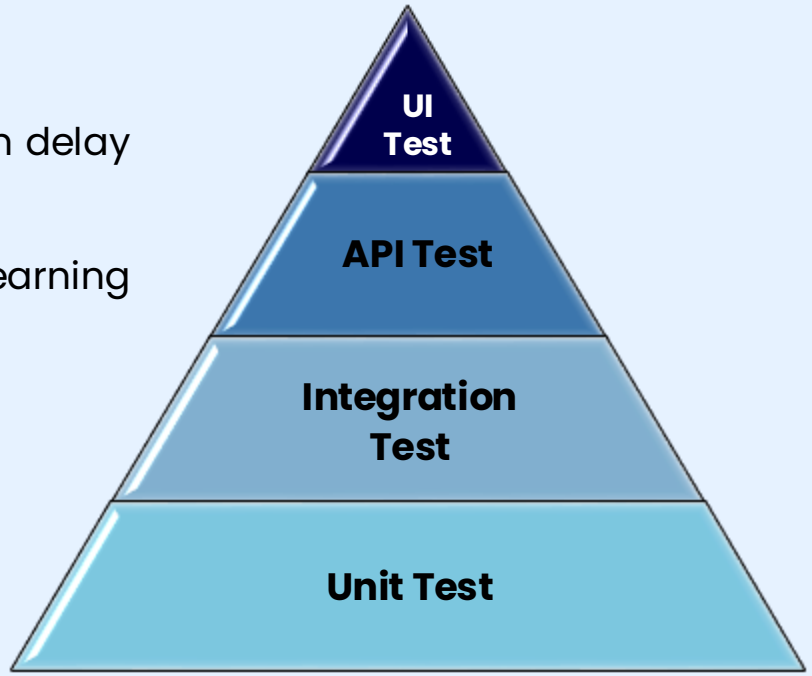


Limitations with traditional frameworks and AI-powered resolutions

The Testing Pyramid

Slow execution, high maintenance costs, flaky tests and inefficient test selection delay releases and hinders scalability

AI optimizes execution, auto-heals flaky tests and enables predictive, self-learning automation for faster, scalable and reliable testing.



Shift-Left Testing Approach

Late defect detection, reliance on UI tests, and limited early-stage automation slow development and increase defect leakage

AI-driven testing empowers with intelligent test generation, enhanced automation efficiency and accelerates feedback loops to ensure quality at evey layer

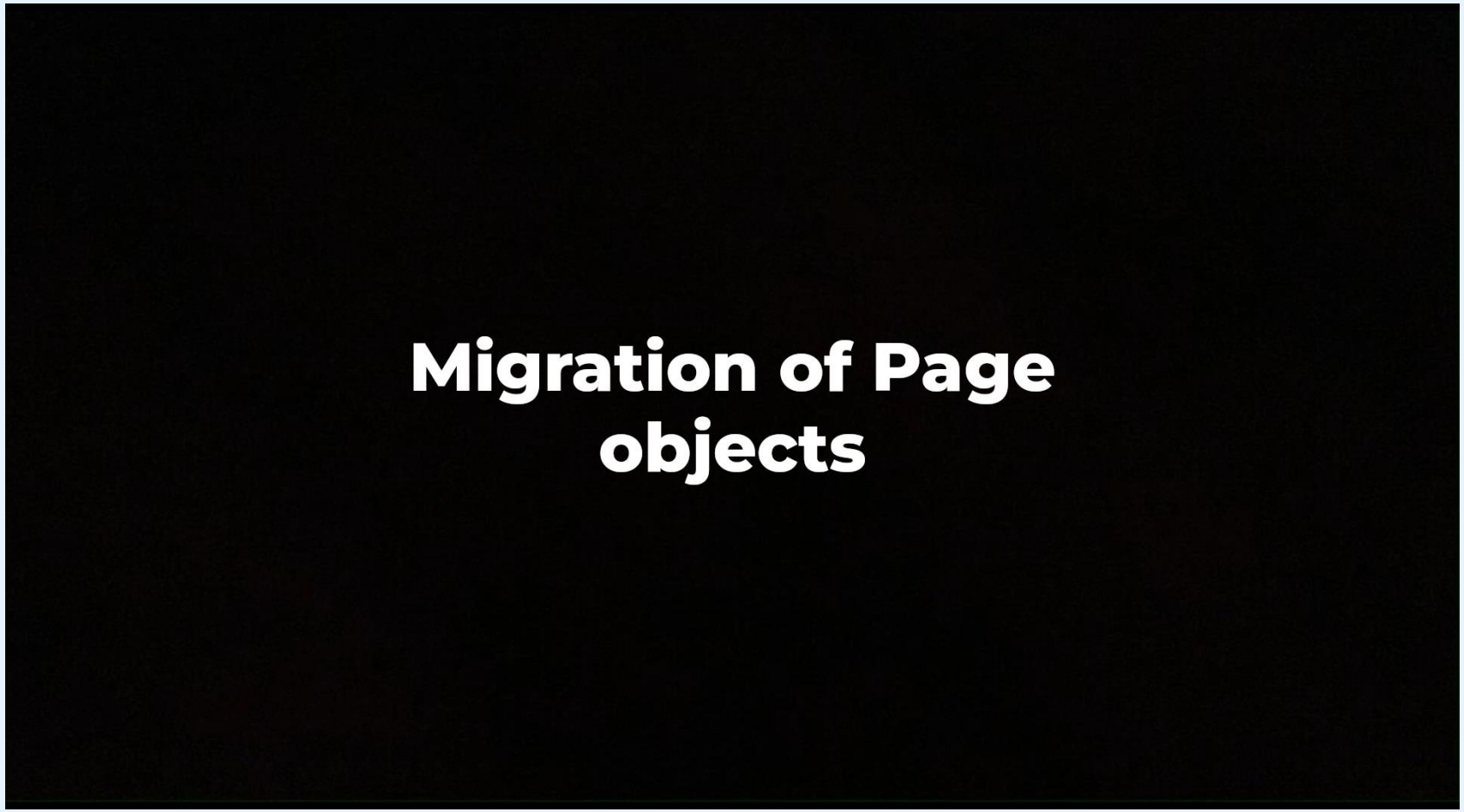
Testing Modernization with True shift left Roadmap

- AI-powered Test Case Generation
- Autonomous Debugging and Self Healing
- Migration to modern frameworks
- AI Testing Agents for enhanced efficiency
- Scaling for multiple teams: People and practices

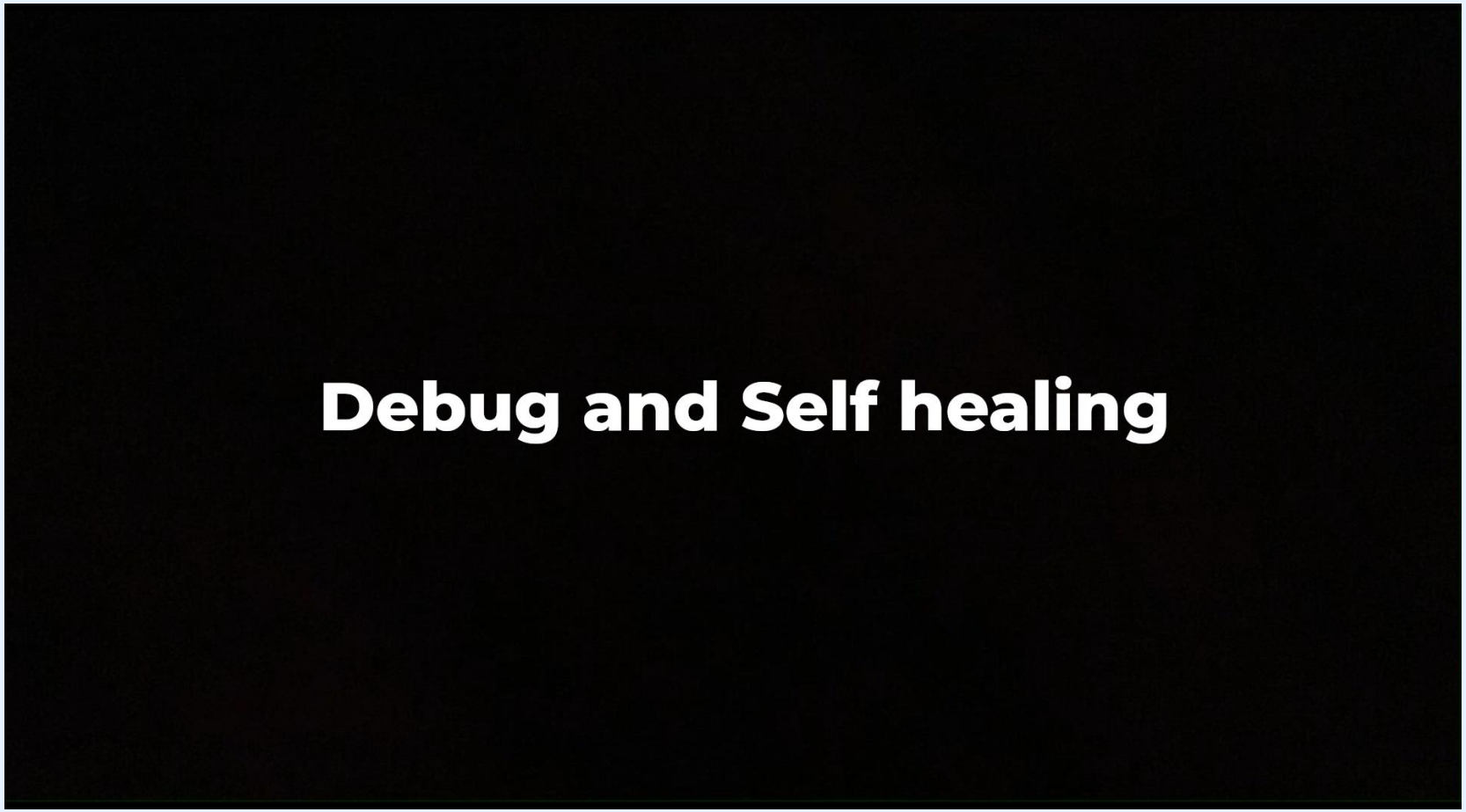
AI Migration to modern frameworks

Migration of Page objects

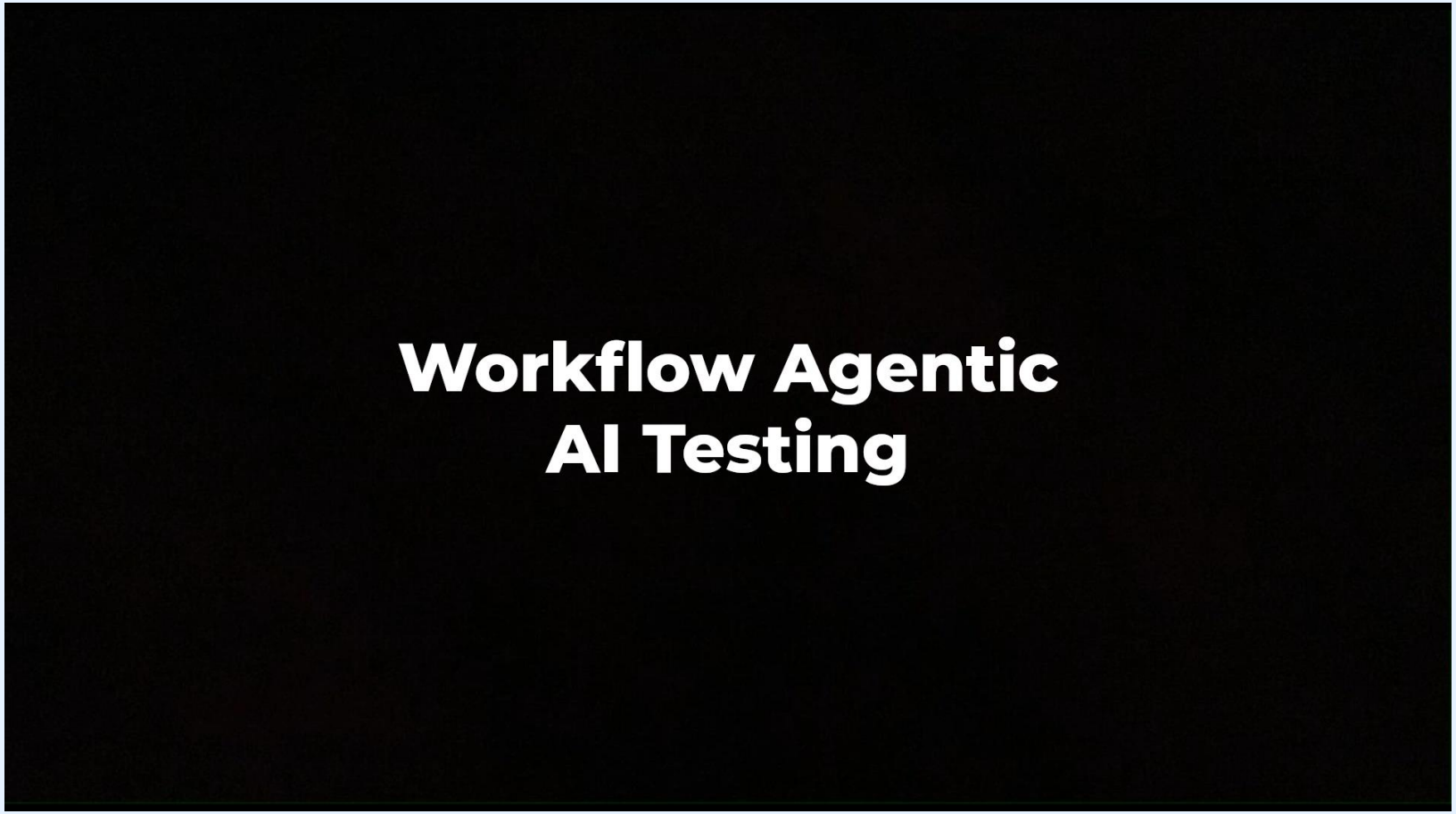
Migration of Test cases



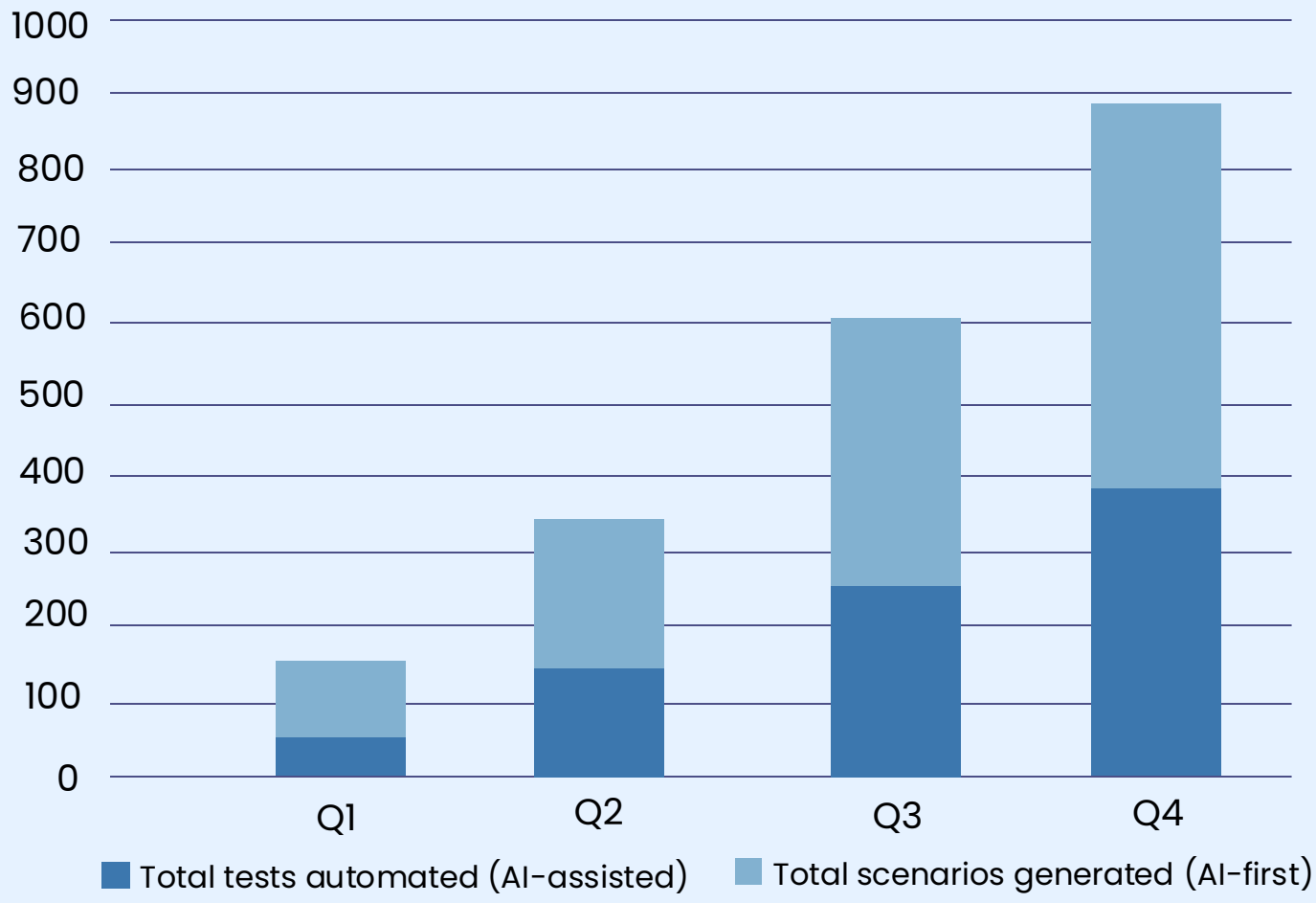
Autonomous Debugging and Self Healing

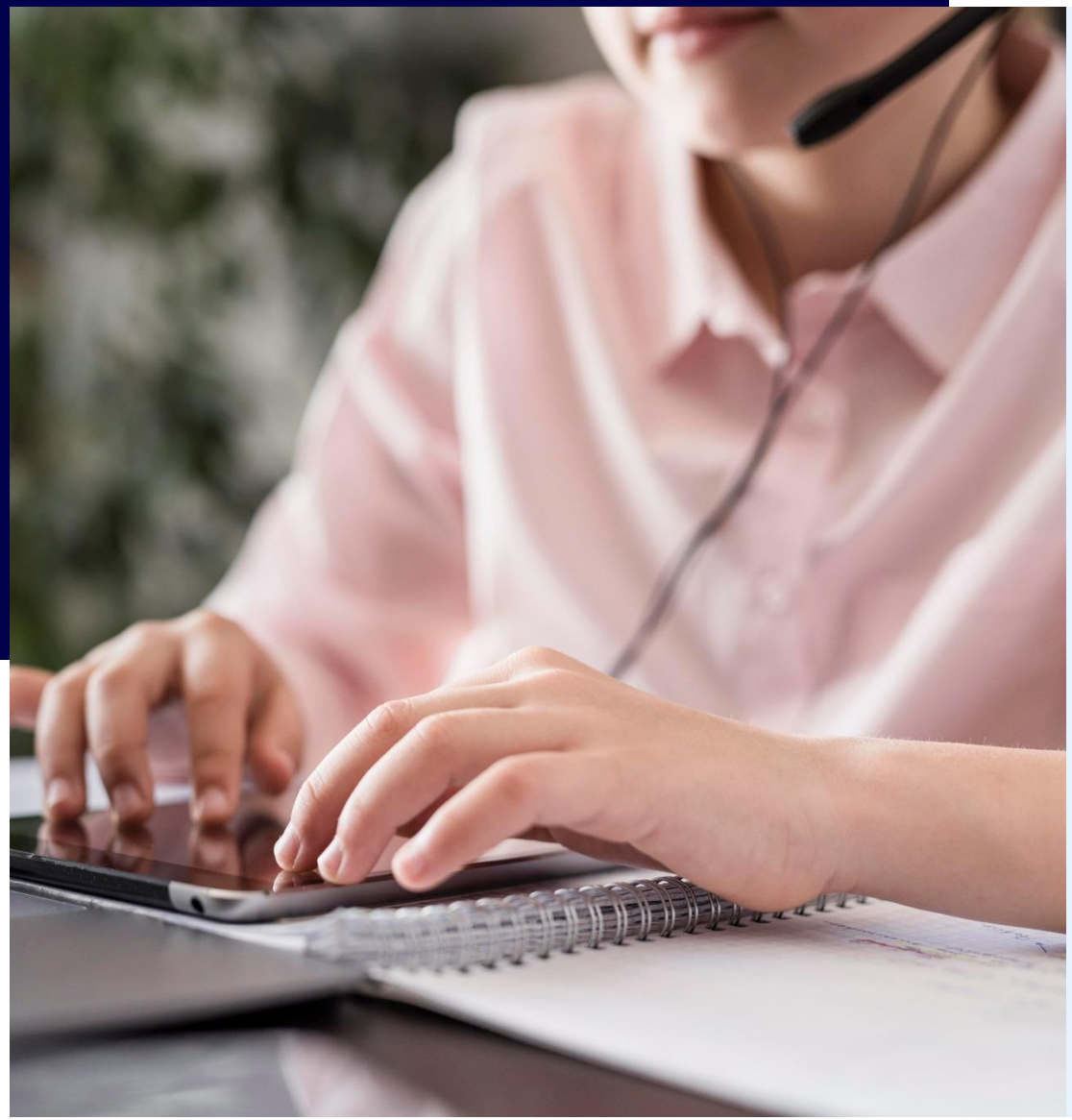


AI Testing Agents for enhanced efficiency



Test Coverage increase over time with AI





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