

DEV267

# Automated SAP Fiori Apps Testing with Continuous Delivery

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PUBLIC



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As of February 2021 (January 27, 2021), SAP Cloud Platform capabilities will now be available in either SAP Integration Suite or SAP Extension Suite.

# 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

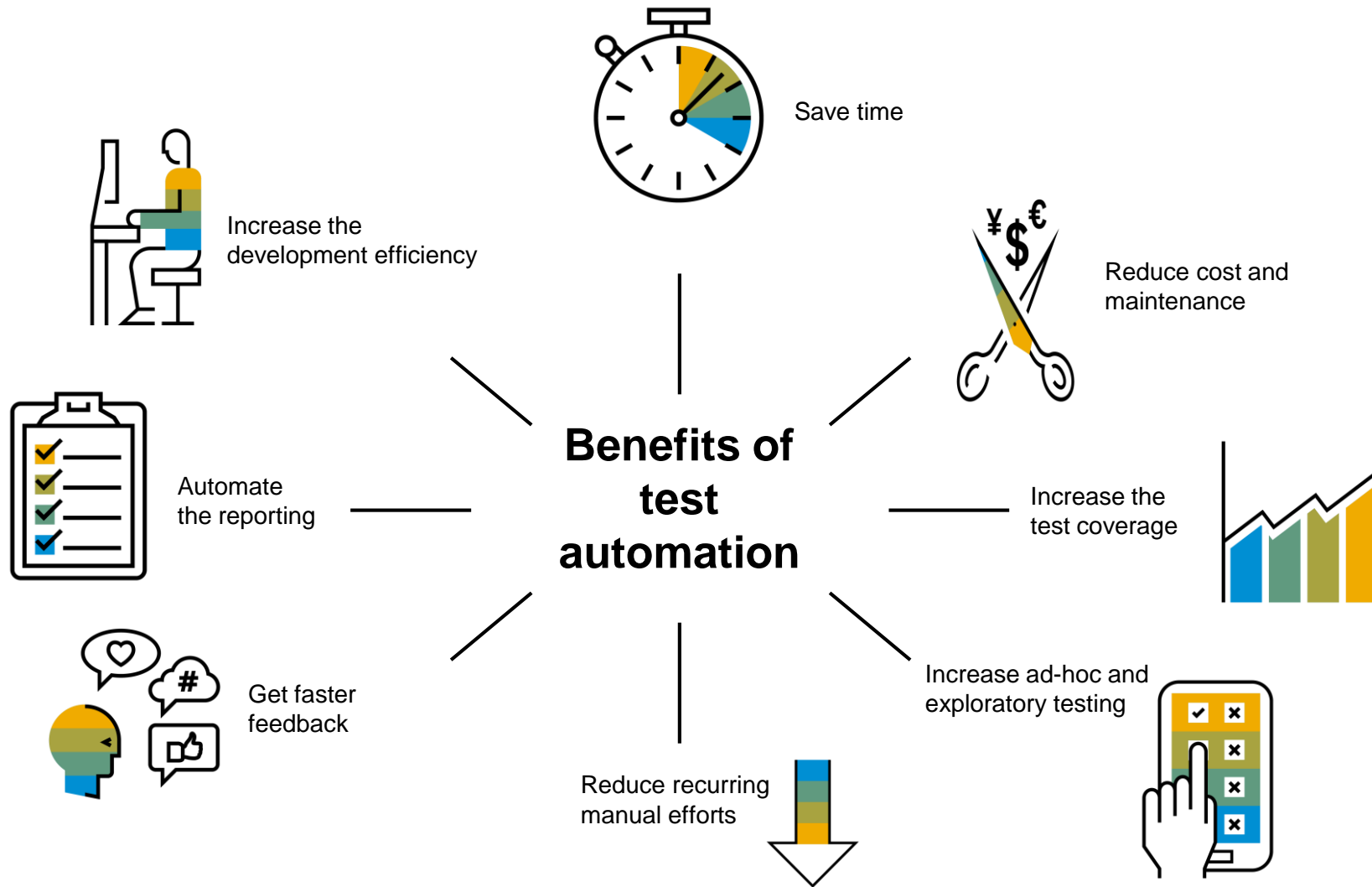
## Exercises

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

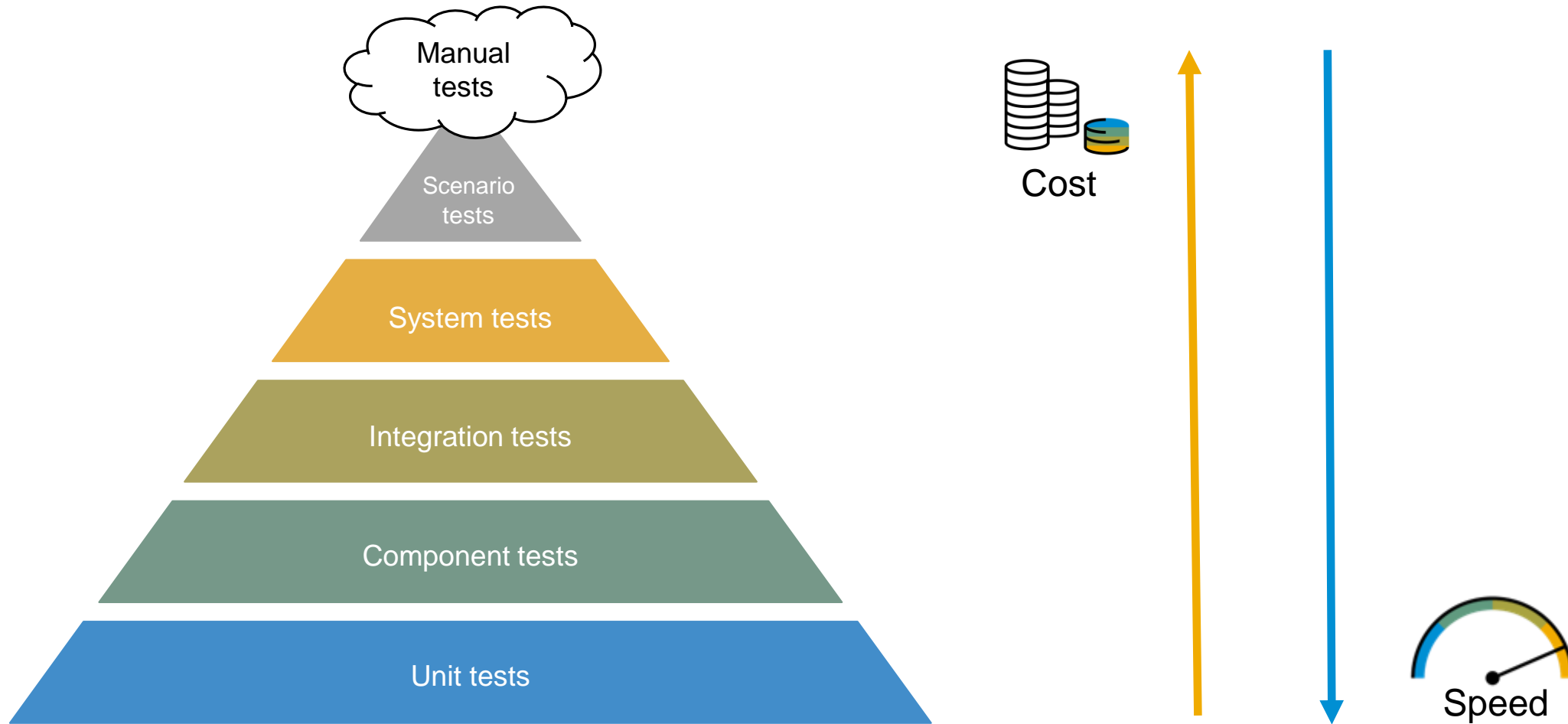
# Test automation for SAP Fiori apps



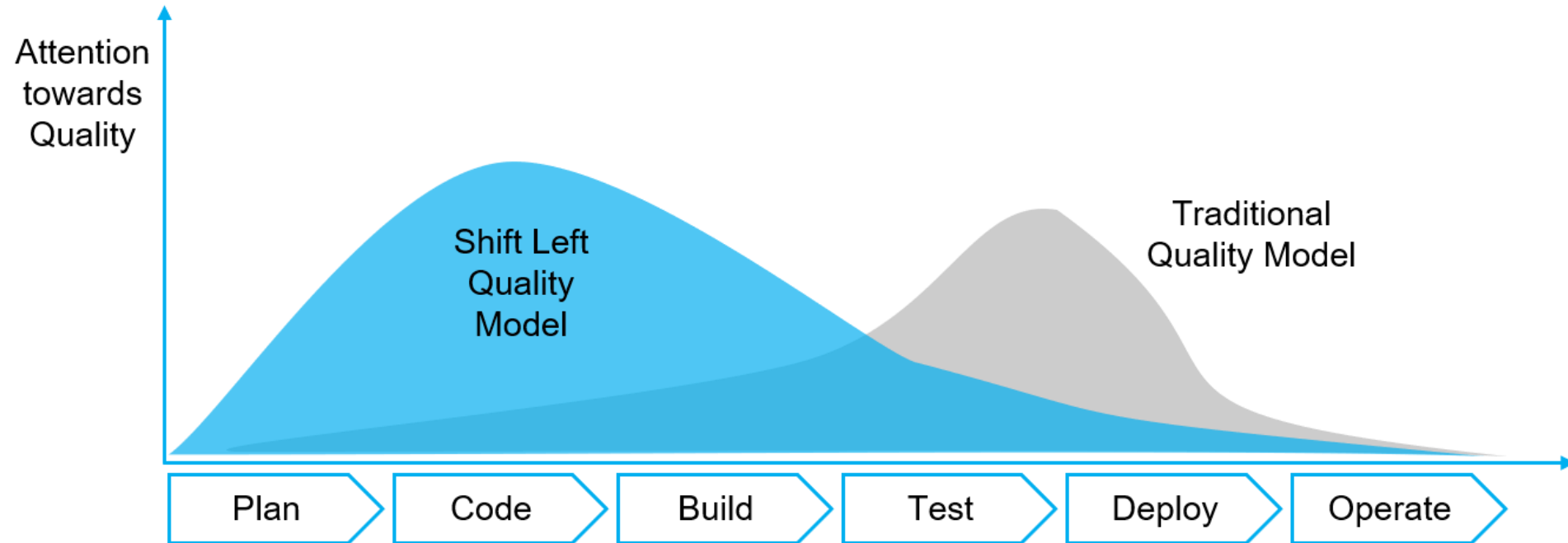
# Benefits of test automation



# Explore the SAPUI5 test pyramid

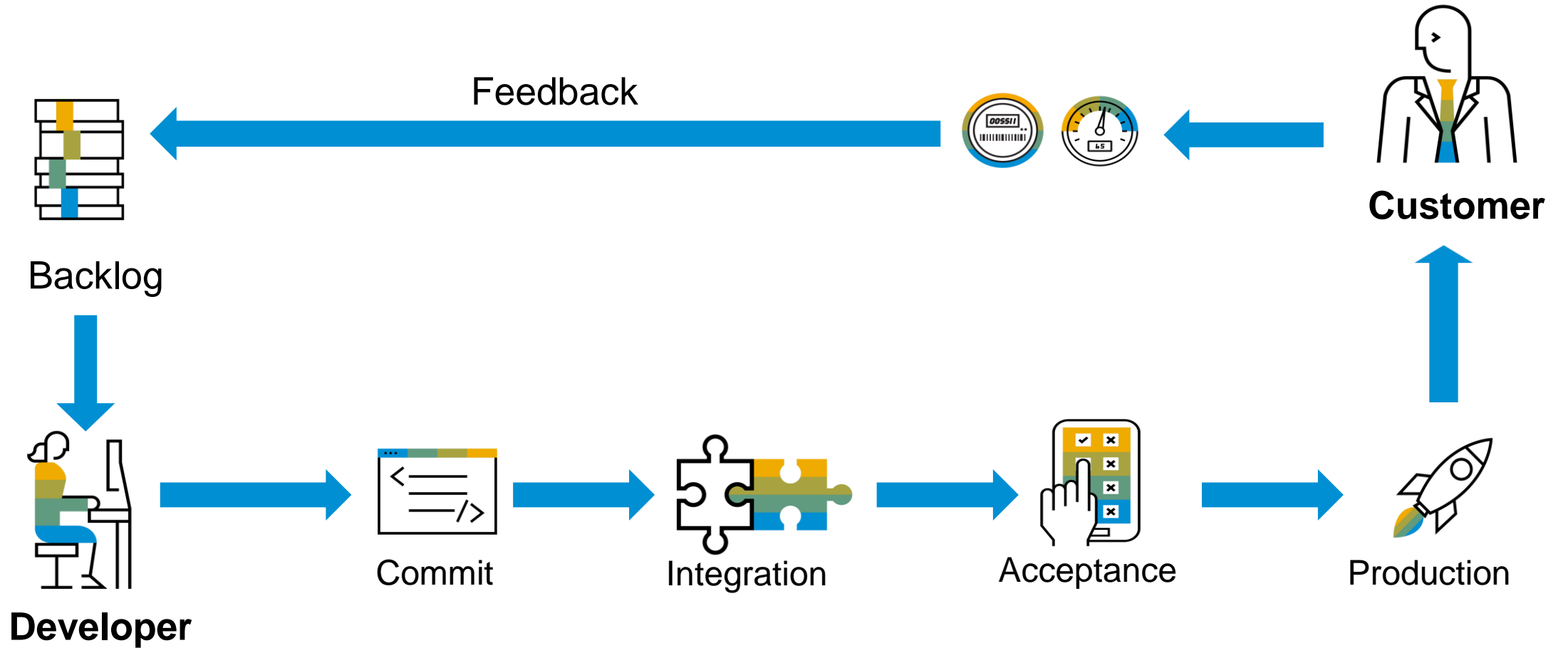


# Shift left quality model





# Run your tests in a continuous delivery pipeline



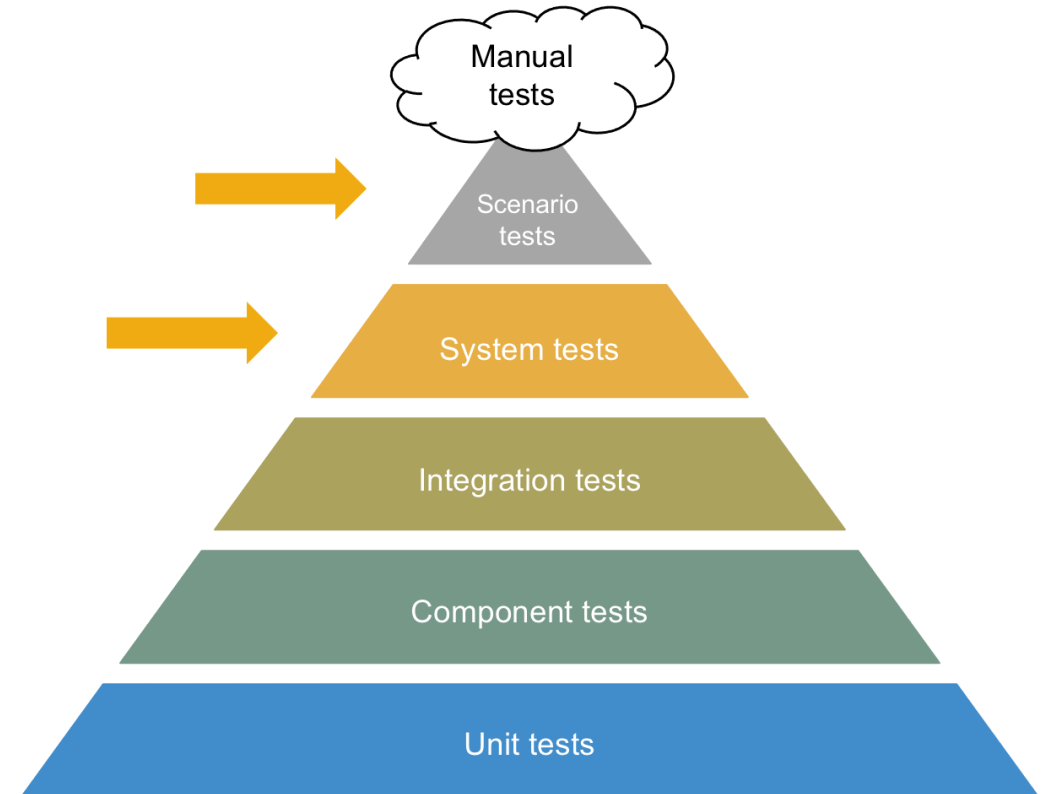
# Exercise 1: UIVeri5



# 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:

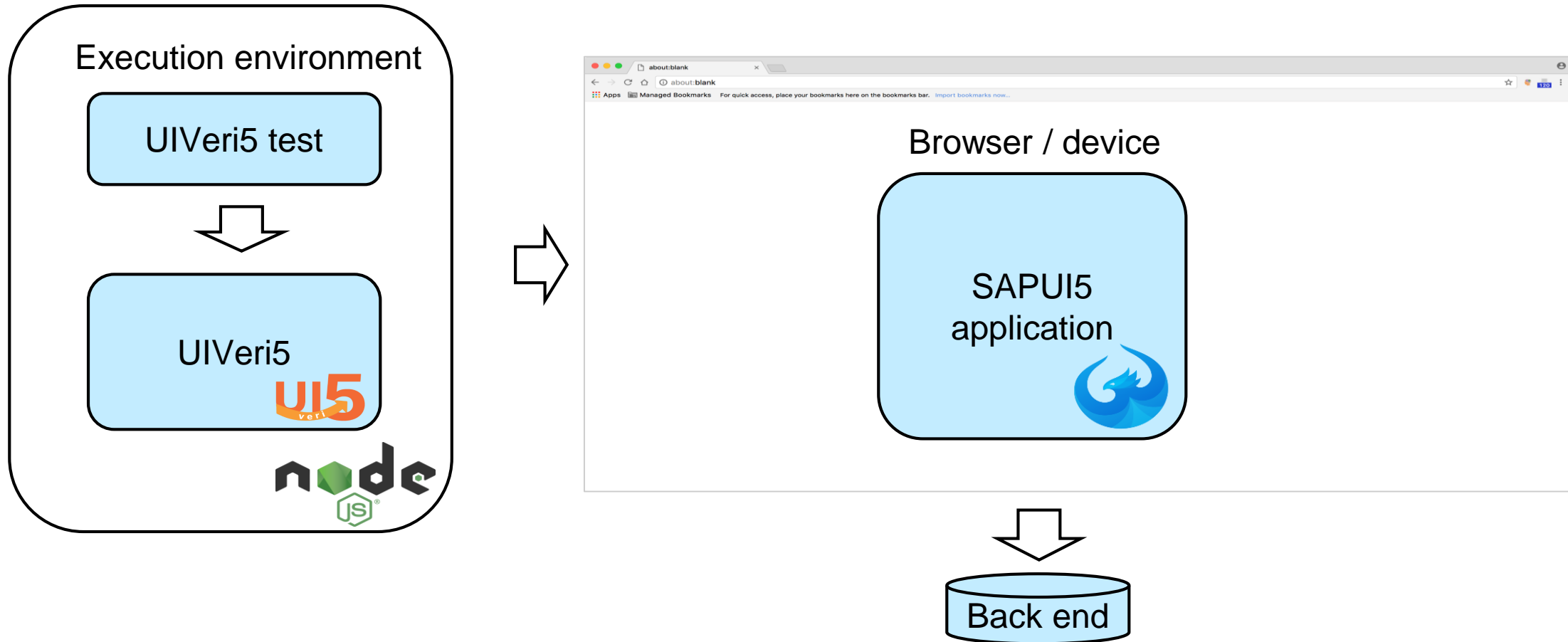
- Simulate real user scenarios
- Crucial workflows
- Do the pieces work together?
- Exercise the whole system (integration of front end and back end)

## What **not** to test:

- Each and every detail
- Pure UI functionality

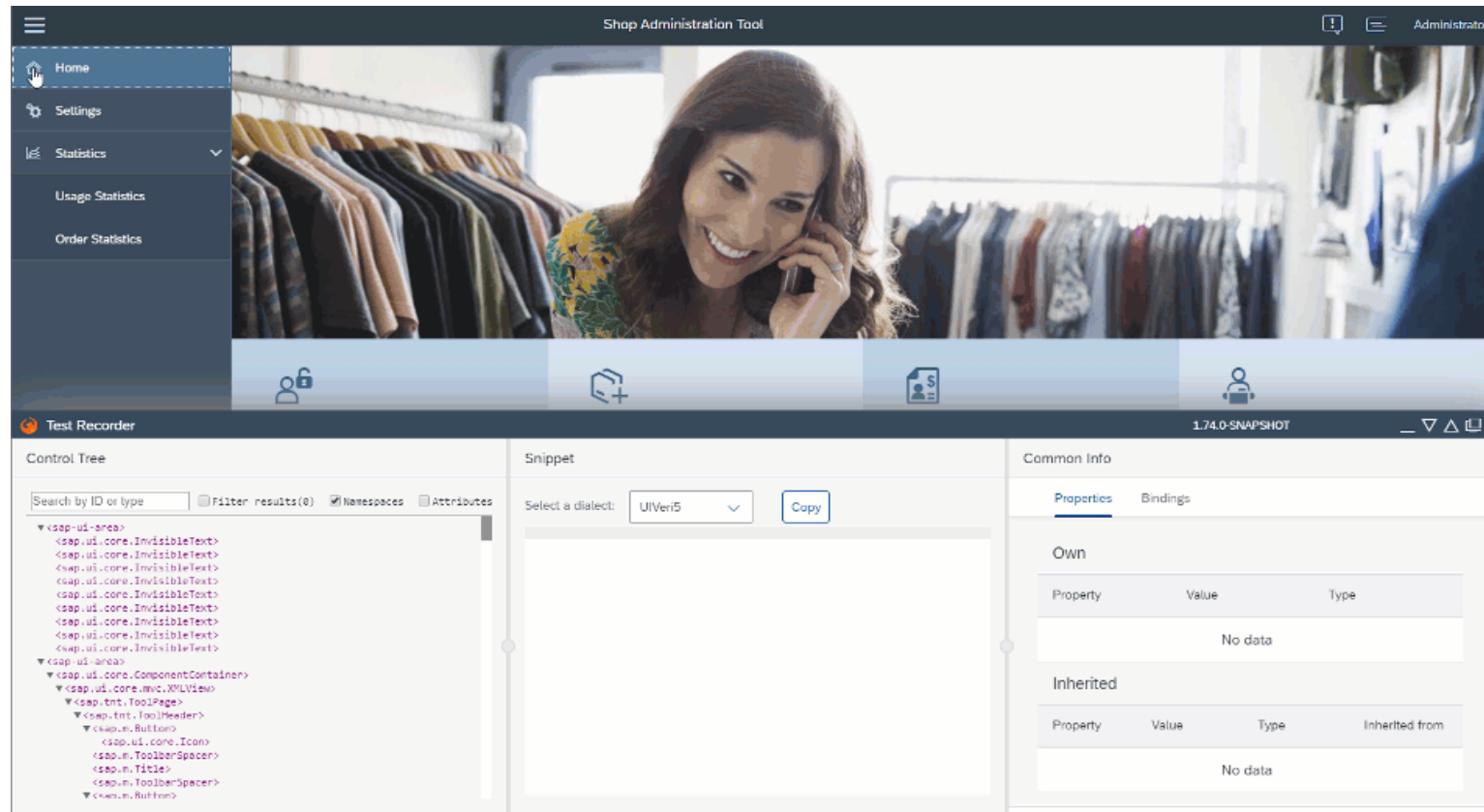
# Exercise 1: System tests with UIVeri5

## 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

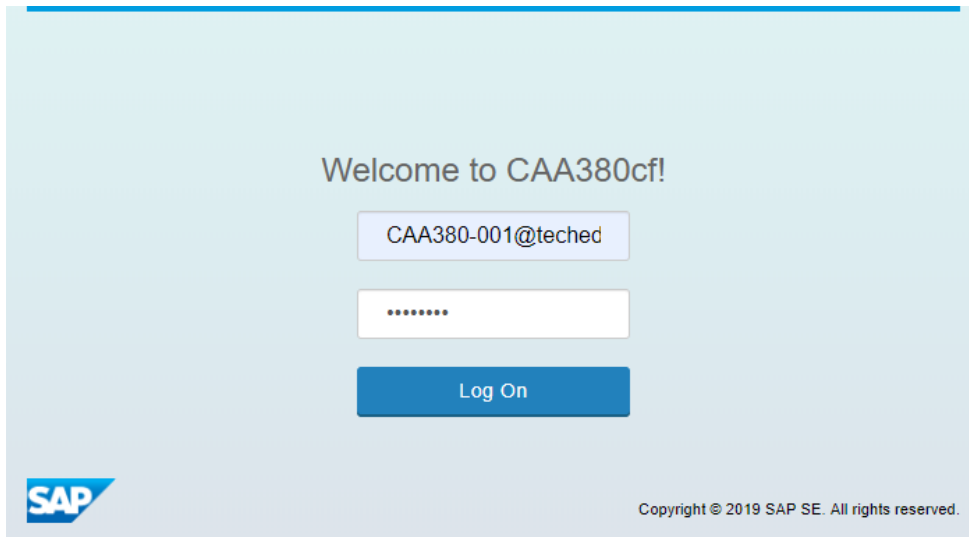
```
1  module.exports = createPageObjects({
2    ManageBooks: {
3      actions: {
4        iClickOnCreateBook: function () {
5          element(
6            by.control({
7              id:
8                "admin::BooksList--fe::table::Books::LineItem::StandardAction::Create",
9            })
10         ).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 });
30
```



# Exercise 1: System tests with UIVeri5

## Authentication

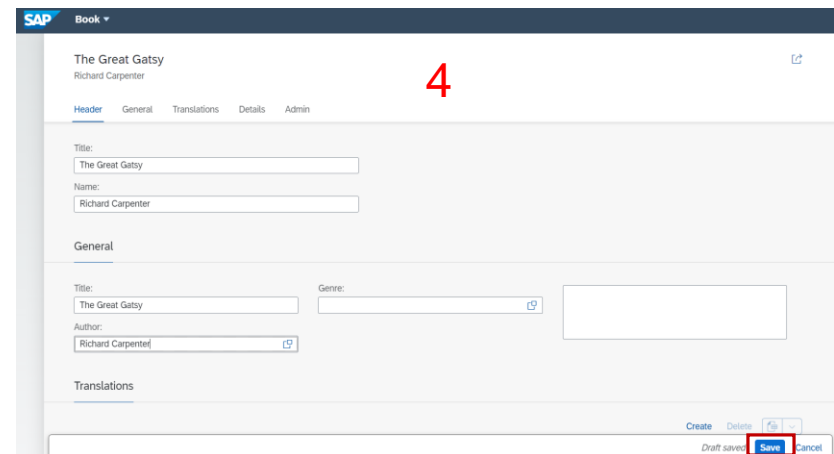
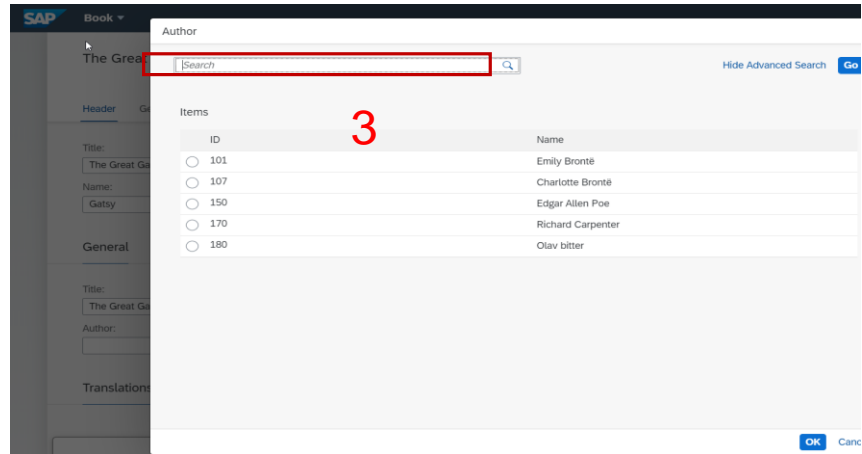
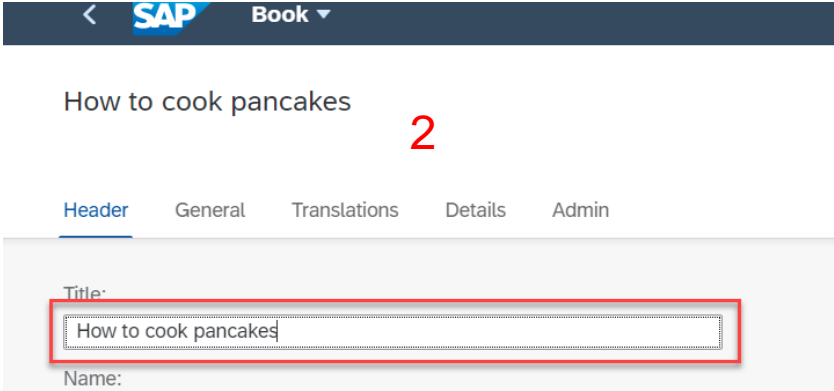
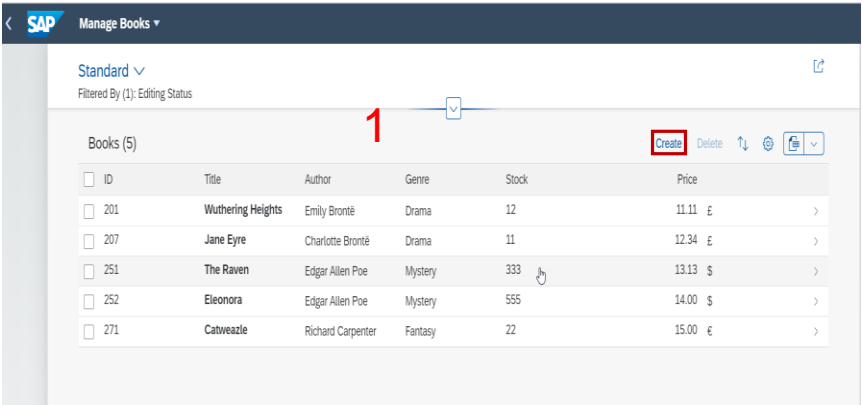
- Supports the most common authentication scenarios with declarative configuration
- Reliable, configurable authentication of all common flows



```
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

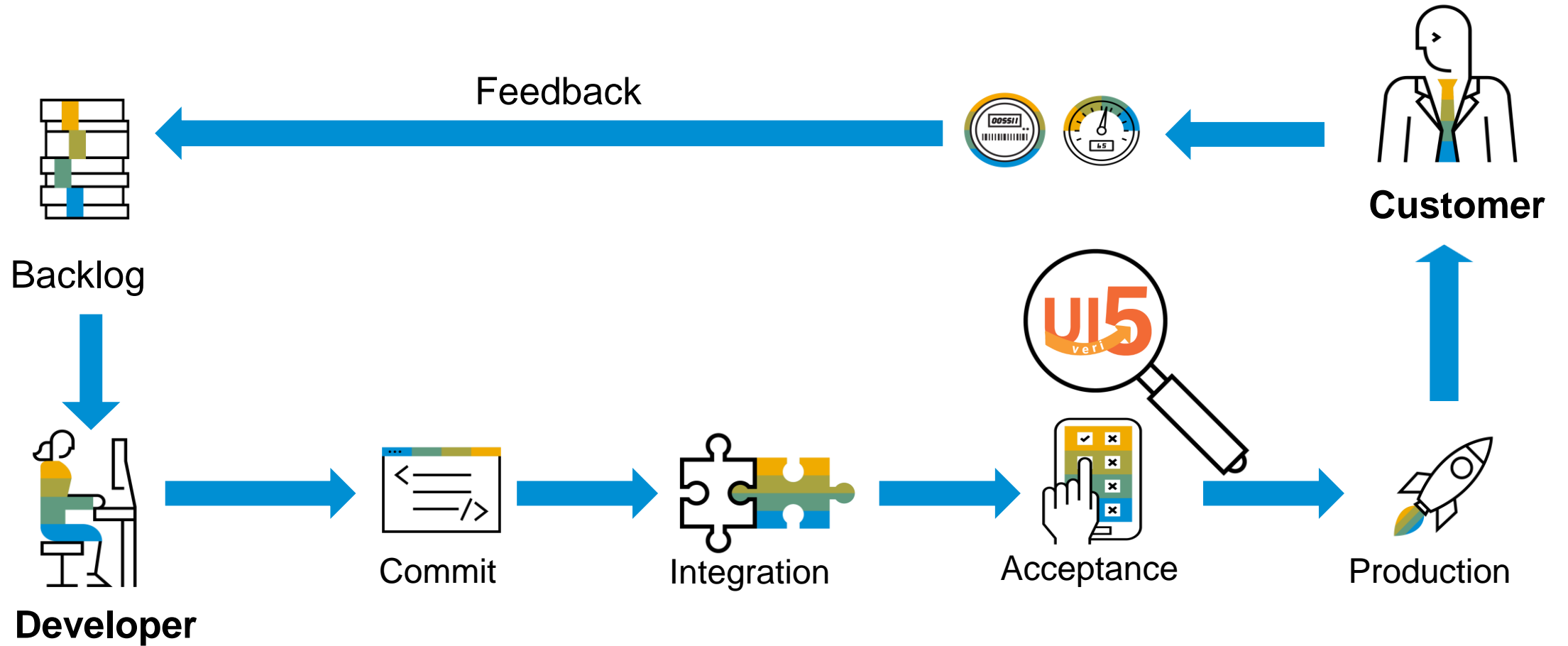
## Exercise introduction



# Exercise 2: Integration into a continuous delivery pipeline

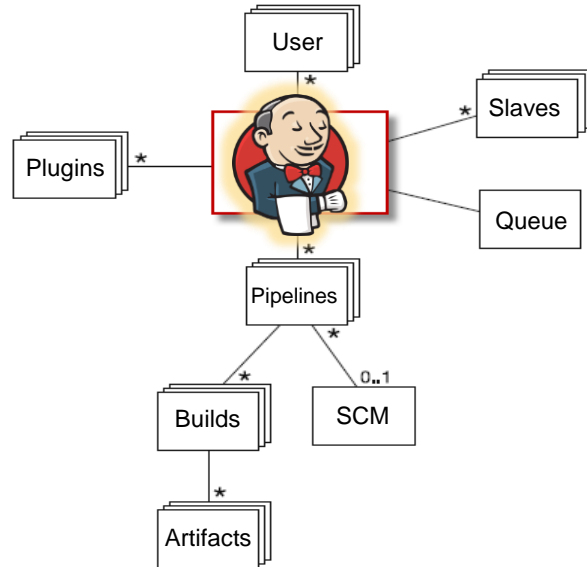


## Exercise 2: Integration into a continuous delivery pipeline



# Exercise 2: Integration into a continuous delivery pipeline

Jenkins and project “Piper” library



Pipeline: Sequence of work

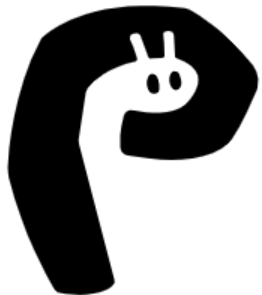
- Examples: Compile software, deploy to server, run security scans, ...

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

1

☐ Keep me signed in



## Jenkins

New Item


2


People


Build History

Enter an item name

» 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**

3

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

Jenkins > TechEd-2020-Bookshop

GeneralBuild TriggersAdvanced Project OptionsPipeline

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 }
```

4

☒ Use Groovy Sandbox

[Pipeline Syntax](#)

Save

Apply

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Back to Dashboard

Status

Changes

Build Now

5

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

System Tests

55s

55s

Average stage times:  
(Average full run time: ~58s)

#4 Aug 25 19:21 No Changes

Permalinks

# More information



## 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/>

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