

DEV267

# Automated SAP Fiori Apps Testing with Continuous Delivery

Hristo Manchev, SAP  
Sagari Arora, SAP

PUBLIC

# Disclaimer

The information in this presentation is confidential and proprietary to SAP and may not be disclosed without the permission of SAP. Except for your obligation to protect confidential information, this presentation is not subject to your license agreement or any other service or subscription agreement with SAP. SAP has no obligation to pursue any course of business outlined in this presentation or any related document, or to develop or release any functionality mentioned therein.

This presentation, or any related document and SAP's strategy and possible future developments, products and or platforms directions and functionality are all subject to change and may be changed by SAP at any time for any reason without notice. The information in this presentation is not a commitment, promise or legal obligation to deliver any material, code or functionality. This presentation is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. This presentation is for informational purposes and may not be incorporated into a contract. SAP assumes no responsibility for errors or omissions in this presentation, except if such damages were caused by SAP's intentional or gross negligence.

All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.

# Agenda

## Test automation for SAP Fiori apps

- Get to know the benefits of test automation
- Explore the SAP Fiori test pyramid
- Understand and use UIVeri5
- Run your tests in continuous delivery

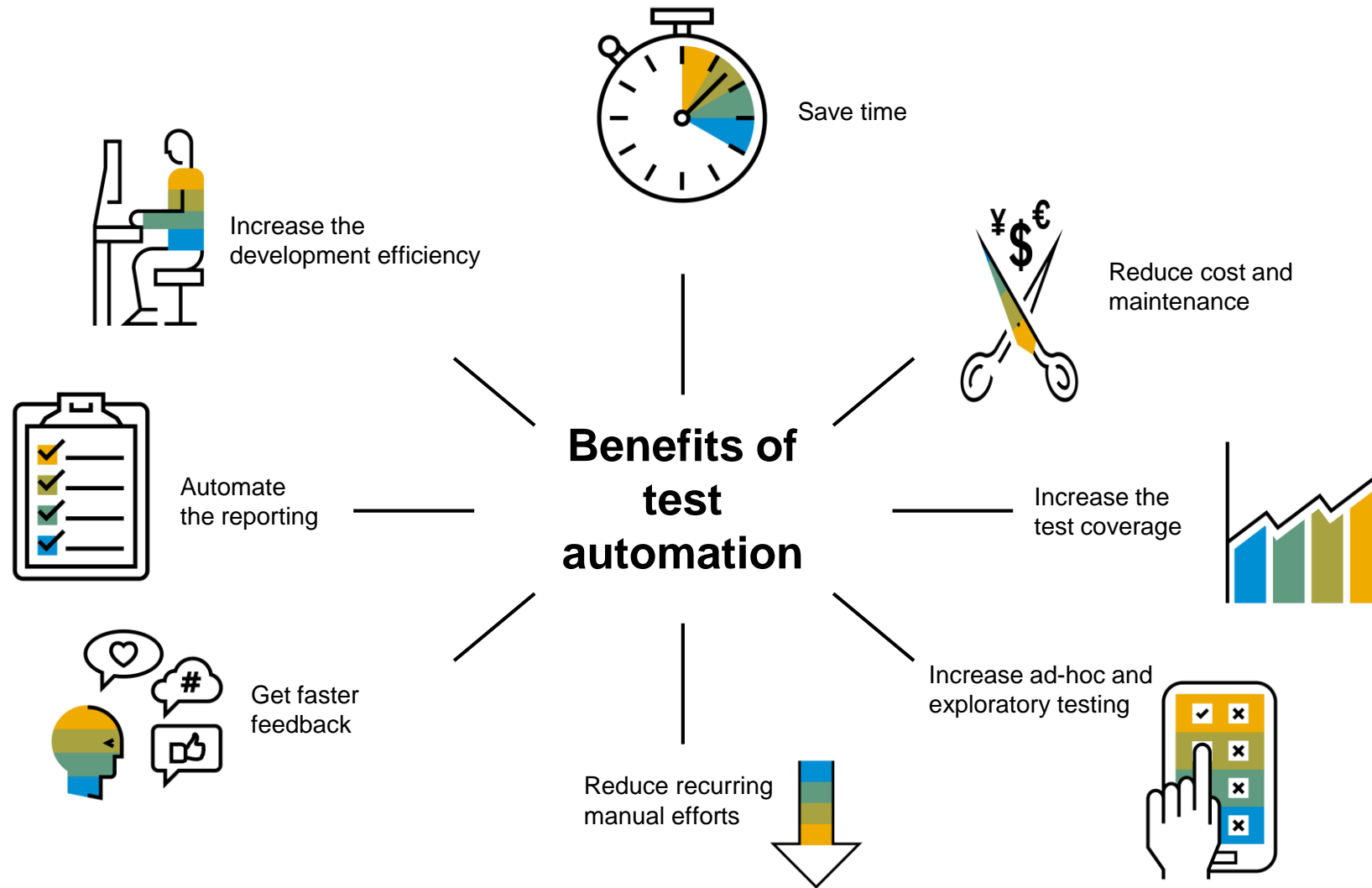
## Exercises

- Create system tests with UIVeri5 using the test recorder for SAPUI5
- Integrate your tests into a continuous delivery pipeline using project "Piper"

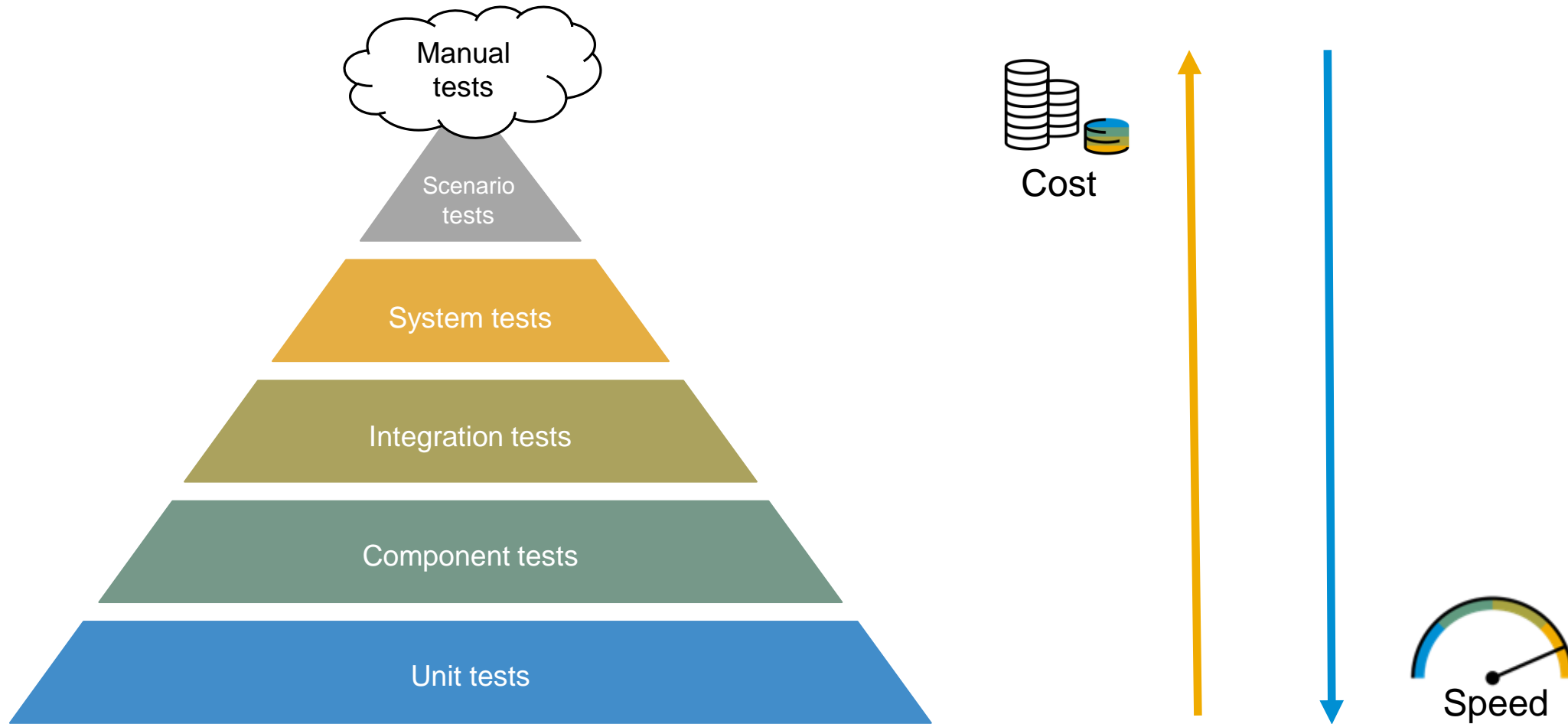
# Test automation for SAP Fiori apps



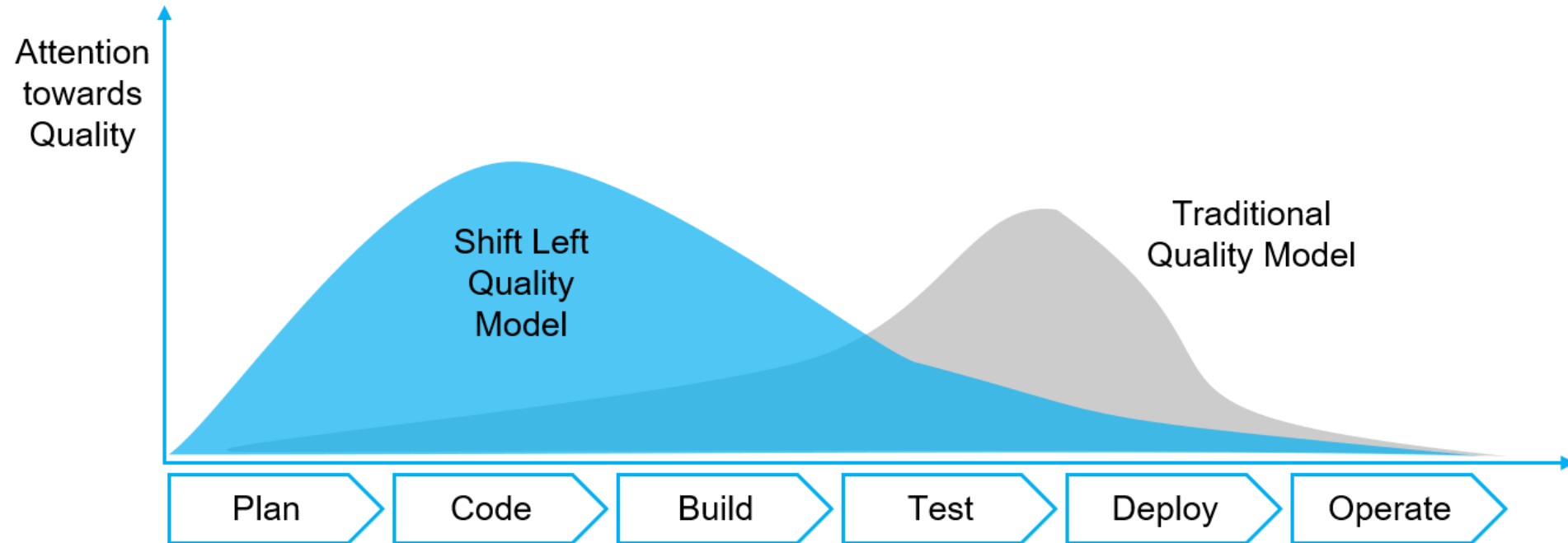
# Benefits of test automation



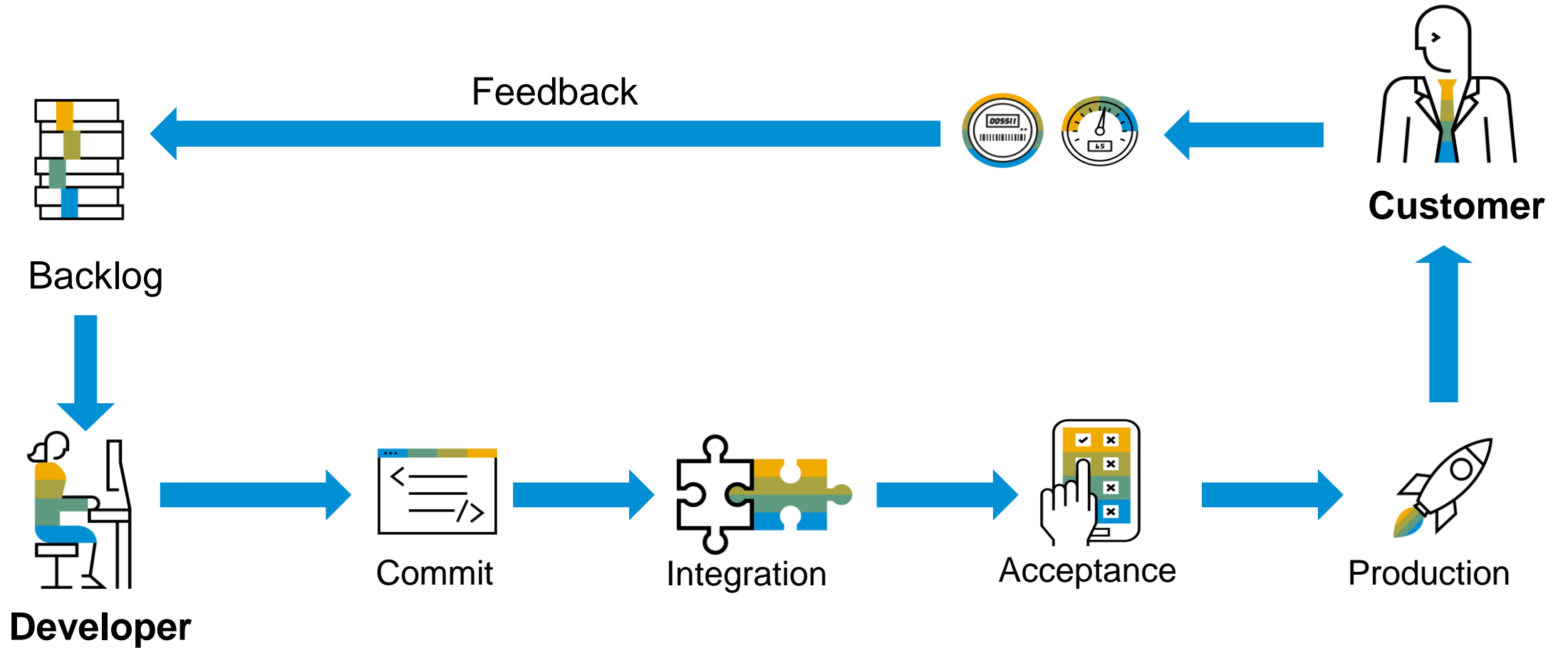
# Explore the SAPUI5 test pyramid



# Shift left quality model



# Run your tests in a continuous delivery pipeline





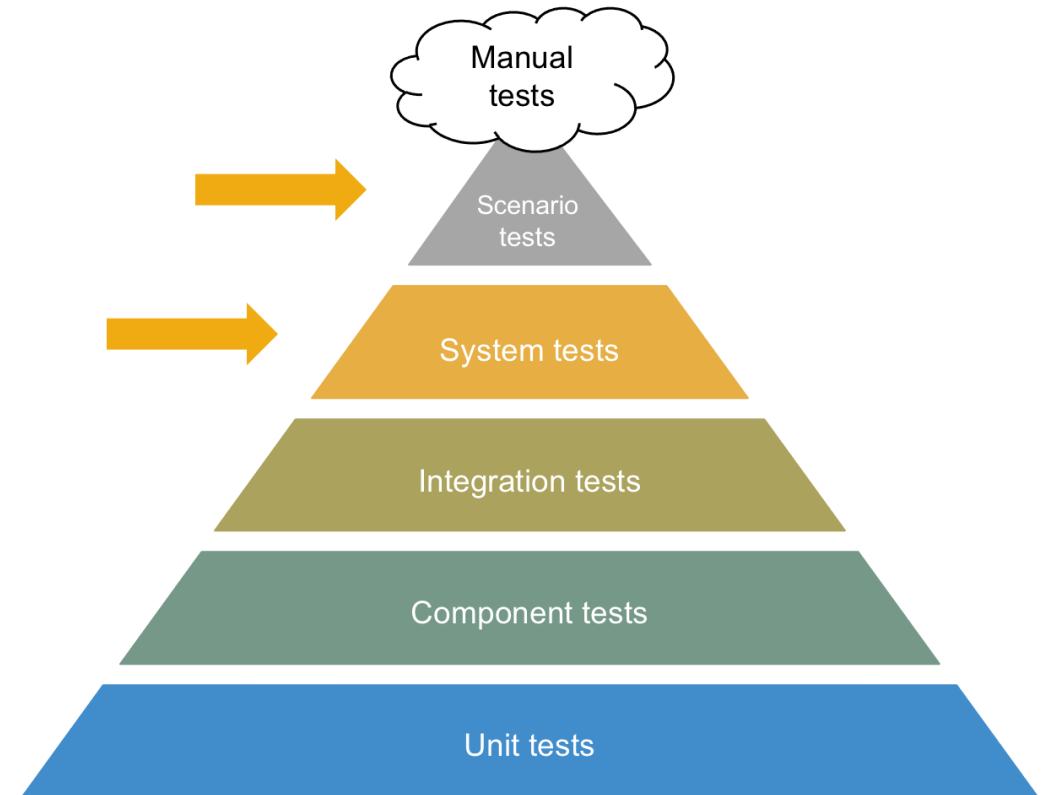
# Exercise 1: UIVeri5



# UIVeri5 positioning



- UIVeri5 is a JavaScript (ES6) framework for system and scenario tests of SAPUI5-based applications.
  - Open source, heavily inspired by [Protractor](#)
  - Developed and maintained by SAPUI5 team
  - [Repo and documentation](#)



# UIVeri5 positioning



## What to test:

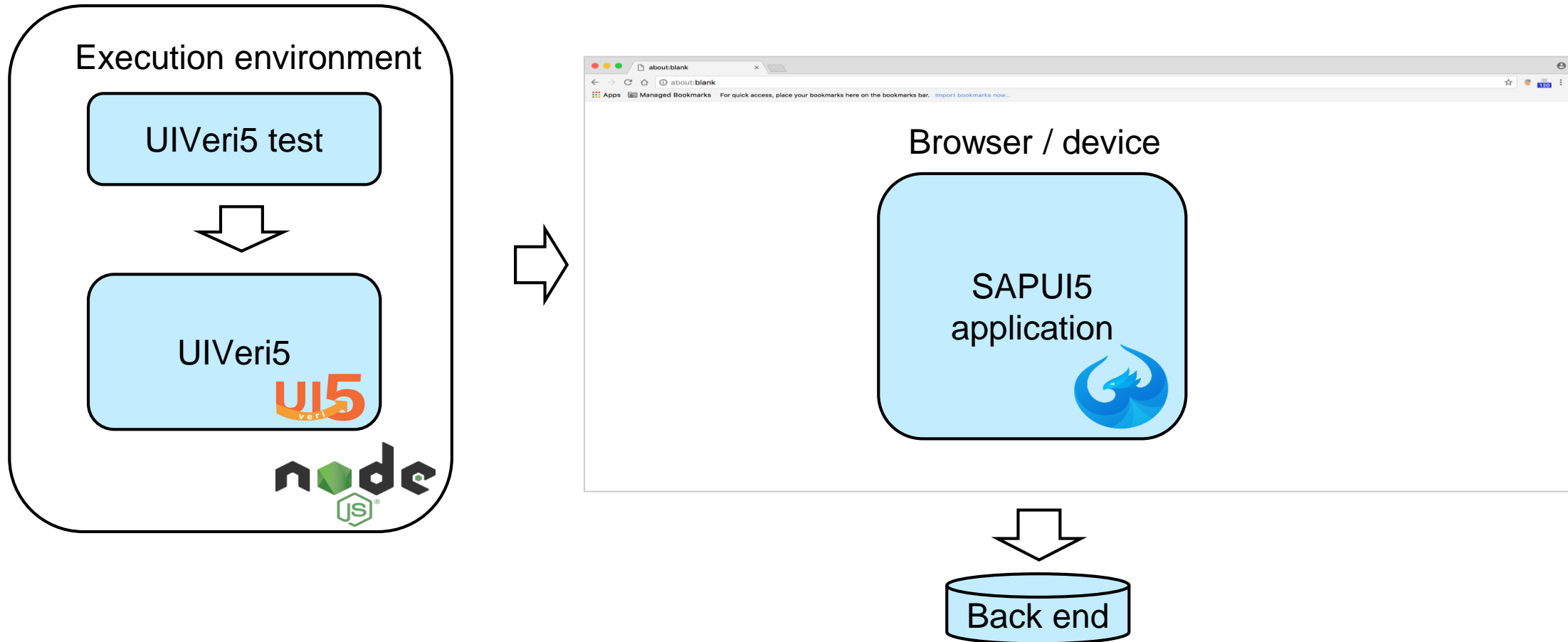
- Simulate real user scenarios
- Crucial workflows
- Do the pieces work together?
- Exercise the whole system (integration of front end and back end)

## What **not** to test:

- Each and every detail
- Pure UI functionality

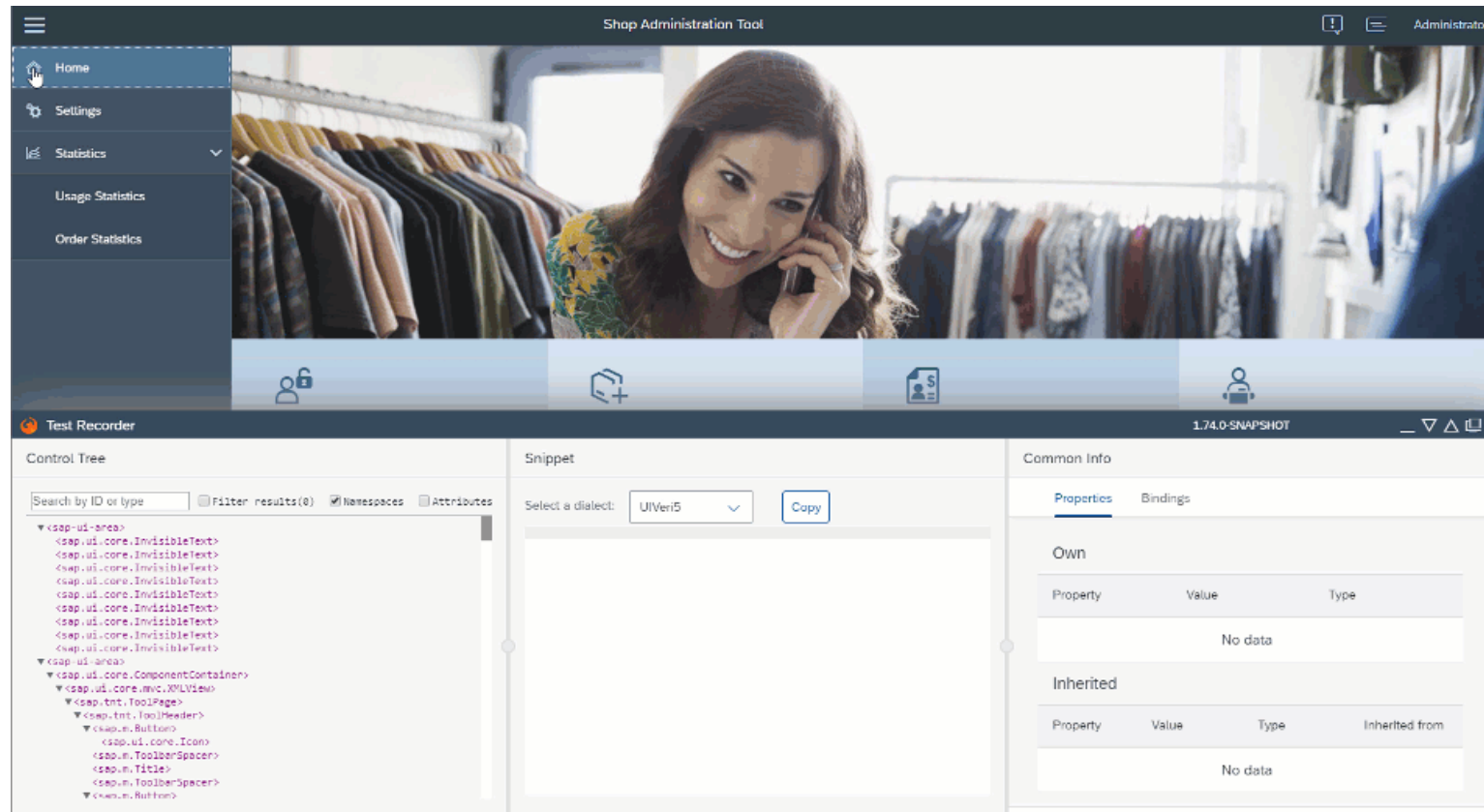
# Exercise 1: System tests with UIVeri5

## Overview



# Exercise 1: System tests with UIVeri5

## SAPUI5 test recorder



- Press **CTRL+ALT+SHIFT+T** (*SHIFT-CTRL-OPTION-T* for Mac) to open the **test recorder**
- Right click on UI element to **generate** control locator

# Exercise 1: System tests with UIVeri5

## Basics

- Easy to create highly reliable tests
- Tests look and feel synchronous
- Automatically synchronized with the app
- Works as fast as the app can handle interactions

Jasmine syntax

**When:** Execute actions

**Then:** Check assertions

```

1  require('./pages/shellMenuPage');
2  require('./pages/manageBooksPage');
3  require('./pages/newBookPage');
4
5  describe('teched', function () {
6      it("create a new book", function () {
7          When.onTheManageBooksPage.iClickOnCreateBook();
8          When.onTheNewBookPage.iEnterTitle();
9          When.onTheNewBookPage.iClickOnSaveButton();
10         Then.onTheNewBookPage.iShouldSeeEditButton();
11     });
12
13     it("should check book is added", function () {
14         Then.onTheManageBooksPage.iShouldSeeBook();
15     })
16 });

```

# Exercise 1: System tests with UIVeri5

## Page objects



UIVeri5 helper for creating page objects

Actions

Assertions

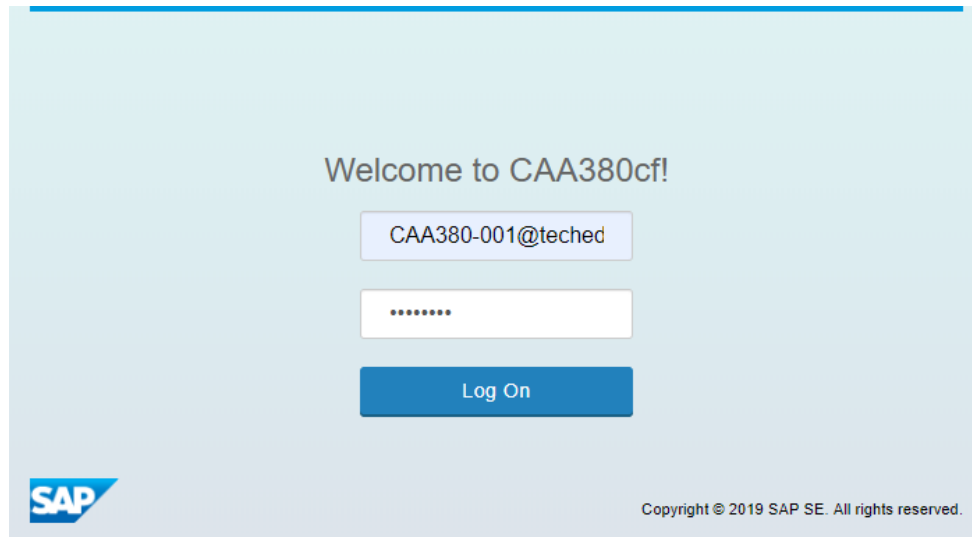
Work with controls, not the generated DOM

```
1  module.exports = createPageObjects({
2    ManageBooks: {
3      actions: {
4        iClickOnCreateBook: function () {
5          element(
6            by.control({
7              id:
8                "admin::BooksList--fe::table::Books::LineItem::StandardAction::Create",
9            })
10         ).click();
11       },
12     },
13     assertions: {
14       iShouldSeeProduct: function () {
15         var product = element(
16           by.control({
17             controlType: "sap.m.ObjectHeader",
18             viewName: "sap.ui.demo.cart.view.Product",
19             bindingPath: {
20               path: "/Products('HT-1040')",
21               propertyPath: "Name",
22             },
23           })
24         );
25         expect(product.isPresent()).toBeTruthy();
26       },
27     },
28   },
29 });
```

# Exercise 1: System tests with UIVeri5

## Authentication

- Supports the most common authentication scenarios with declarative configuration
- Reliable, configurable authentication of all common flows

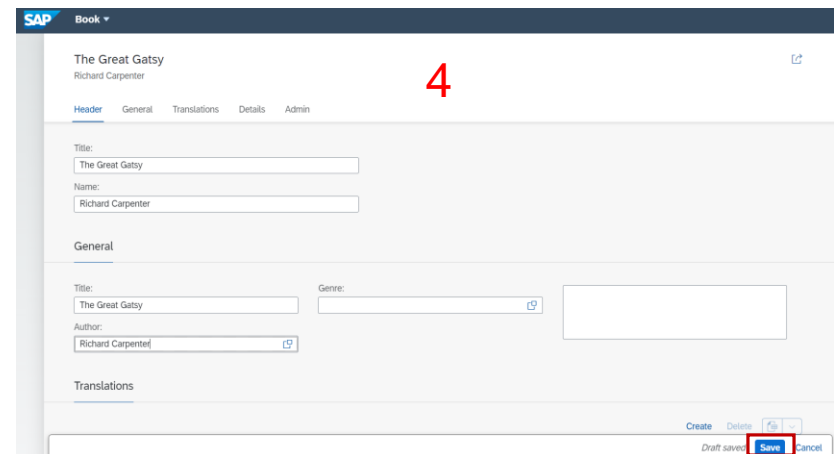
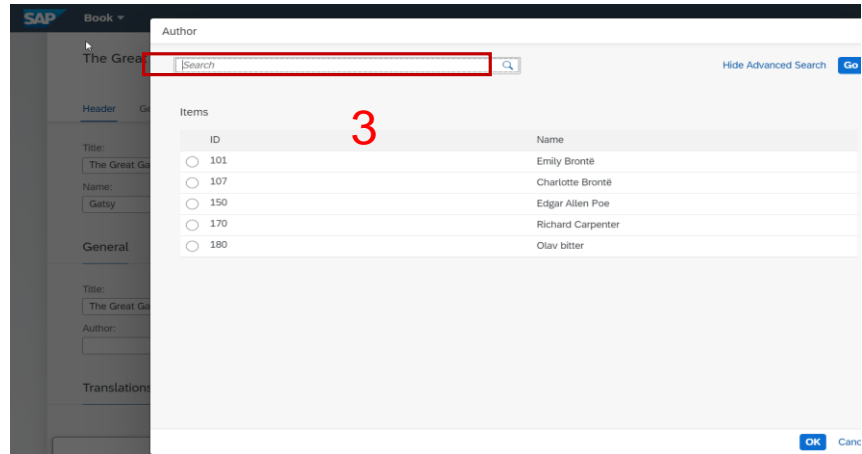
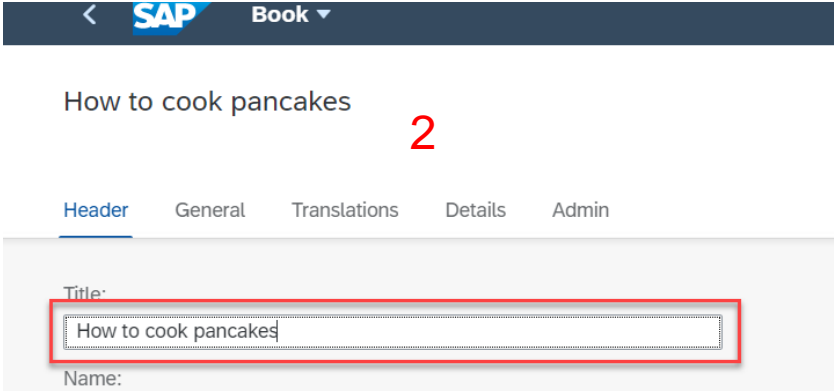
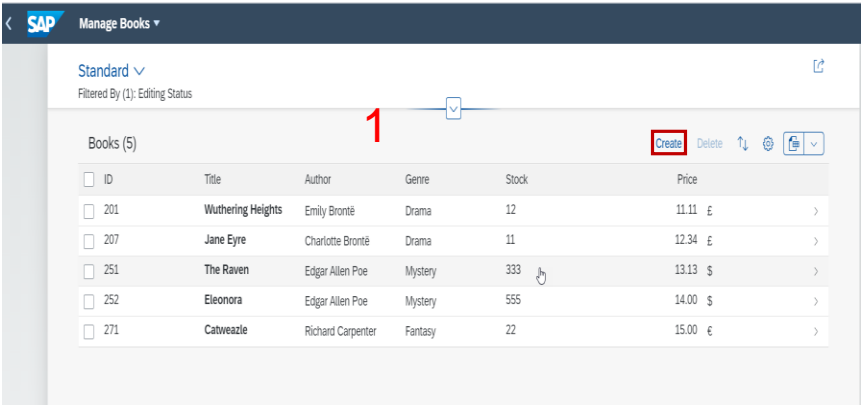


```
JS conf.js x
1  exports.config = {
2      profile: "integration",
3      baseUrl: "https://someapp.somecloud.com/index.html",
4
5      auth: {
6          "sapcloud-form": {
7              user: "${params.user}",
8              pass: '${params.pass}'
9          }
10     }
11 }
```



# Exercise 1: System tests with UIVeri5

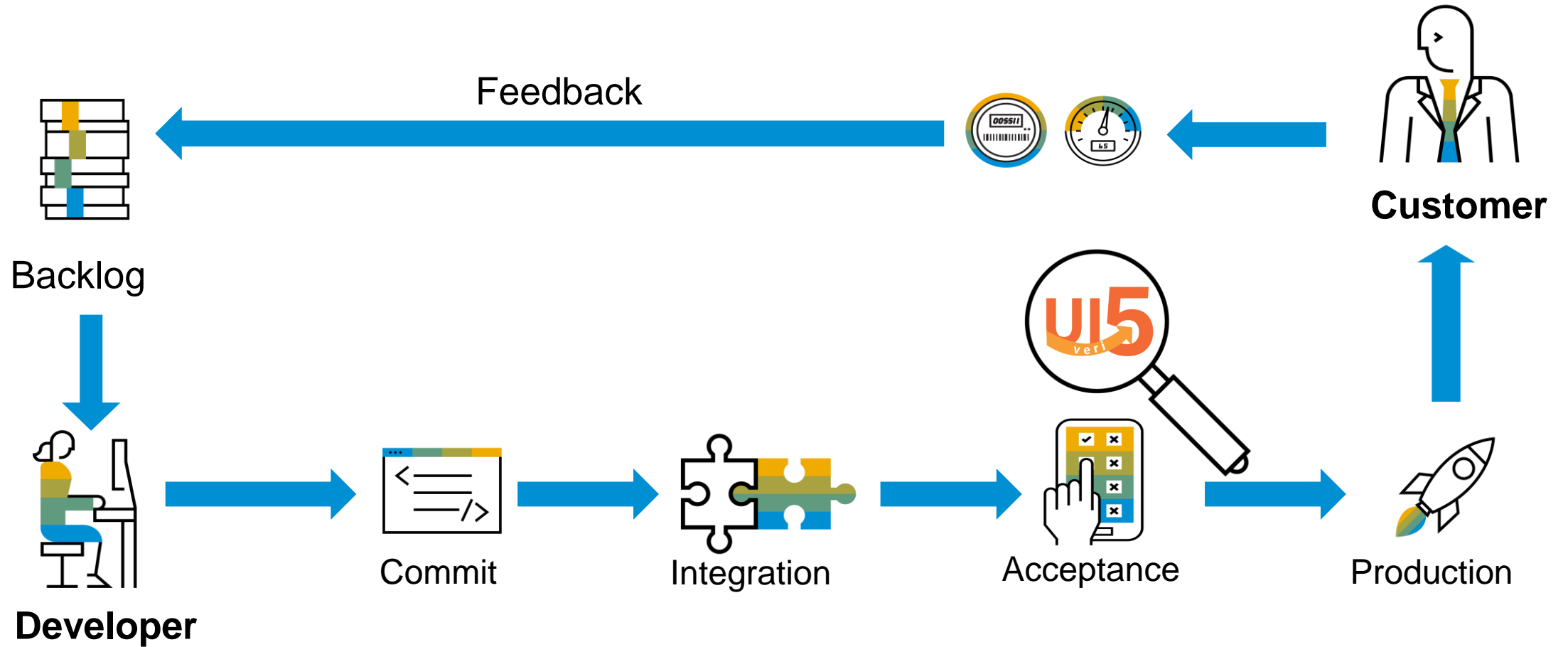
## Exercise introduction



# Exercise 2: Integration into a continuous delivery pipeline

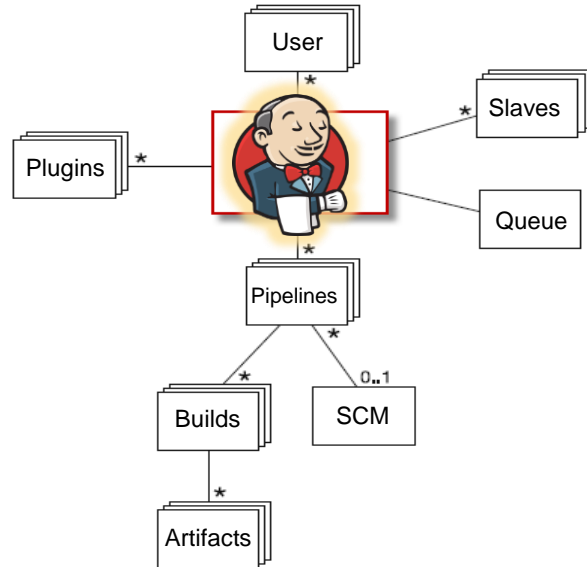


## Exercise 2: Integration into a continuous delivery pipeline



# Exercise 2: Integration into a continuous delivery pipeline

Jenkins and project “Piper” library



Pipeline: Sequence of work

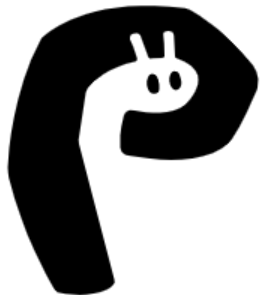
- Examples: Compile software, deploy to server, run security scans, ...

Build: Concrete execution of a pipeline

- Result can be success, unstable, fail, abort

Artifact: Files that a build produced


- For example, test results, coverage reports



- Jenkins shared library that provides coded best practices for CI/CD
- Provides pipeline templates for different languages

# Exercise 2: Integration into a continuous delivery pipeline


## Exercise introduction



Welcome to Jenkins!

Sign in

☐ Keep me signed in



# Jenkins

Jenkins

New Item


People


Build History


### Enter an item name

TechEd-2020-Bookshop

» Required field

 **Freestyle project**  
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than building.

 **Maven project**  
Build a maven project. Jenkins takes advantage of the Maven build system to build your project.

 **Pipeline**  
Orchestrates long running activities that can be broken down into jobs.

Jenkins > TechEd-2020-Bookshop

General Build Triggers Advanced Project Options Pipeline

### Pipeline

Definition Pipeline script

Script

```
1 #!/usr/bin/env groovy
2 @Library(["pipel-lib-os"]) _
3
4 node {
5     stage('System Tests') {
6         utVeri5ExecuteTests script: this
7     }
8     publishHTML target: [
9         allowMissing: true,
10        alwaysLinkToLastBuild: true,
11        keepAll: true,
12        reportDir: 'target/report/screenshots/',
13        reportFiles: 'report.html',
14        reportName: 'UIVeri5 Test Report'
15    ]
16 }
```

☒ Use Groovy Sandbox

[Pipeline Syntax](#)

Save

Apply

Jenkins > TechEd-2020-Bookshop

Back to Dashboard

Status

Changes

Build Now

Delete Pipeline

Configure

Full Stage View

UIVeri5 Test Report

Open Blue Ocean

Rename

Pipeline Syntax

Build History

trend

#4 Aug 25, 2020 4:21

## Pipeline TechEd-2020-Bookshop

Recent Changes

Stage View

Average stage times: 55s

(Average full run time: ~58s)

#4 Aug 25 19:21 No Changes

System Tests

55s

Permalinks

# More information



## Related SAP TechEd sessions

- IIS360 – Simplify Development of SAP Fiori Apps with OData v4
- DEV164 – Developing Apps with SAPUI5
- DAT160 – Cloud Native Development with SAP HANA Database and Data Management

---

## Public SAP Web sites

- SAP Community: [www.sap.com/community](https://www.sap.com/community)
- SAP products: [www.sap.com/products](https://www.sap.com/products)
- UIVeri5: <https://github.com/SAP/ui5-uiveri5>
- Continuous Integration and Delivery by SAP: [https://help.sap.com/viewer/product/CICD\\_OVERVIEW/Cloud/en-US?task=discover\\_task](https://help.sap.com/viewer/product/CICD_OVERVIEW/Cloud/en-US?task=discover_task)
- Project “Piper”: <https://sap.github.io/jenkins-library/>

# Continue your **learning experience** from SAP TechEd in 2020

Your exclusive path to build and maintain SAP solution skills anytime, any place

Get empowered with access to relevant, up-to-date digital learning for SAP TechEd participants through a complete enablement solution that drives adoption and innovation.



## Deepen your **learning experience** from SAP TechEd

[Activate your free access](#) to SAP Learning Hub, event edition, for:

- **Learning Journey** illustrations to guide you through **complementary** self-paced learning content
- **Content specific to SAP TechEd** in the online **SAP Learning Room for SAP TechEd**
- Access to SAP experts in **special live sessions**



## Deepen and validate your **SAP solution skills**

[Subscribe](#) to SAP Learning Hub, solution editions, for:

- **Solution-specific Learning Journey guides, content, collaborative learning, and hands-on practice** for your role and goals
- Drive performance and business success with validated solution expertise from the **SAP Global Certification** program

## Your benefits

- Gain insight into the latest innovations, and master software proficiency
- Keep skills up-to-date, and enable performance and business success with help from SAP solution experts
- Achieve competitive advantages and digital transformation success with trusted certifications

**500,000+**

Learners in SAP Learning Hub

**100+**

Experts getting certified per day

**150+**

SAP Global Certifications



# Thanks for attending this session.

## Contact for further topic inquiries

Maxim Naidenov  
Product Owner  
[Maxim.Naidenov@sap.com](mailto:Maxim.Naidenov@sap.com)

Sagari Arora  
Agile Software Engineering Coach  
[Sagari.Arora@sap.com](mailto:Sagari.Arora@sap.com)



Follow us



[www.sap.com/contactsap](https://www.sap.com/contactsap)

© 2020 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

The information contained herein may be changed without prior notice. Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP SE or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP SE's or its affiliated companies' strategy and possible future developments, products, and/or platforms, directions, and functionality are all subject to change and may be changed by SAP SE or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, and they should not be relied upon in making purchasing decisions.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

See [www.sap.com/copyright](https://www.sap.com/copyright) for additional trademark information and notices.