



Maximizing Test Coverage with AI-Powered Test Automation

Revolutionizing Software Testing

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Meet the Speaker



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Founder / Principal Consultant @Padran

20+ years experience in Software Quality

- Test Process Improvement,
- Test Automation,
- Performance Testing,
- Official ISTQB trainer.

Outside of the Work

- Plays clarinet.

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Agenda

01. Exploring the Testing Landscape: Understanding Evolution & Challenges

02. Overcoming Testing Challenges: Strategies & Solutions

03. AI in Testing: Technologies, Benefits, & Real-World Applications

04. Looking Forward & Interactive Session: Bright Horizons, Q&A

The Testing Landscape

Manual Testing

Traditional Automation

AI-Powered Test Automation

The Test Automation Wall



Test creation barriers

It takes time to build and design effective tests.



Acquiring the right skills

Test automation is hard and require considerable skill.



Insufficient test coverage

There's so much more that we need to test.



Relentless test maintenance

Continuous maintenance holds everyone back.

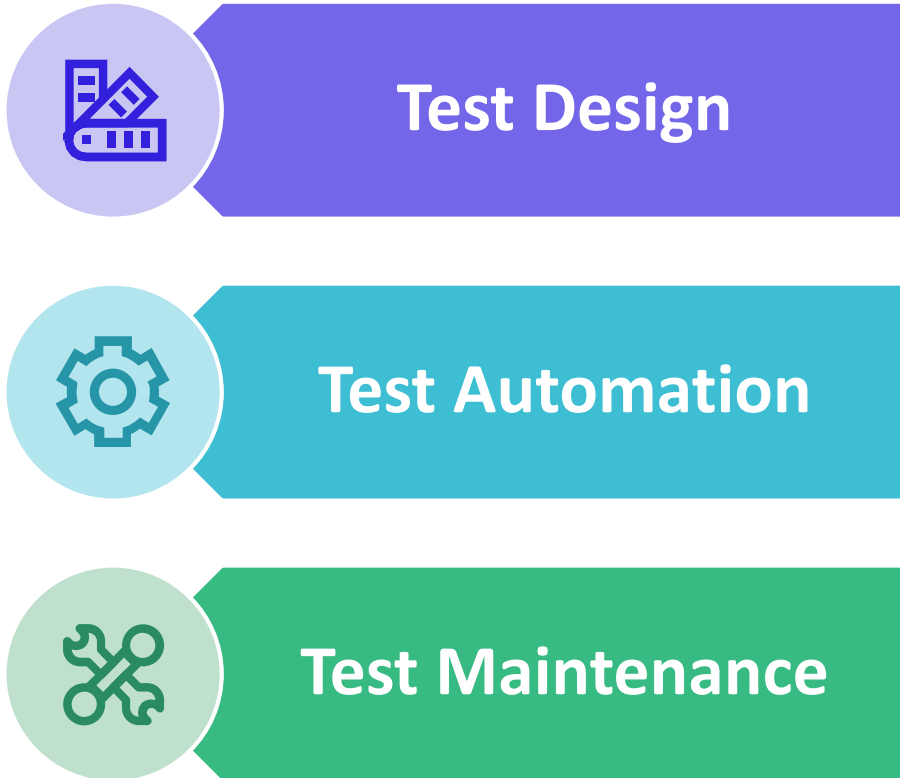


Time-consuming test execution

Testing takes time, and feedback cannot be given at speed.



We Need to Work Smarter



Overcoming the Test Automation Wall



Artificial Intelligence

Incorporate Machine Learning, Computer Vision, and Natural Language Processing.

Platform Availability

Access remote devices for development, debugging, testing and monitoring.



Shift Left

Enable testing to begin earlier within the development lifecycle.

Shift Right

Lower the barrier to test automation by allowing anyone in the team to test.



DevOps Ready

Leverage capabilities of other tools by integrating across the DevOps landscape.

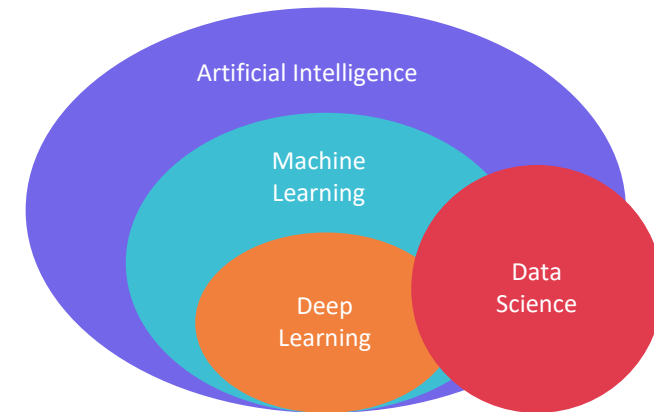
Better Together

Get more out of your testing assets by sharing them across the team

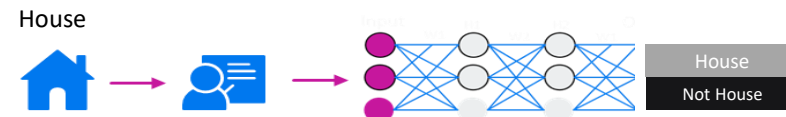


Artificial Intelligence in a Nutshell

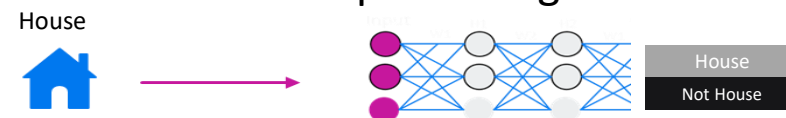
AI is an area of computer science that emphasizes the creation of intelligent machines.



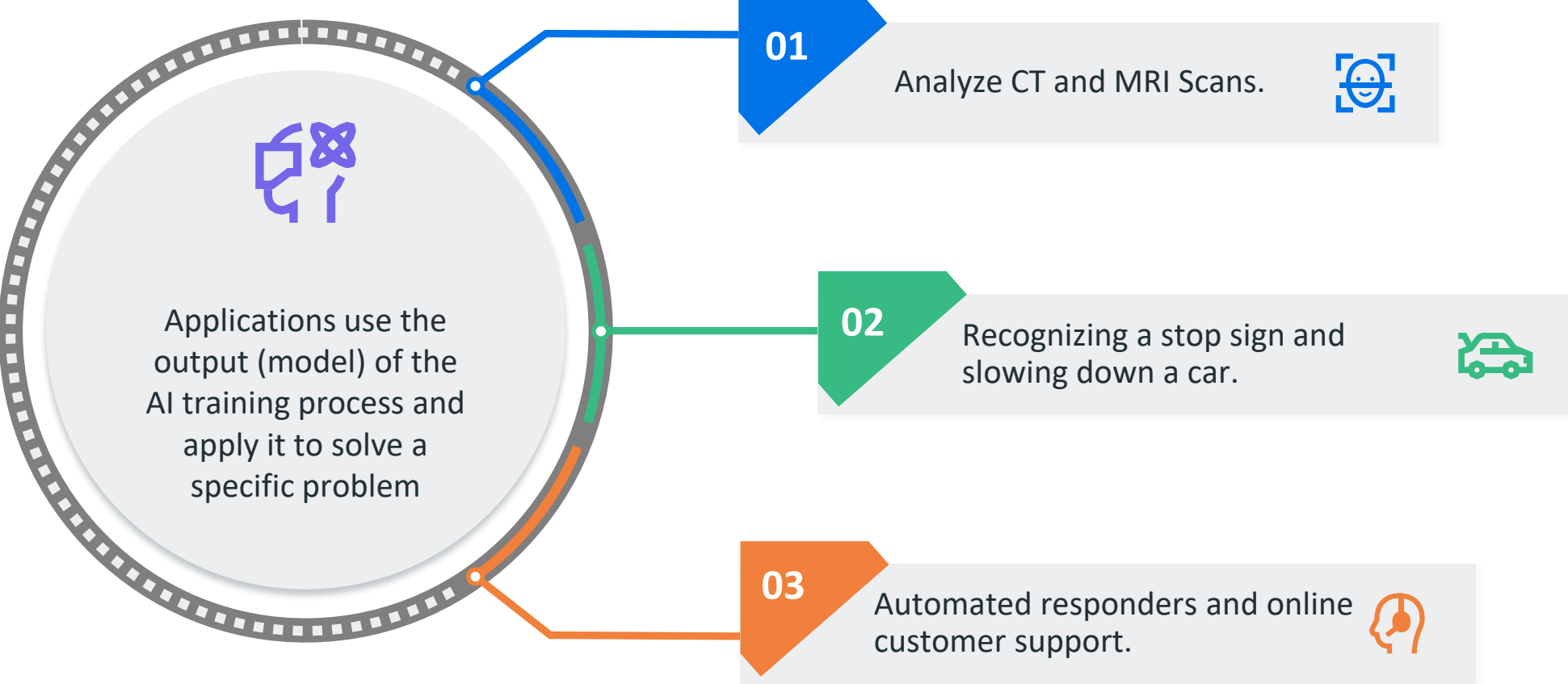
Machine Learning



Deep Learning



AI Around Us: It's Everywhere



What challenges prevent us from scaling test automation?

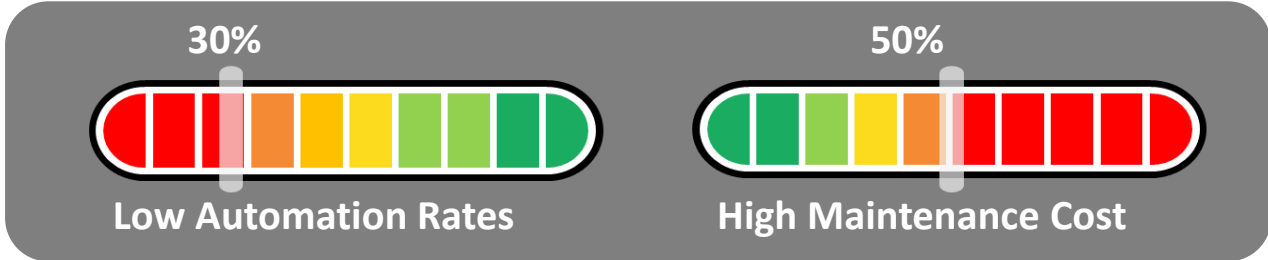
Challenges in Scaling Automation



Frequent releases
Difficult to keep pace with change

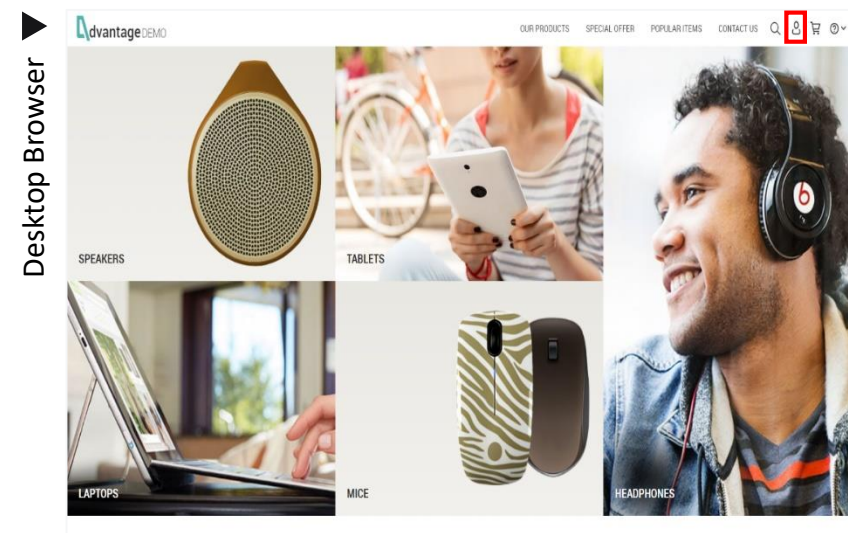
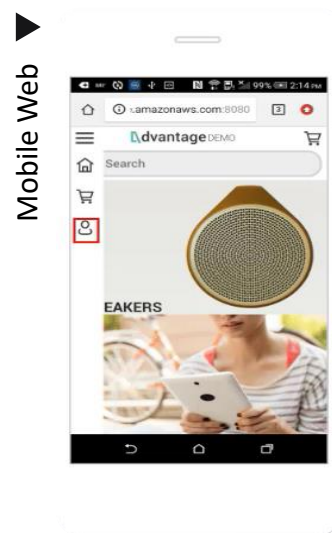
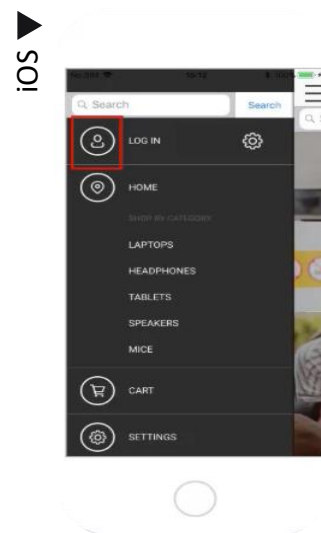
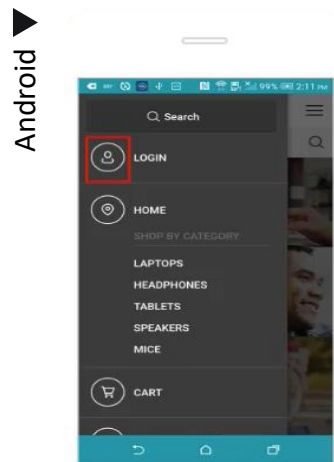
Time and effort
Spent on design and execution

Skill set
Automation is hard



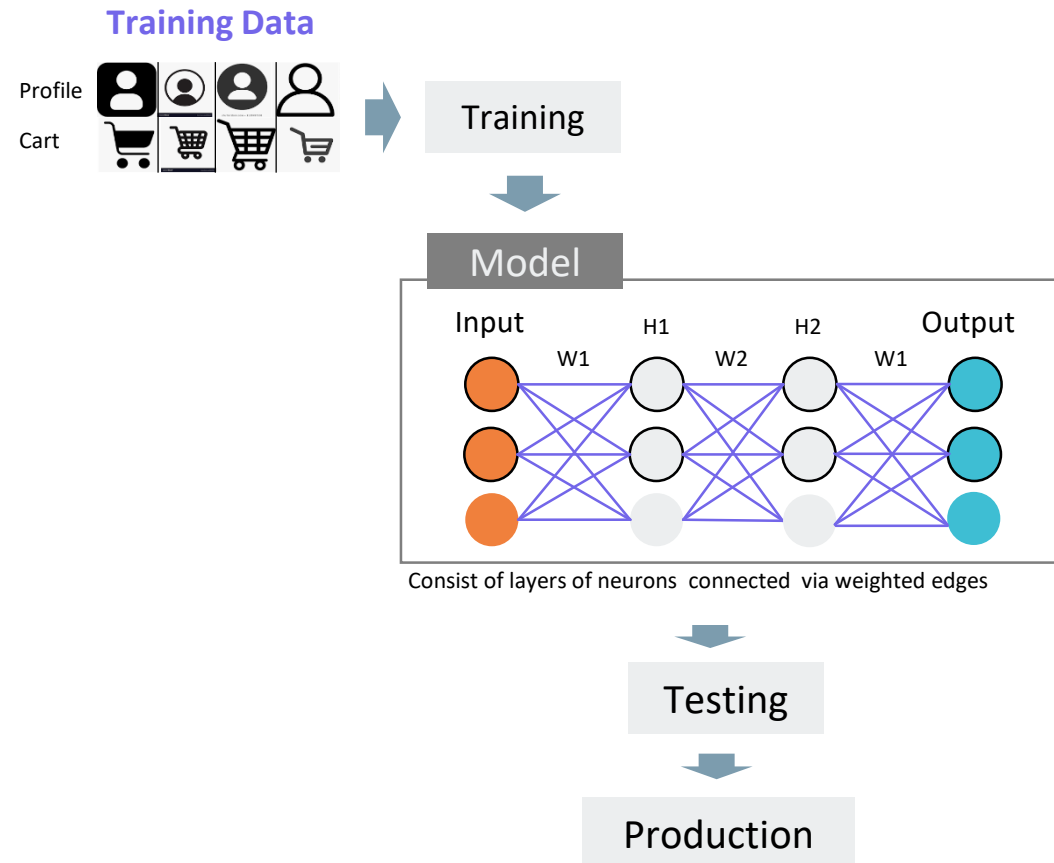
An example from today's reality

Use Case	<ul style="list-style-type: none">• Automate a business process of buying an item in an e-commerce application• The application is available as native mobile app as well as hybrid one and on desktop browser
Challenges	<ul style="list-style-type: none">• Four scripts are required to automate the same flow! -> TIME TO MARKET CHALLENGES• Changes in the application break the automated scripts -> HIGH MAINTENANCE COST

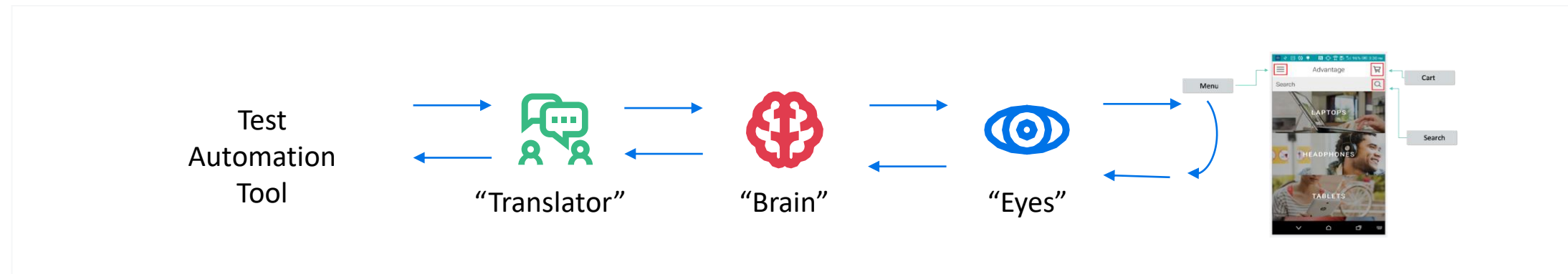
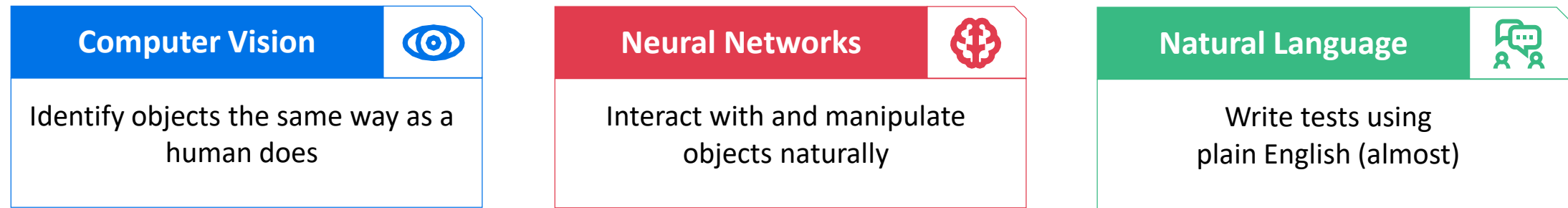


Artificial Intelligence in Test Automation

The software of AI is trained to perform simple tasks as well as complex ones.



Blending AI & Test Automation: A Smooth Combo



Automate Intelligently

Save Time with AI-Based Test Automation

OBJECT RECOGNITION

IDENTIFY OBJECTS USING AI-BASED MACHINE LEARNING (ML) AND ADVANCED OPTICAL CHARACTER RECOGNITION (OCR)

OBJECT INTERACTION

ARTIFICIAL NEURAL NETWORK (ANN) UNDERSTANDS EACH OBJECT AND ITS CONTEXT AND MANIPULATES IT IN A NATURAL WAY

SINGLE SCRIPT RUNS ON MULTIPLE PLATFORMS

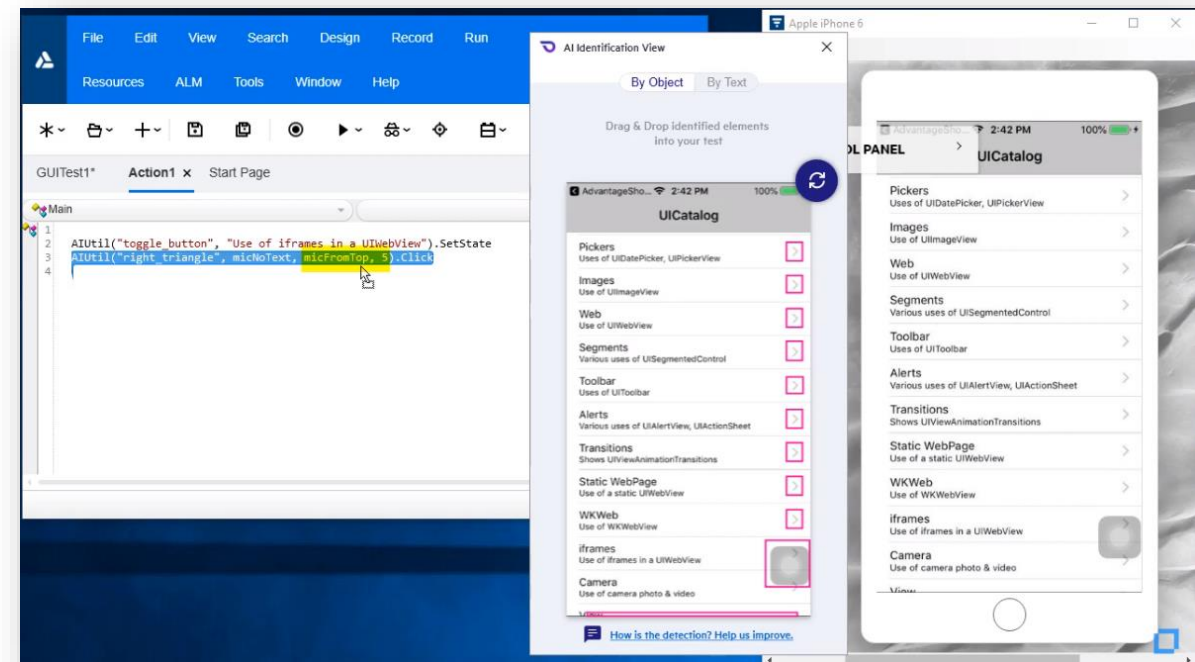
OBJECT RECOGNITION AND OBJECT INTERACTION USES COMBINE SO THAT A SINGLE SCRIPT RUNS ON MULTIPLE PLATFORMS

NATURAL LANGUAGE TEST SCRIPT CREATION

NATURAL LANGUAGE PROCESSING (NLP) ENGINE ENABLES TESTS TO BE WRITTEN IN SIMPLE ENGLISH

MULTI-PLATFORM TEST EXECUTION

AI-BASED OBJECT RECOGNITION, OBJECT INTERACTION, AND NATURAL LANGUAGE SCRIPT CREATION ALLOW TESTS TO BE WRITTEN AND EXECUTED ON MULTIPLE PLATFORMS WITHOUT MODIFICATION



Key Benefits of Leveraging AI in Test Automation



70% or more reduction in maintenance costs

30% or more increase in automation coverage



3x increase in test development speed

Extend reach so everyone on the team can test



Looking Forward

Bright Horizons & Closing Remarks

- **Summary of Journey:** We've explored the challenges, discussed innovative solutions, and glimpsed real-world implementations of AI in test automation.
- **Transformative Potential:** AI is not just a trend; it's a transformative force reshaping the testing landscape with promising advancements.
- **Encouragement for Exploration:** The future is bright, and it's in our hands to shape it. Let's embrace AI in our testing initiatives with confidence and curiosity.
- **Appreciation:** A heartfelt thank you to everyone for participating, interacting, and contributing to the dialogue. Your curiosity and eagerness fuel progress.

Thank you

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