Software Testing Automation Framework

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Agenda

- Software Testing

- History of Software Testing

- Need for Software Testing

- Software Testing Automation Framework

- Types of Software Testing Automation Framework

- Software Testing tools

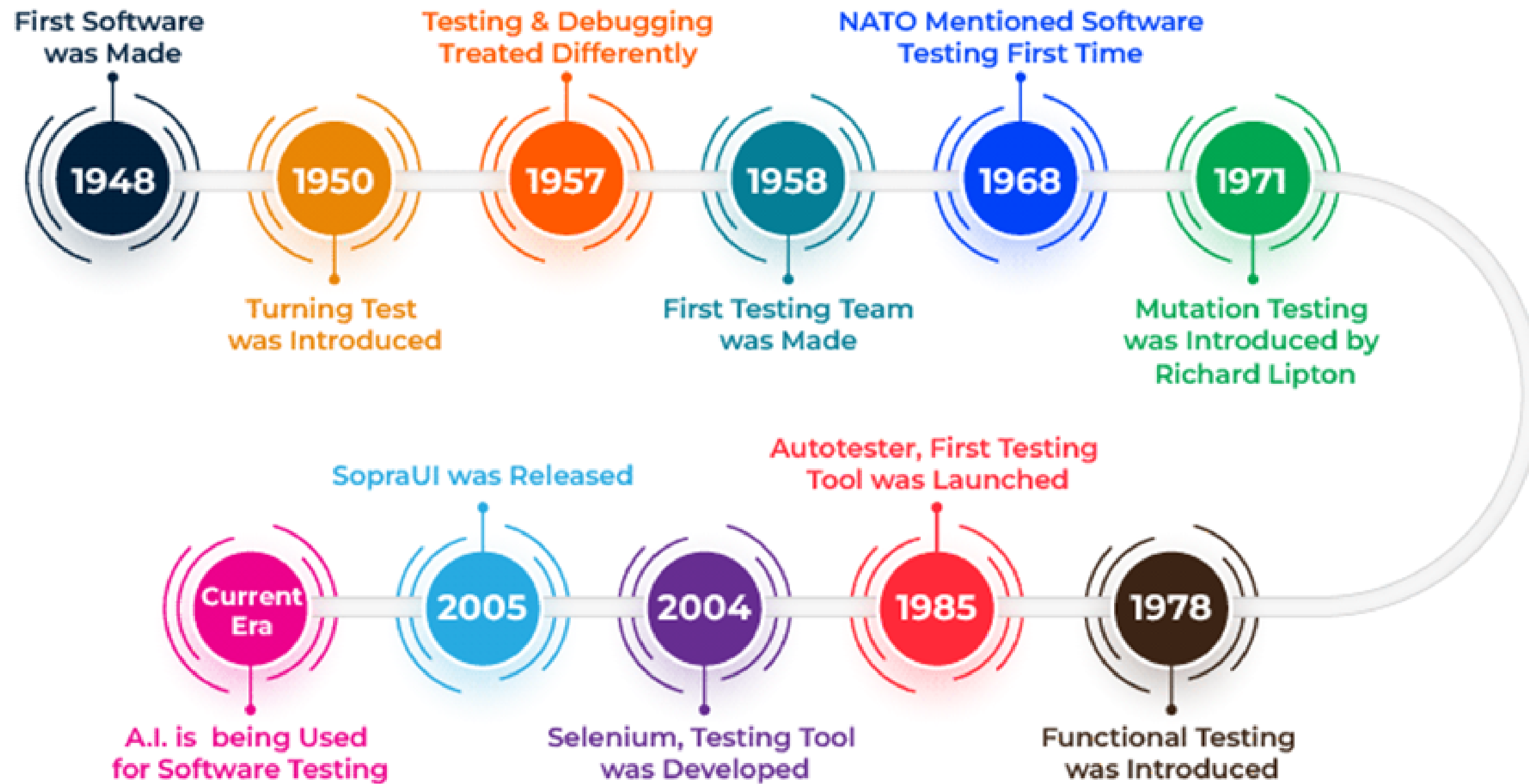- Advantages & Disadvantages

- References

Software Testing

Software testing is the process of evaluating and verifying that a software product or application does what it is supposed to do.
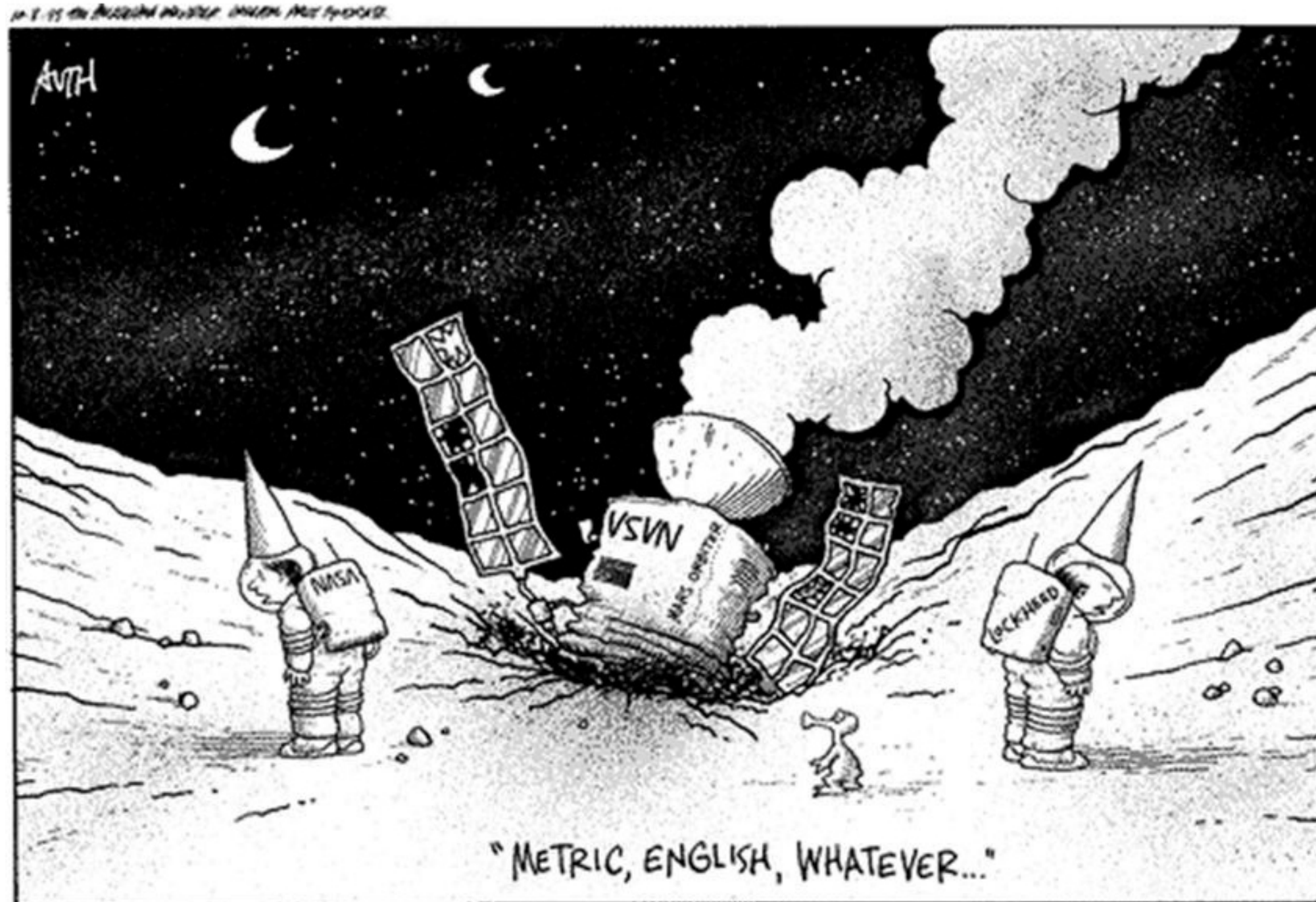
Types of Software Testing:

- Stub Testing
- Unit Testing
- Integration Testing
- System Testing
- Acceptance Testing
- Stress Testing
- User Testing

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History of Software Testing

First Software was Made

1948

Turning Test was Introduced

1950

Testing & Debugging Treated Differently

1957

First Testing Team was Made

1958

NATO Mentioned Software Testing First Time

1968

Mutation Testing was Introduced by Richard Lipton

1971

SopraUI was Released

2005

Autotester, First Testing Tool was Launched

1985

Current Era

A.I. is being Used for Software Testing

2004

Selenium, Testing Tool was Developed

1978

Functional Testing was Introduced

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Need for Software Testing

"METRIC, ENGLISH, WHATEVER..."

Remember the Mars Climate Orbiter incident from 1999?

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Software Testing Automation Framework

- Collection of Tools and Processes

- Integrates functions like libraries, test data, and various reusable modules

Types of Testing Automation Frameworks

- <u>Unit Testing Frameworks</u>: Testing individual pieces of code (units)

- <u>Integration Testing Frameworks</u>: Testing cohesive working of individual modules

- <u>Functional Testing Frameworks:</u> Testing the overall functionality of an application

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Types of Testing Automation Frameworks (cont.)

- <u>Performance Testing Frameworks</u>: Testing performance under stress conditions

- <u>Security Testing Frameworks</u>: Testing the security of the application

- <u>Acceptance Testing Frameworks</u>: Testing if an application meets the acceptance criteria

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Software Testing Tools

Test Management Tools

HP ALM
TestRail
Zephyr
qTest

- Help manage the testing process
- Keep track of test cases, test runs and defects

Test Execution and Automation Tools

Selenium WebDriver
AppiumTestComplete
UFT (Unified Functional Testing)
Cucumber

- Execute automated test cases
- Provide features for managing test data test environment, test configurations

Software Testing Tools (cont.)

API and Service Testing Tools

Postman
SoapUI
ReadyAPI
Karate

- Evaluate the performance and scalability
- Help identify bottlenecks, performance issues

Performance Testing Tools

Apache JMeter
LoadRunner
BlazeMeter
Artillery

- Test the functionality and performance of APIs and web services.
- May support protocols such as REST, SOAP, GraphQL

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Software Testing Automation Framework

Advantages:

- Increased accuracy
- Faster execution
- Reduced costs
- More dependable outcomes
- Improved efficiency
- Increased collaboration between developers
- Increased scalability

Software Testing Automation Framework

Disadvantages:

- Complexity
- High start-up expenses
- It must be redone for each new environment
- Produces false positives and false negatives
- Dependence and Maintenance are difficult to develop
- Cannot be applied to GUI components (e.g., graphics, sound files)

References

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Thank You!
Any Questions?

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