Organizer: Webbicus

Host: SOFIA TECHPARK

So, you think you do QA?

Martin Chaov

Architecture Senior Manager @ Draftkings Inc.

Agenda

Intro

What is a bug?

What is assurance?

Process

Summary

What is the purpose of testing?

Would you...

Imagine this...

A thought experiment

- You are at work
- Your project is late
- It was postponed few times already
- You think it is not ready yet
- Management pushes you to release ASAP
- You need to sign-off the project for release before it goes live

The space shuttle Challenger exploded 73 seconds after lift off. (Credit: Bruce Weaver/AP Photo)

Allan McDonald

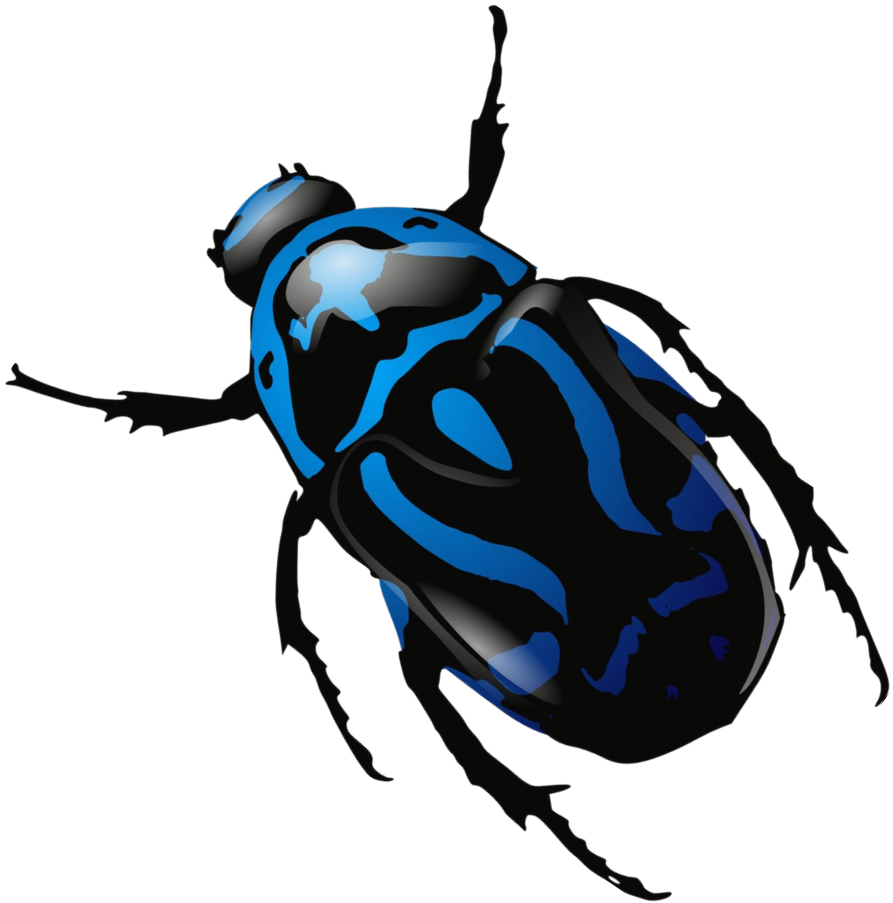
- He refused to sign…
- The GM signed over him…

Allan McDonald - **Director of the Space Shuttle Solid Rocket Motor Project** for the engineering contractor Morton Thiokol *Credit: NASA/Sean Smith*


Who am I?

What is a bug?

- Violation of an assumption
- Symptom of a gap in the process



What is “assurance”?

What does “assurance” mean?

https://www.oxfordlearnersdictionaries.com/definition/american_english/assurance#:~:text=1%5Bcountable%5D%20a%20statement%20that,committed%20to%20its%20education%20policy.

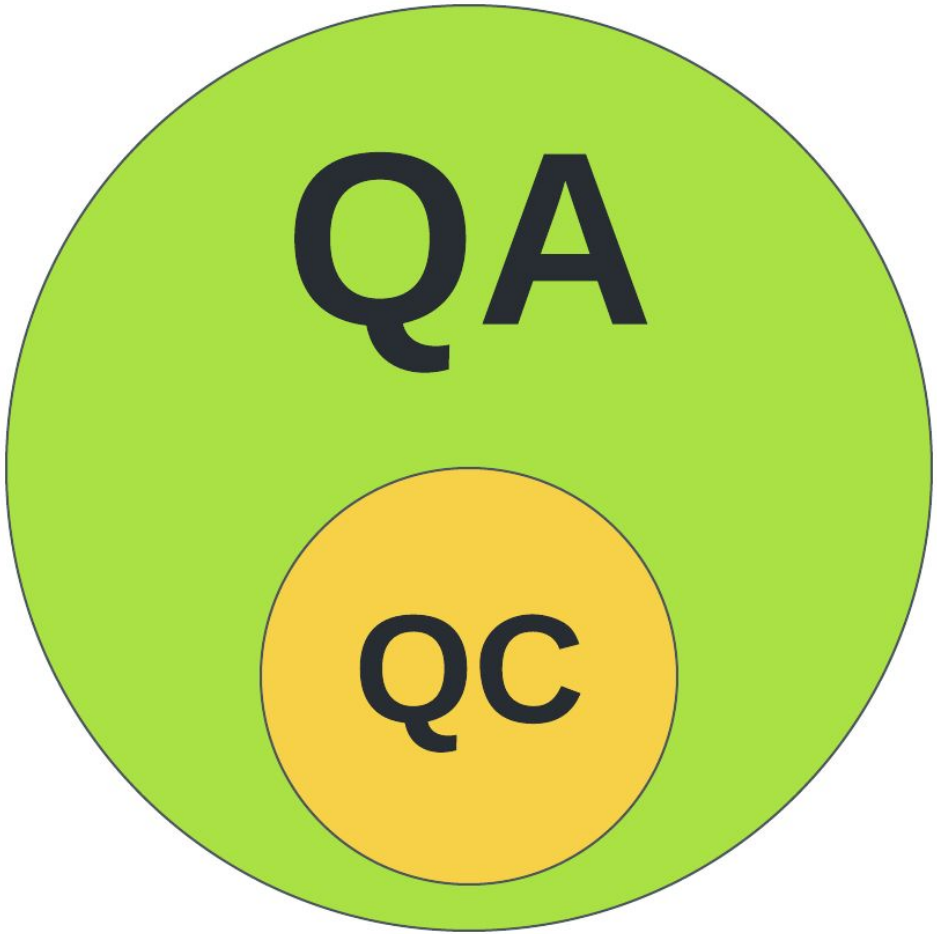
QA != QC

Quality Assurance

Proactive
Process
System
Prevention
Entire team

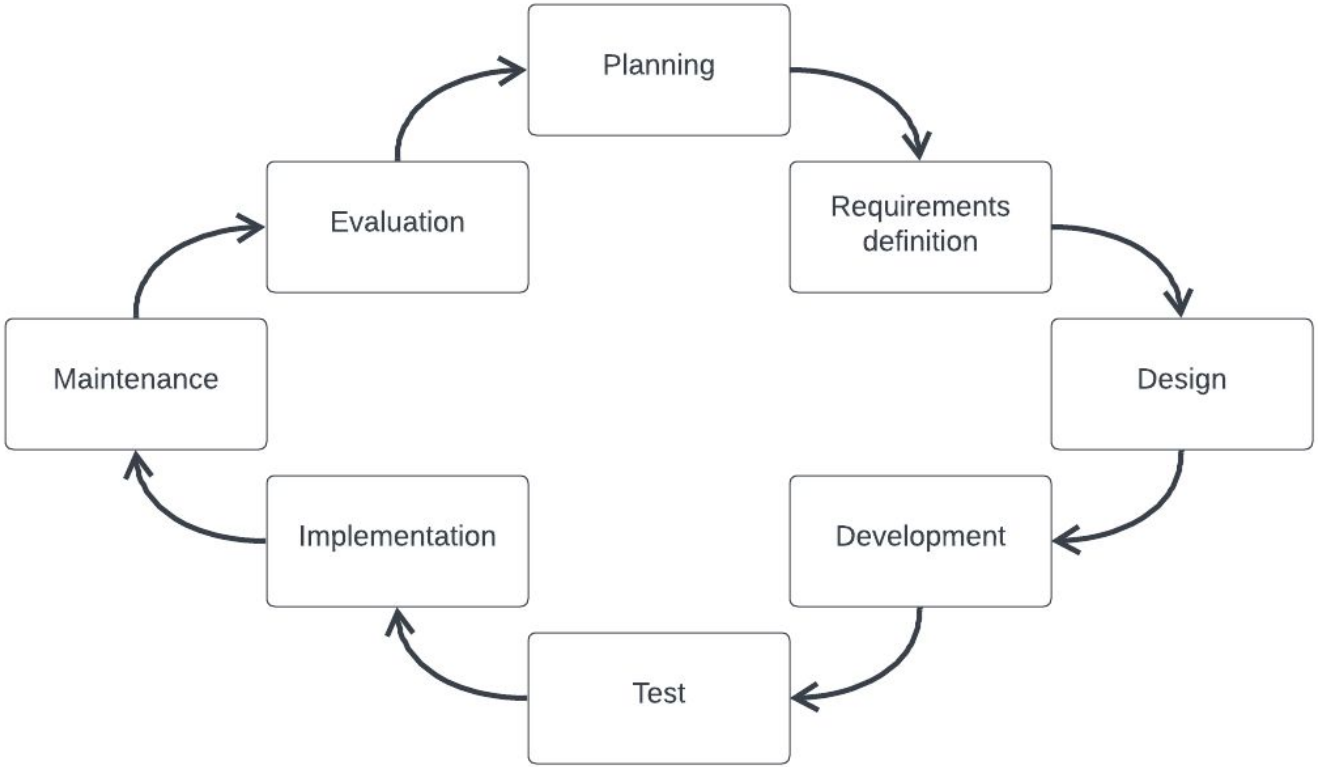
Quality Control

Reactive
Product
Parts
Detection
Dedicated personnel


QA
QC

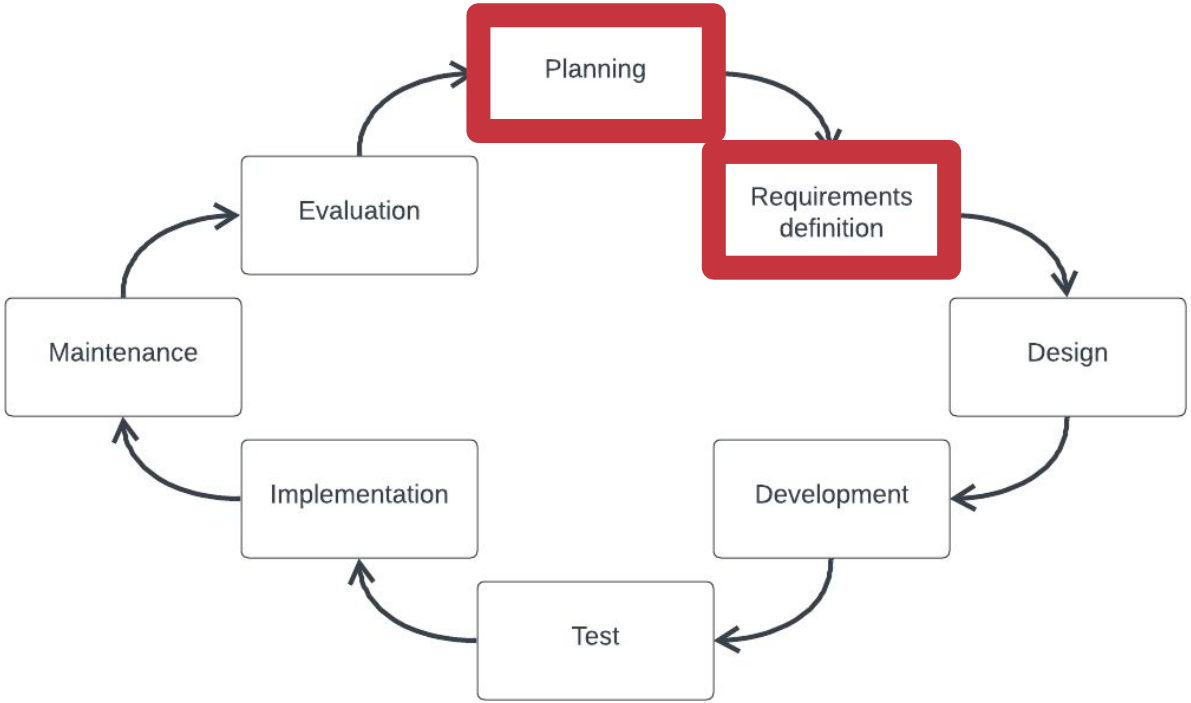
What about process?

SDLC


Planning
Requirements definition
Design
Development
Test
Implementation
Maintenance
Evaluation

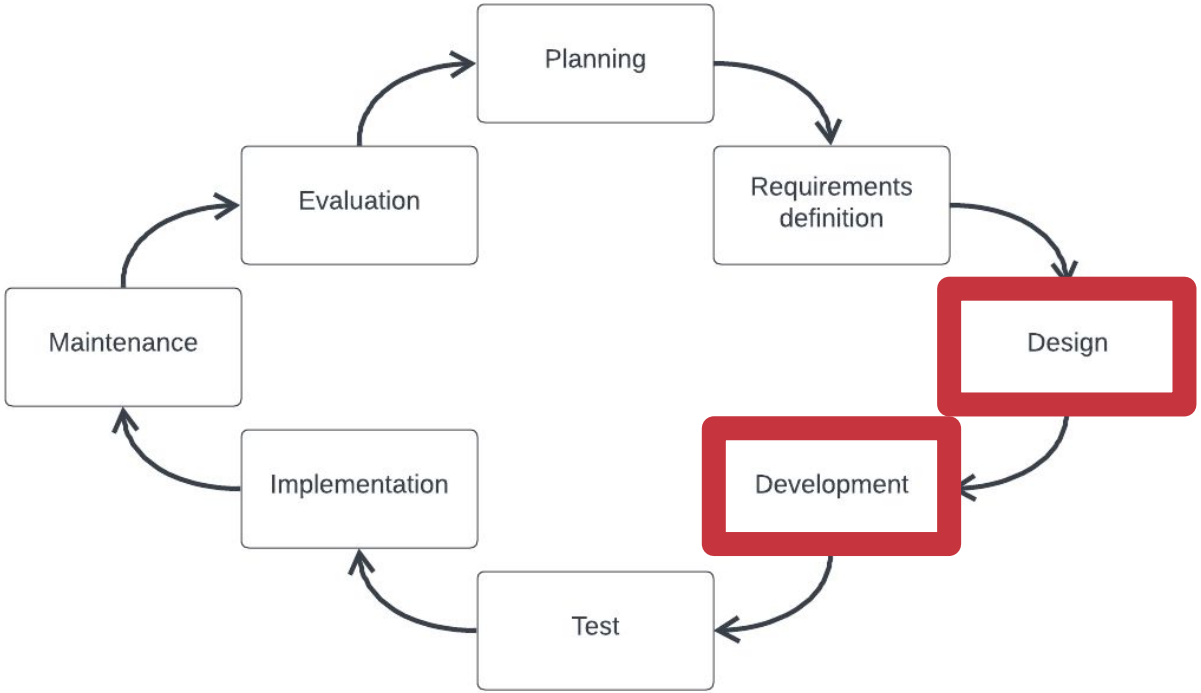
SDLC and QA

- Assess if feasible
- Define scope
- Test strategy
- Specs and acceptance criterions
- KPI, SLA



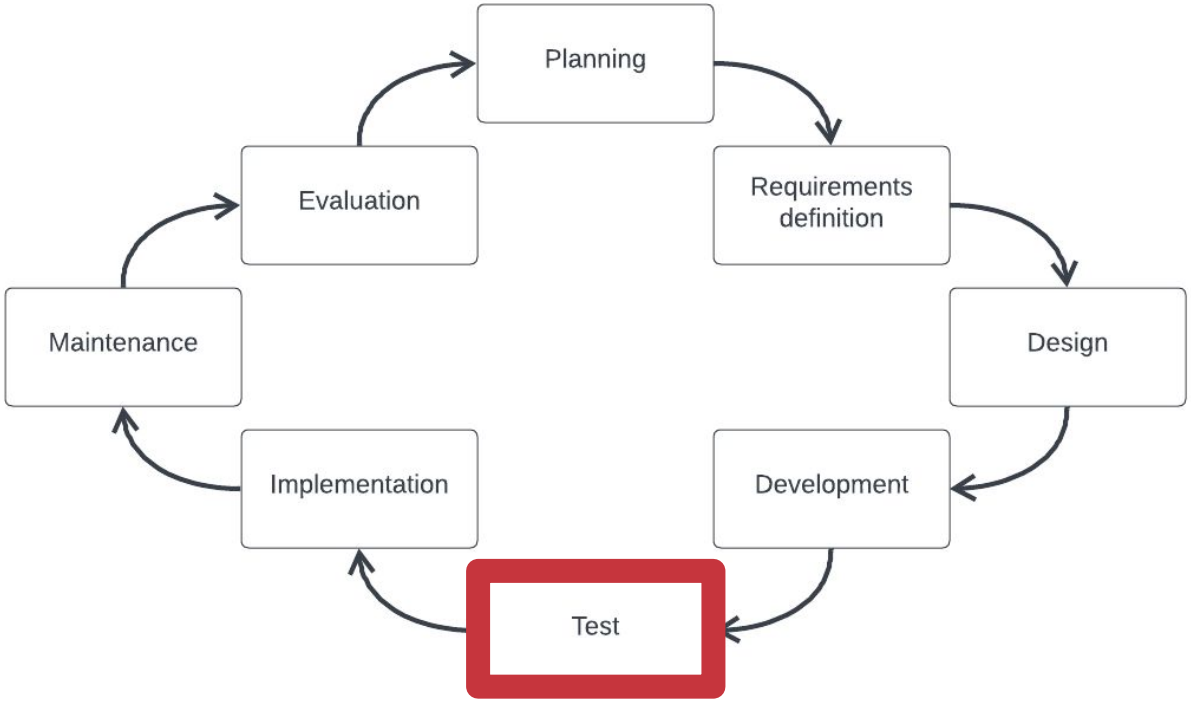
SDLC and QA

- Solidify test scenarios
  - Use cases
  - Edge cases
  - Abuse cases
- Feedback from the team
- Manual and Automation tests
- Tests review



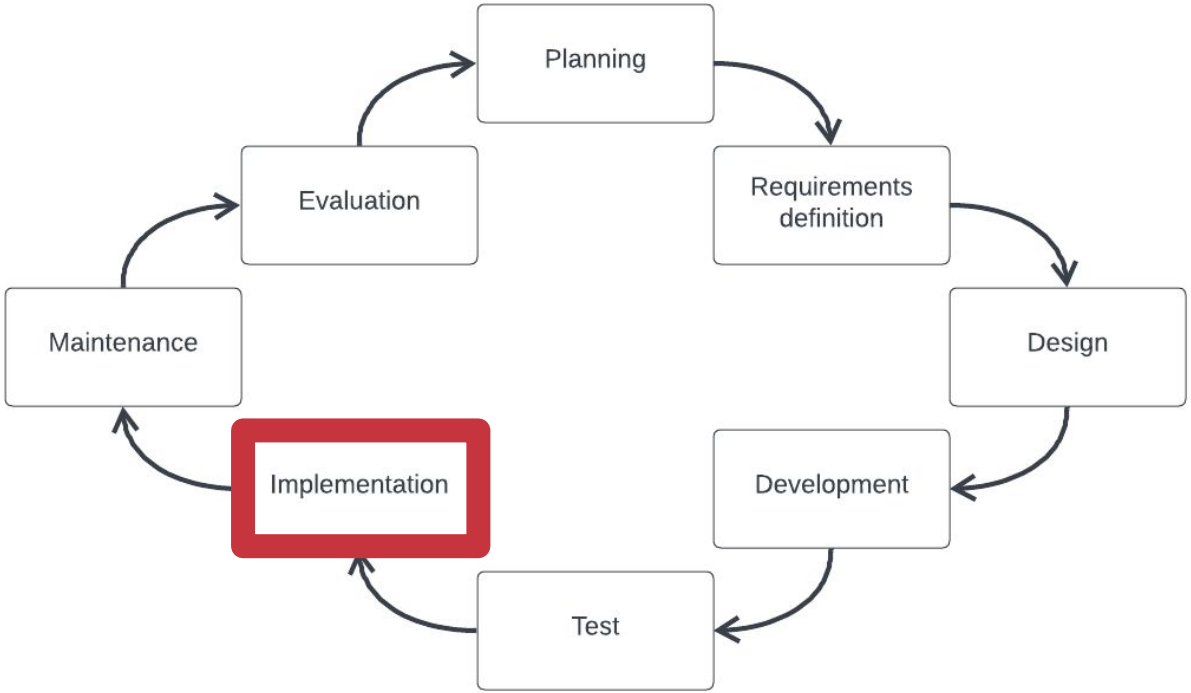
SDLC and QA

- Manual and Automated testing
- Acceptance testing
- Performance testing
- Try to break the system



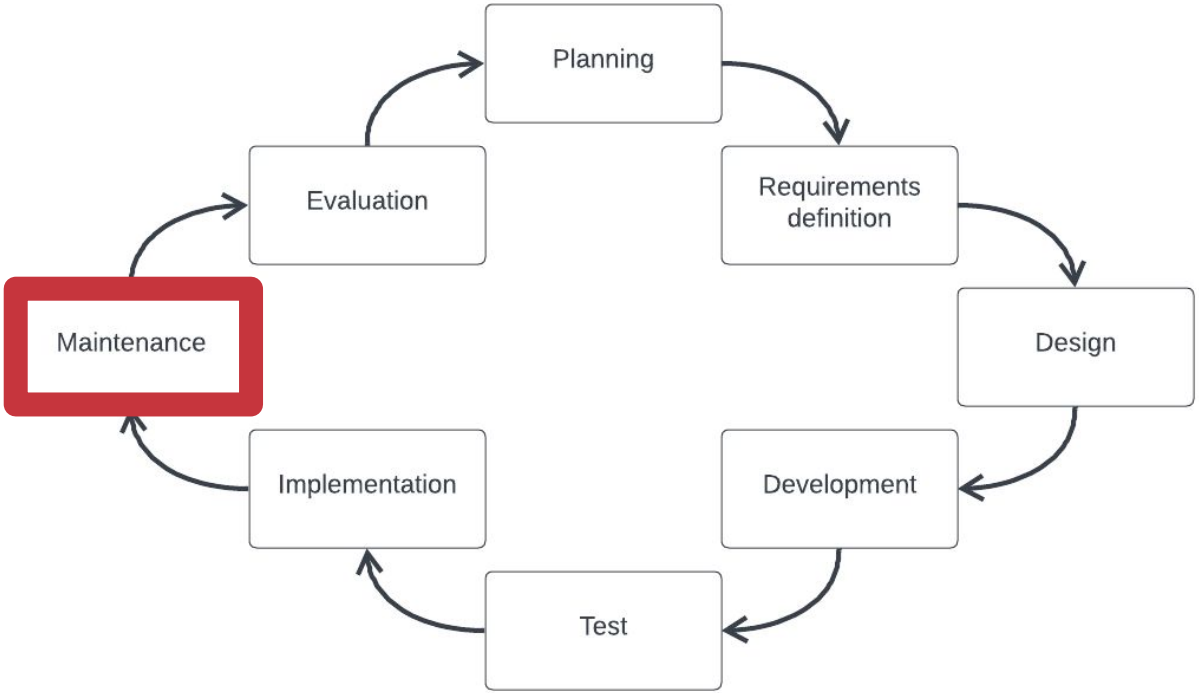
SDLC and QA

- Analyze metrics
- Validate
- Release
- Test in prod



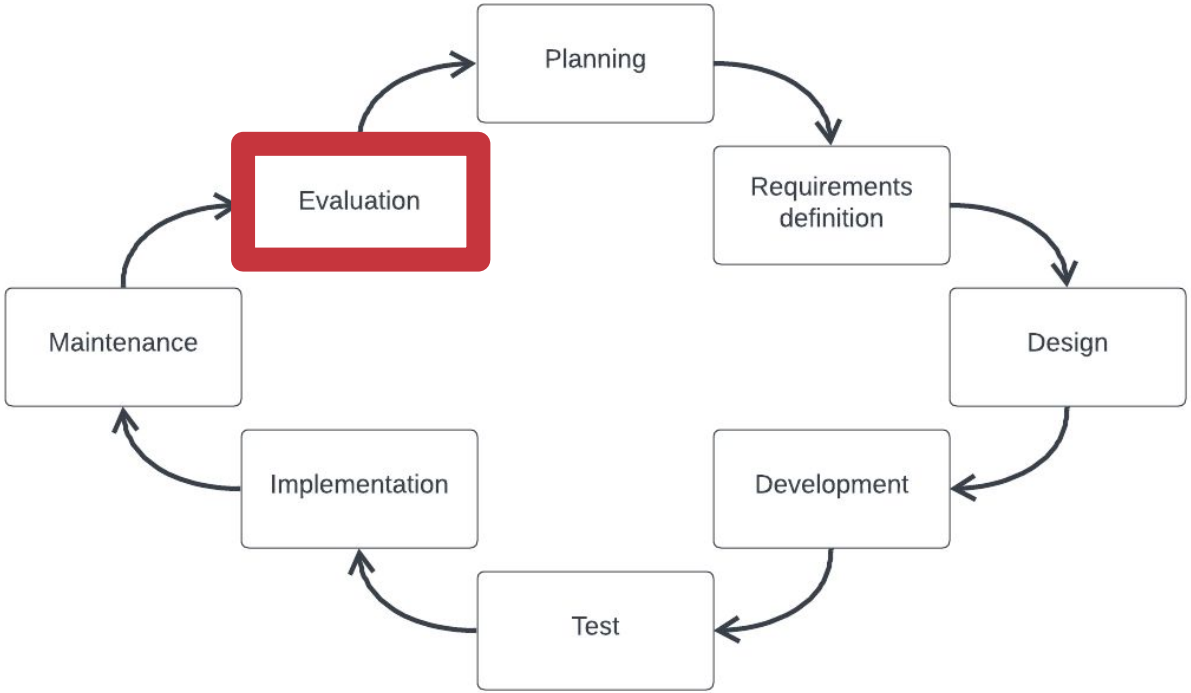
SDLC and QA

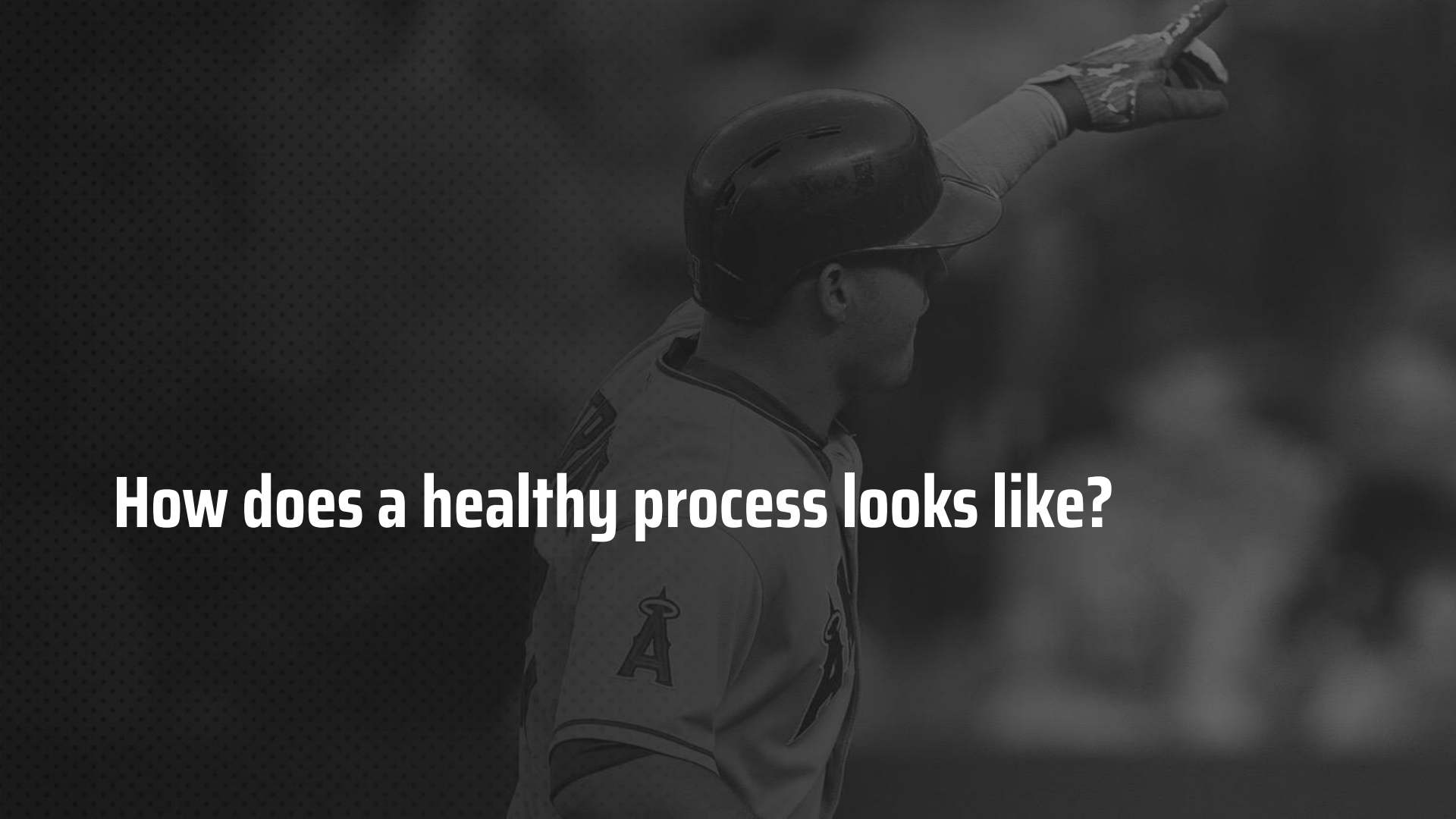
- Proactive monitoring
- Track KPIs, SLA
- Preventive actions



SDLC and QA

- Analyze process even in case of success
- Identify areas of improvement
- Start next cycle

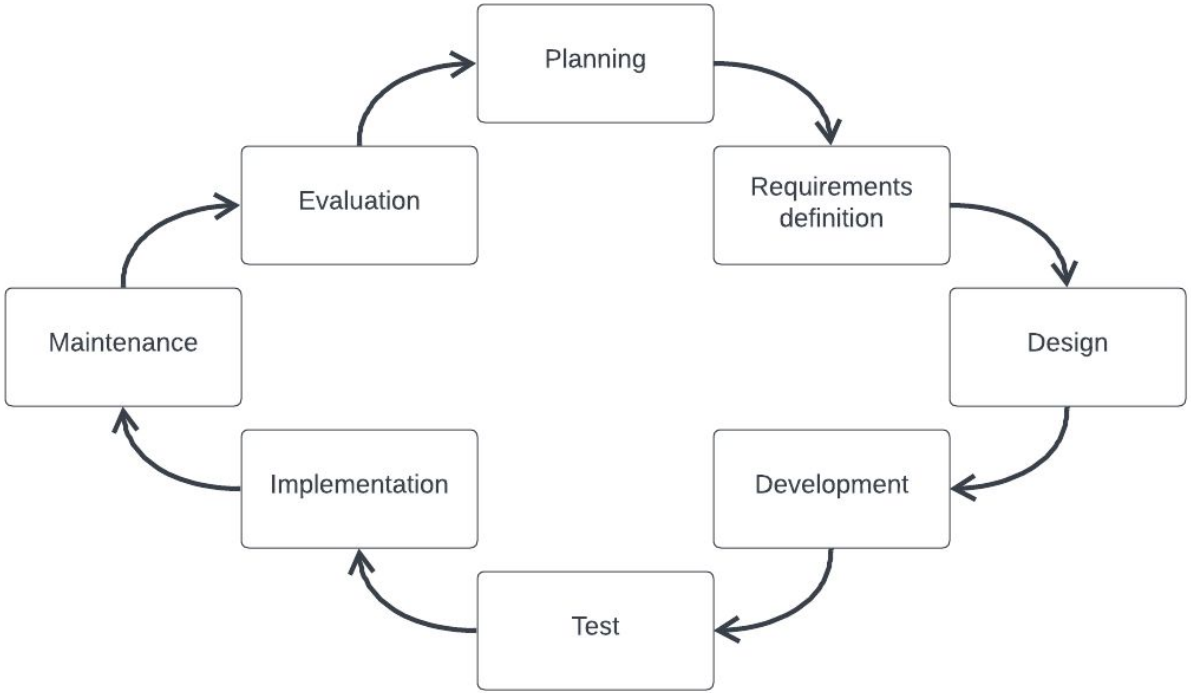




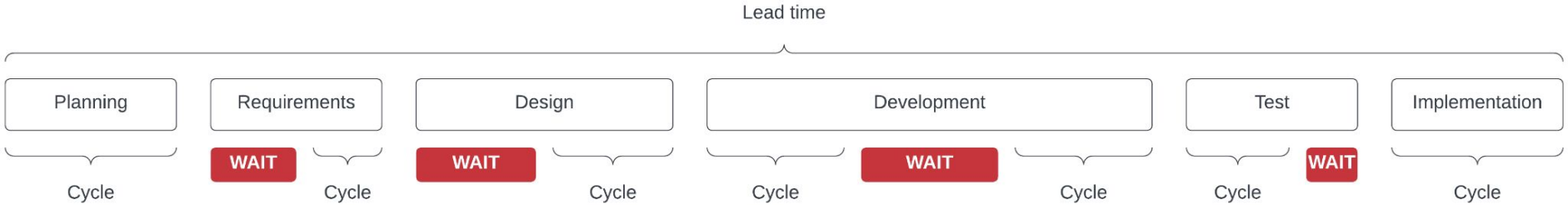
How does a healthy process looks like?

In a healthy process...

- Built in prevention
- Quality gates
- Monitoring + measuring
- CI/CD
- Retrospective
- Zero tolerance to bugs



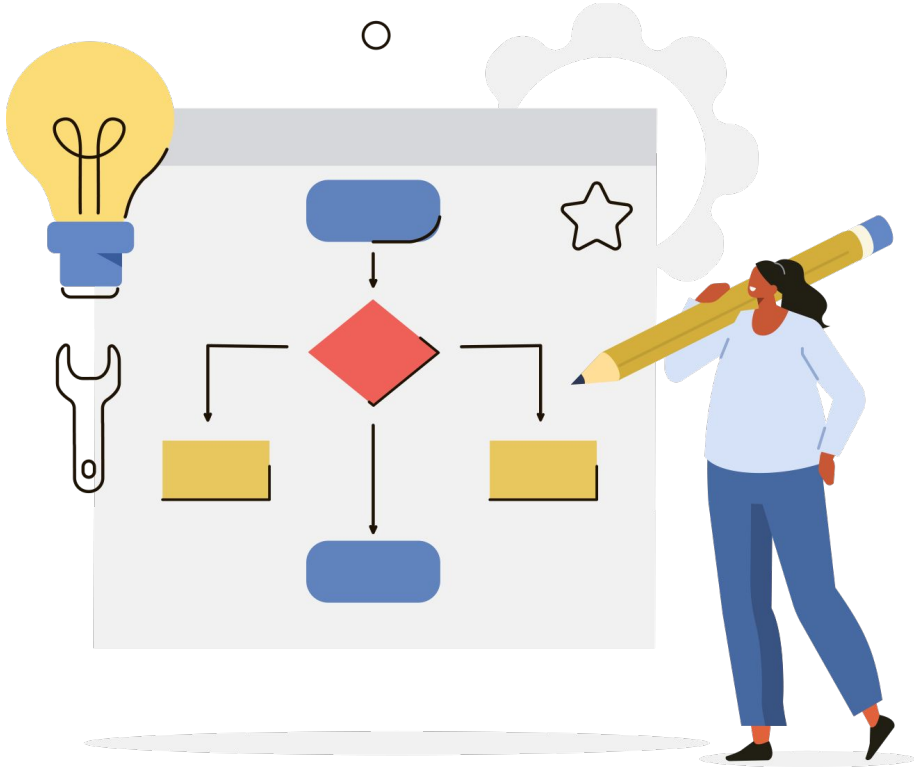
Measure KPIs for SDLC



- Lead time and total wait time
- Cycle time
- Number of production incidents
- Cost of fixing a bug in production
- Detected and Escaped bugs
- Mean time to recovery
- … and many more

Architecture review

- SDD
  - Project overview
  - Assumptions, sequence of execution
  - Services and interfaces
  - Scenarios and interactions
  - NFRs
  - Assembly instructions
  - POC, sample code, experiments
- Validate the architecture
- Sign off with the team
- Review implementation

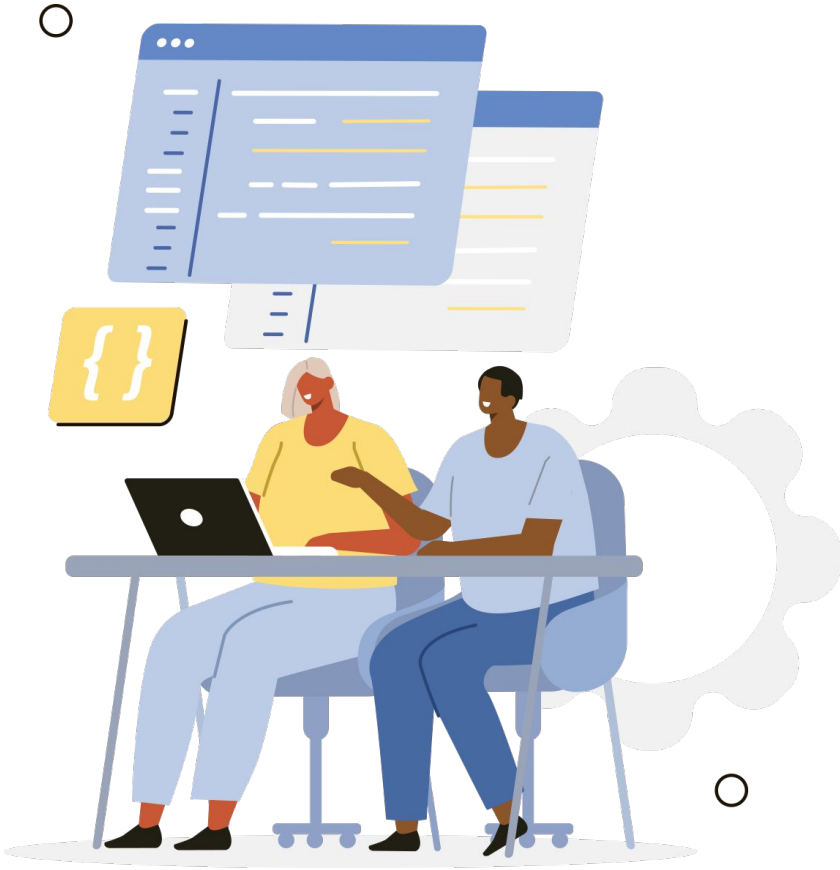


Code review

- Formal process
- Use checklists
- Author guidance and annotations
- Positive tone
- Evaluate usefulness of the CR
  - Inspection rate
  - Defect rate
  - Defect density
  - Escaped bugs

Tests review

- Connected to business requirement
- Clear impact of test
- Cases: use/edge/abuse



Code coverage

- Leading indicator
- Functional coverage
- Confidence factor
- Cyclomatic complexity
- What 100% coverage means?

Bug density

- How effective is your testing?
  - Requirements
  - Design
  - DoD
  - Test cases and Testing
- Insight into SDLC
- Identify key areas of improvement
- Bug density != Number of production incidents


Helmet Cam
F1 TV
55

CAPA Examples

Corrective actions

- Defensive coding, self healing systems
- Improve monitoring, alerting, paging
- Process enhancements and fine tuning
- Introducing new tests
- Improve onboarding

Preventive actions

- Training programs based on roadmap
- Review and update documentation, policies, style guide, etc.
- Company-wide code reviews
- Retrospectives even in case of success

You either own the quality
or
the lack of quality will own you!

Organizer: Webbicus

Host: SOFIA TECHPARK

QA CHALLENGE ACCEPTED

EDITION 2022

Q & A