# Final Summary — Low-Code / No-Code Applications

Certification: C\_LCNC\_02

Low-Code / No-Code Applications

# Low-Code / No-Code C\_LCNC\_02 Certification

Number of questions: 80

Time: 3 hours

Cut Score: 64%

- Go through the session recording (Summary Points) one more time
- Try out the exercises
- Read questions carefully
- Eliminate incorrect options
- Answer all questions
- Revisit doubtful questions

Primary Participant	Secondary Participant	Need to be kept informed
Process owners, Process initiators	Process Participants, Decision makers	Instance status, Metrics visibility
Example. Ordering a new laptop	Example. Ordering a new laptop	Example. Ordering a new laptop
<ul> <li>Process owner</li> <li>Defines and owns the entire process</li> <li>IT department</li> <li>Process initiator</li> <li>Hiring manager, HR, New employee</li> </ul>	<ul><li>Process participant</li><li>Hardware vendor</li><li>Decision maker</li><li>Approver</li></ul>	<ul> <li>Informed about individual instance</li> <li>Manager</li> <li>Informed about wider overview</li> <li>Financial controller</li> </ul>

#### Hyperautomation

Rapidly identify and automate as many business and IT processes as possible

#### Achieved using multiple technologies, tools, platforms including

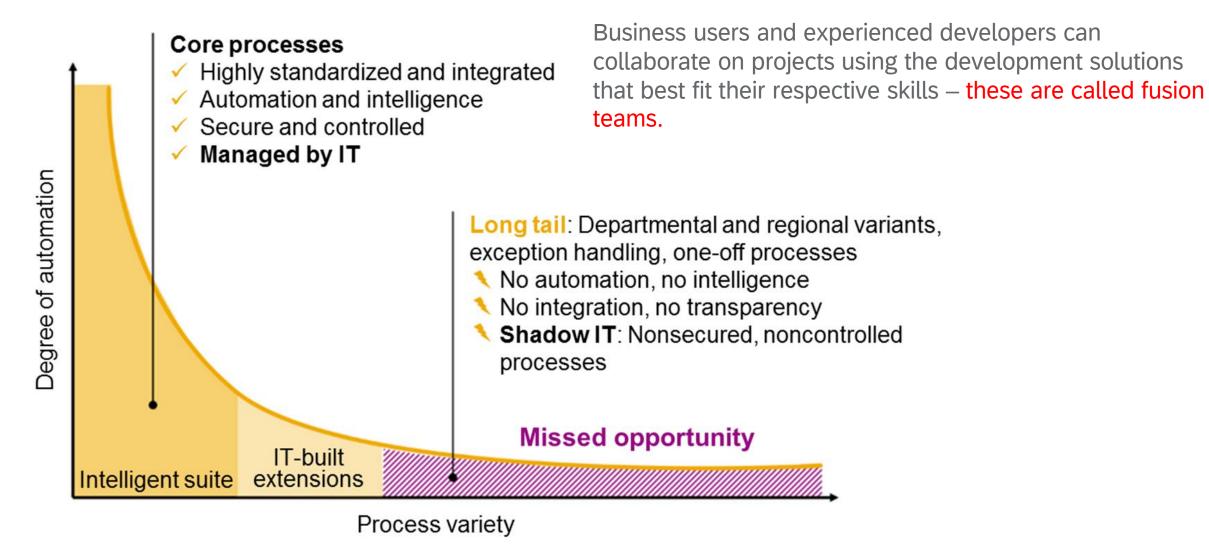
- Artificial Intelligence (AI)
- Machine Learning (ML)
- Robotic Process Automation (RPA)
- Business Process Management Software (BPMS)
- Low code No code tools

#### 2 major forms of business processes

- Micro
- Macro

Micro Process	Macro Process
Small set of steps	Consists of many smaller processes within it
Designed to achieve a singular outcome	Larger process with a broader goal
Tend to be more linear and standardized	
Example. Submit help ticket => Receive Help => End	<ul><li>Example. Onboarding new employee</li><li>Creating user account</li><li>Ordering equipment</li><li>Etc.</li></ul>

# Choose the correct answer. A business process which is customized to individual situations, departments, or organizations is known as a what? Long tail process Long lead process Long side process Long side process



# Why choose low-code/no-code application development from SAP?

Our no-code/low-code approach offers valuable benefits for your business.



**Enhanced ROI** by optimizing using simplified integrations from SAP



Maximized speed and agility through accelerated delivery



Increased adoption of new processes and applications



Greater collaboration through co-development between business and IT

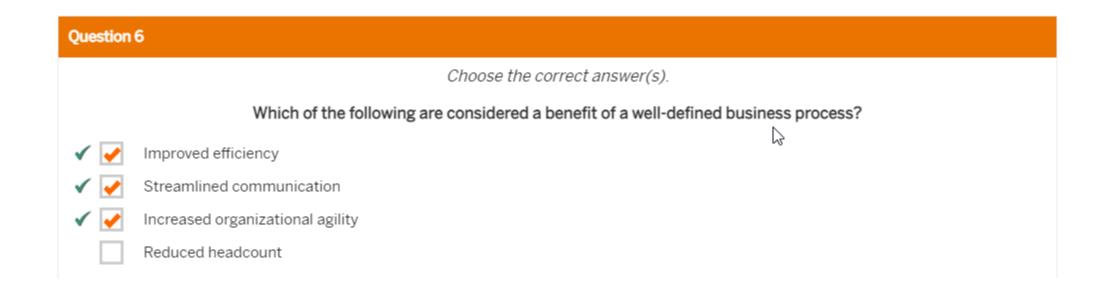


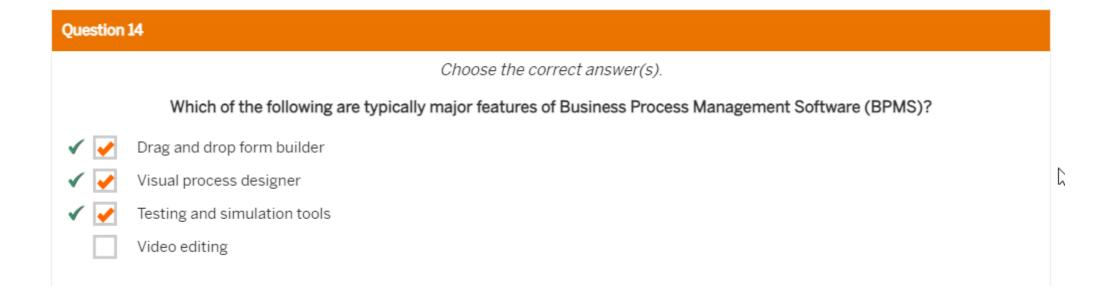
Accelerated time to value, using support for best practices with industry- and LoB-specific prebuilt content



Reduced total cost of development

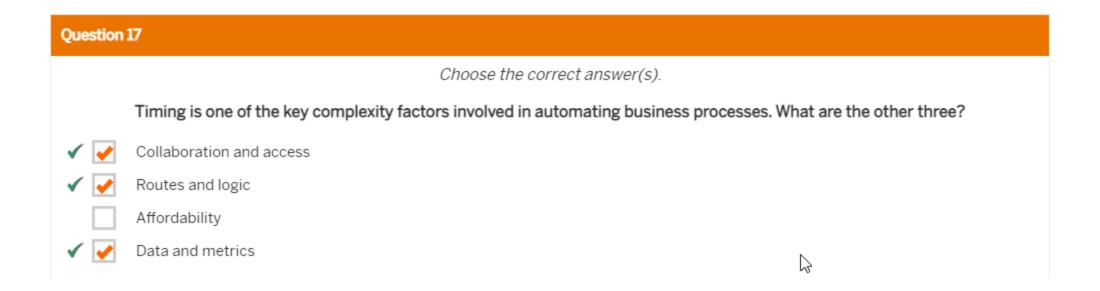






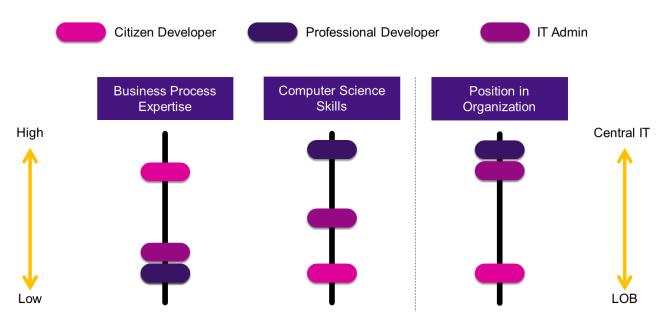
#### LCNC tools should be easy to use

- Therefore visual drag and drop components
- Business experts (not technically savvy) build simple applications or automate simple processes



- Citizen Developers
  - Primary Participant, Business users
  - Low computer science skills
- Professional Developers
- IT Administrators

#### **Summary of Skills Along the Developer Continuum**



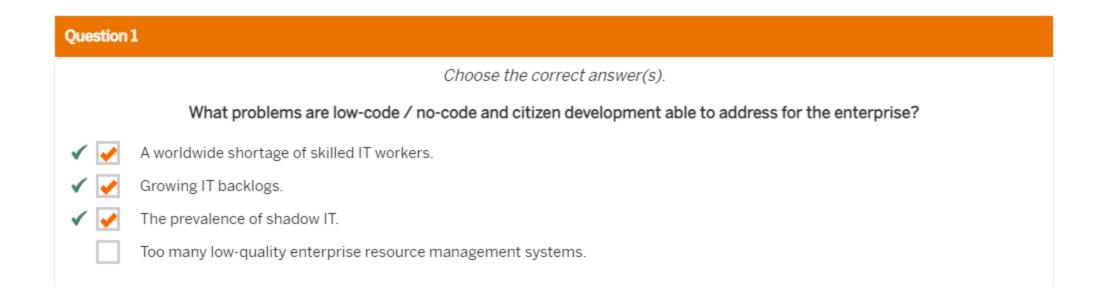
#### Enterprise problems driving move to Hyperautomation

- Exponential increase in data
- Global shortage of skilled IT personnel
  - In 2021, shortage close to 40 million IT folks globally
  - Expected to reach more than 85 million IT folks by 2030

#### Hyperautomation using newer technology

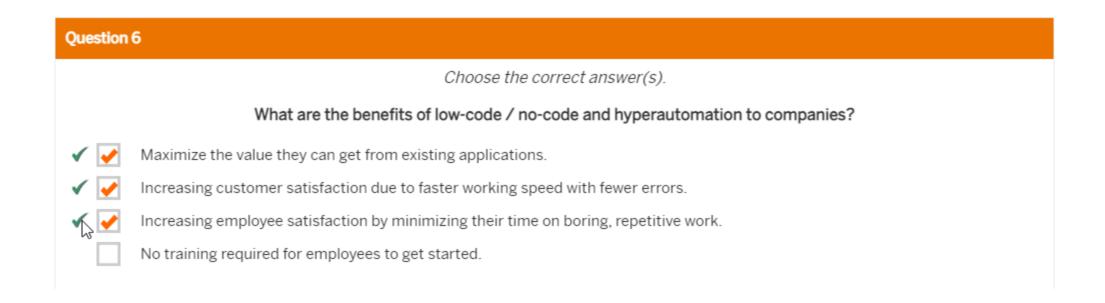
- Artificial Intelligence (AI), Machine Learning (ML), Robotic Process Automation (RPA)
- Combined with Low-Code / No-Code tools

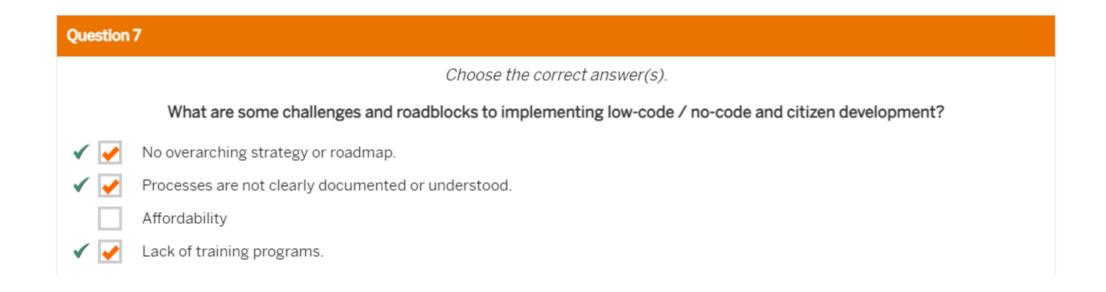
- Drawbacks of Shadow IT
  - Any kind of technical workaround not approved by IT
  - Can be quick fixes for urgent needs, but with dire consequences

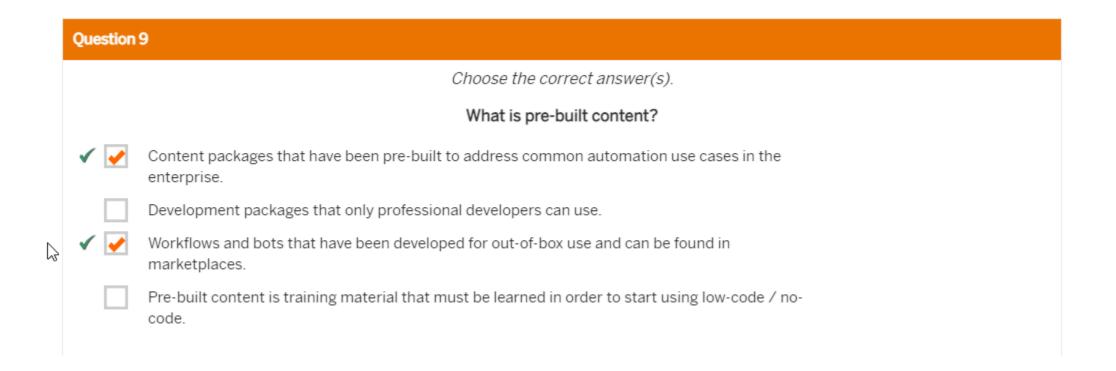


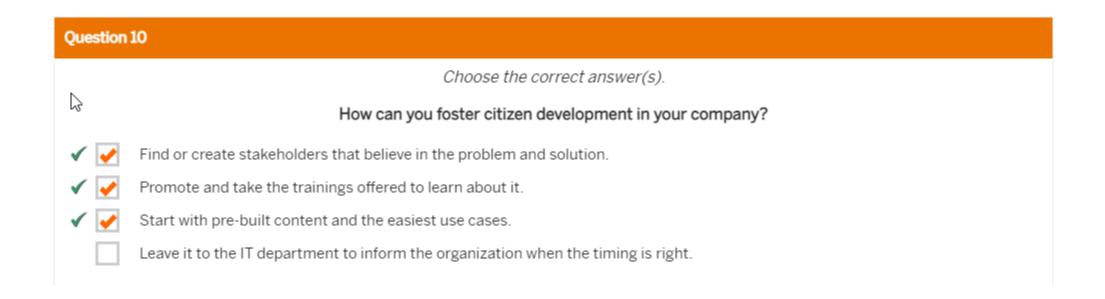
# Choose the correct answer. What is no-code development primarily intended for? To help employees that are process experts to automate tasks and build simple applications. To replace the need for professional developers in big companies. To simplify complex development projects.

Question 3		
	Choose the correct answer(s).	
	How does hyperautomation relate to low-code /no-code and citizen development?	
	It doesn't, only professional developers can work with hyperautomation technologies.	
✓ It allows citizen developers to work with robotic process automation.		
<b>✓</b>	✓ It makes intelligent technologies, such as AI, more accessible.	
	It takes care of simple task automation.	
✓ ✓ It makes intelligent technologies, such as AI, more accessible.		







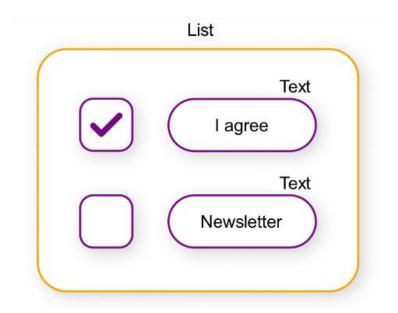


#### Pre-requisites

- 1. Subscribe to SAP Build Apps via a booster from SAP Business Technology Platform
- 2. Get the SAP Build Apps Preview app on your mobile phone. Make sure you have the latest version of the app installed...

#### Components (UI Elements)

- 1. UI Elements Buttons, Text, Images, Icons, Scroll View etc.
- 2. Simple or Complex (Composite)
- 3. Drag and Drop functionality
- 4. In-built functionality



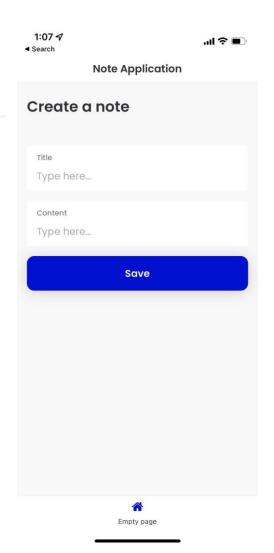
Q8. What are "views" based on, in terms of how they are defined for the user interface of an application?

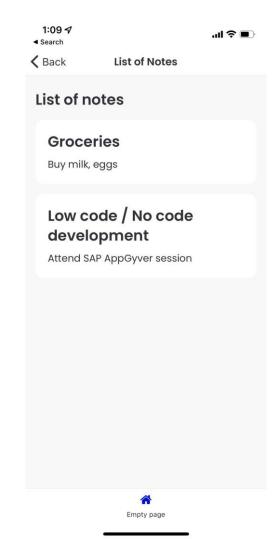
1

- The data sources for variables.
- B The flows of logic that need to be performed.
- Clear functional distinction, meaning activities that are grouped together.



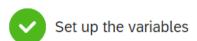
Correct. The "views" based on: Clear functional distinction, meaning activities that are grouped together





Q9. What are the three main areas of application development? Styling Data Logic User Interface Correct Correct. The three main areas of application development are User Interface, Logic and Data

Q10. What are some of the things you did when building your first miniapplication in SAP AppGyver?



- Binding variables to components
- C Implemented authorization capabilities
- Created the database A simple application might not require local persistence



Correct. Here's what you did when you created the first mini-application in SAP AppGyver: Set up the variables, binding variables to components and created the database

#### Binding

Link between variable and component (UI elements)

Static Binding (Property bound to static string)

Hello world

Dynamic Binding (Property bound to variable greeting) variable greeting = "Good morning!!"

Good morning!!

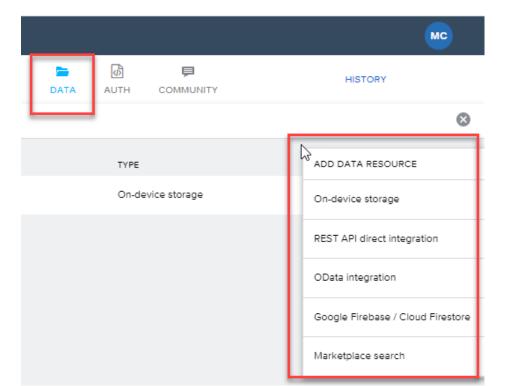
#### Variables

- App Variables
  - Exist globally
  - Initialized when app opens, exists until app is shut down
- Page Variables
  - Exists in the context of current page
  - Initialized when page opens, exists until page is closed
- Data Variables
  - Like page variables, used to read data from data resources



#### **Data Resource**

- Data that is stored outside the context of the running app
- Data variable is used to retrieve data from data resource



Q2. What is application logic?



- A Data and metrics integrated to enable performance.
- B The planning process to develop an application cross-functionally.
- A flow of events, actions and functions that are driven by variables in data and connected to the UI with bindings.



Correct. The application logic is: A flow of events, actions and functions that are driven by variables in data and connected to the UI with bindings.



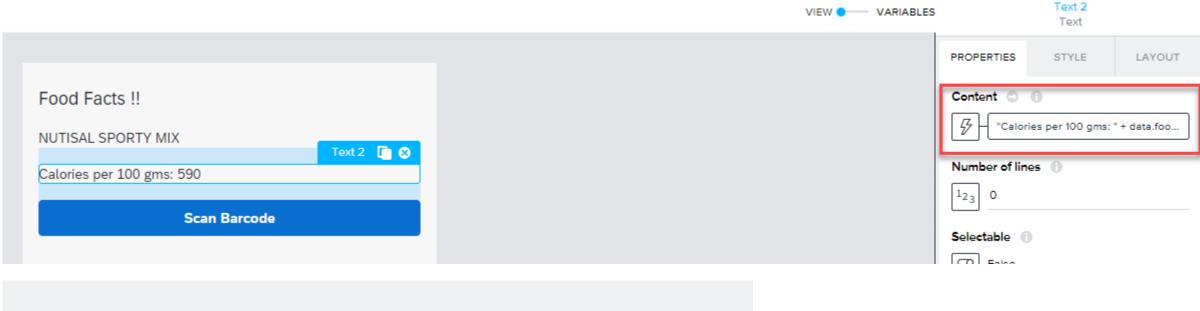
**Q8.** In SAP AppGyver, the visual logic canvas lets you build out pieces of logic "flow functions" in a sequence, and you connect them to each other with the attached input and output nodes.

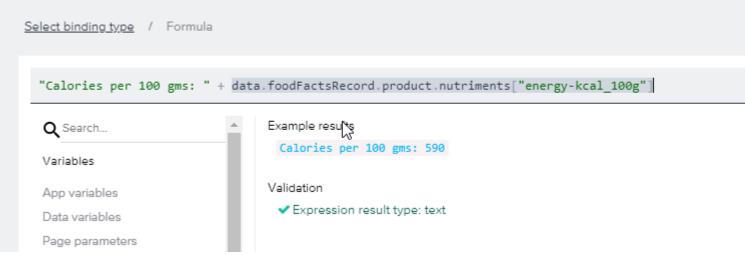


B False

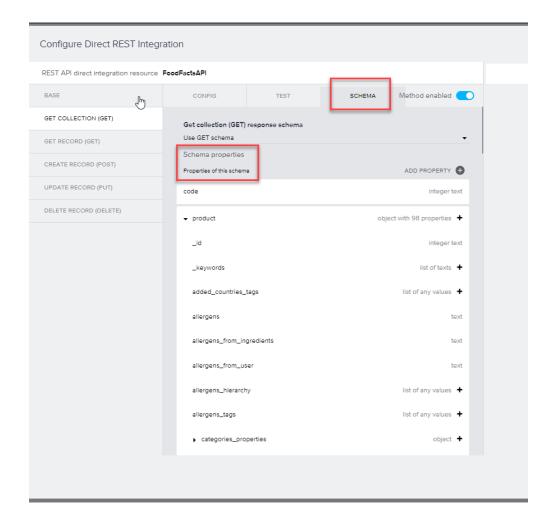


Correct. In SAP AppGyver, the visual logic canvas lets you build out pieces of logic "flow functions" in a sequence, and you connect them to each other with the attached input and output nodes.

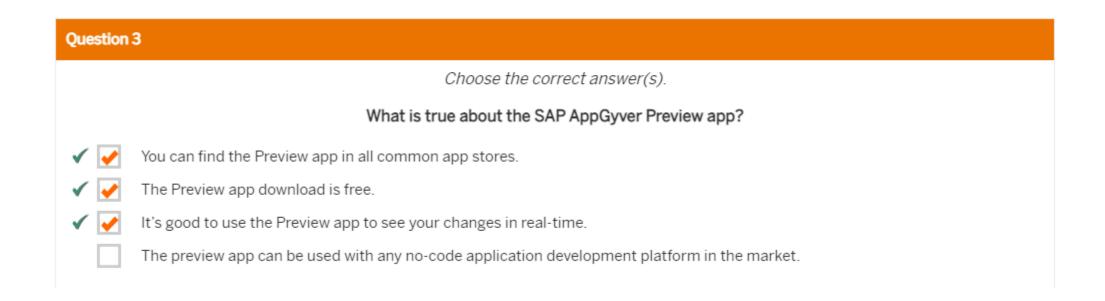


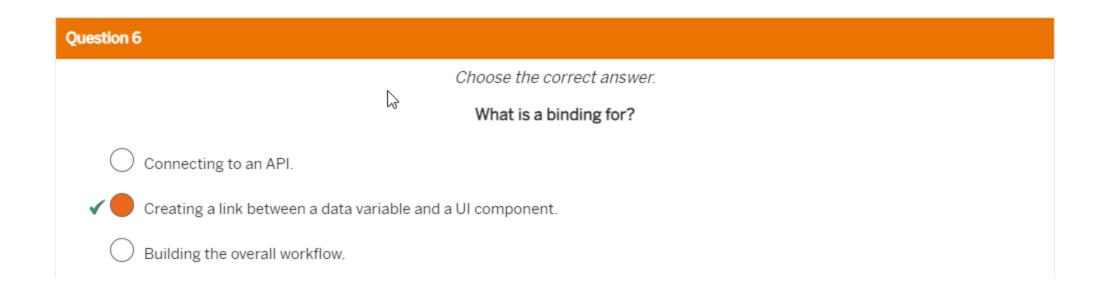


# Choose the correct answer. What was the first real step you took in building your app with SAP AppGyver? Making a connection to OpenFoodFacts database. Making a high level plan that covered the user interface, logic and data. Mocking up the design and journey for the user experience.



Structured view of the response data





- **Q9.** What is a key characteristic of how a low-code/no-code development platform works?
- Visual drag-and-drop editing for the user interface, otherwise known as WYSIWIG.
- Ability to import your own images and automatically convert them into code-based components.
- An integrated developer experience, where professional developers can coach citizen developers on how to build, step-by-step.
- Correct

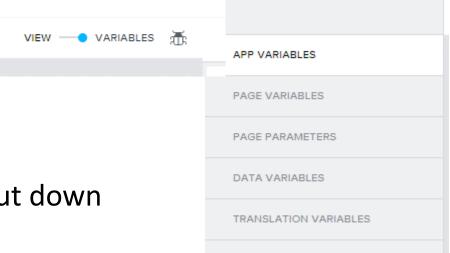
Correct. The key characteristic is visual drag-and-drop editing for the user interface, otherwise known as WYSIWIG.

Question 9			
Choose the correct answer.			
How can you reset the SAP AppGyver variable data logic in your logic canvas back to the default logic?			
Start over with building a new app.			
Clear the logic canvas and add a new logic flow.			
✓ Select "reset data variable logic".			
It's not possible – that's why detailed planning must be done in advance.			

# Choose the correct answer. How did you edit the formulas to change the display of calorie data in the UI? Select the paragraph with "calories", open the binding editor, choose the formula and edit. You need to be able to write in a programming language to do this. Added a new composable component with information on grams.

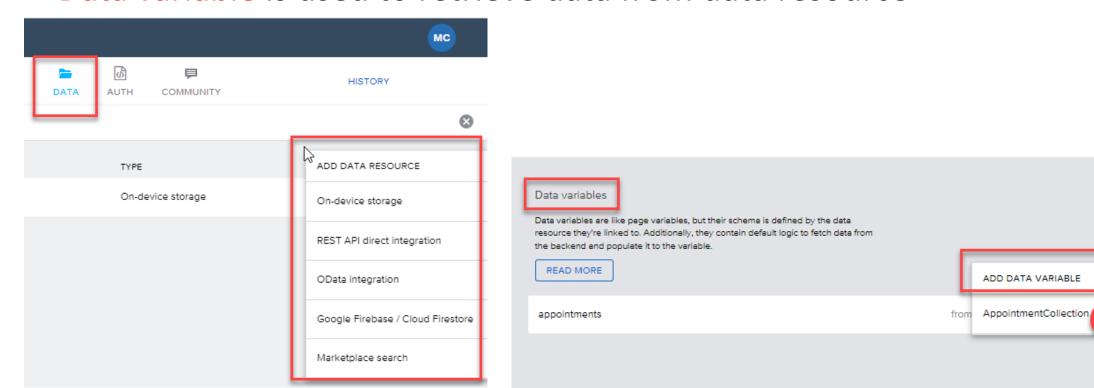
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#### Data Resource

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Q10. What can SAP Sales Cloud assist with?

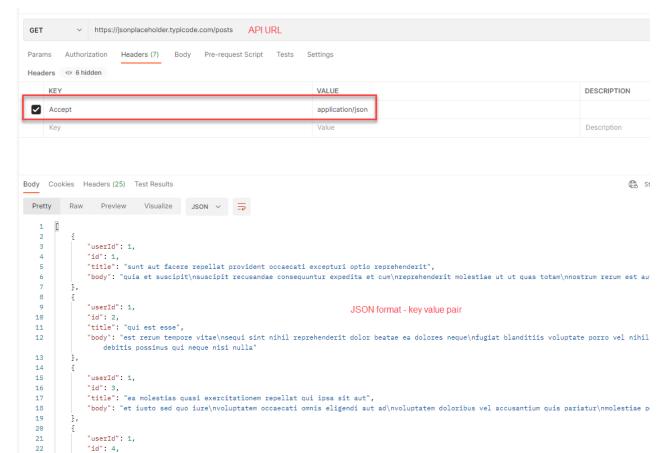
- communicating and collaborating with customers
- supporting in the lead-to-cash process
- C creating applications
- giving complete transparency where you stand with current sales business
- E managing your employees



Correct. SAP Cloud can assist you with giving complete transparency where you stand with current sales business, supporting in the lead-to-cash process and, communicating and collaborating with customers.

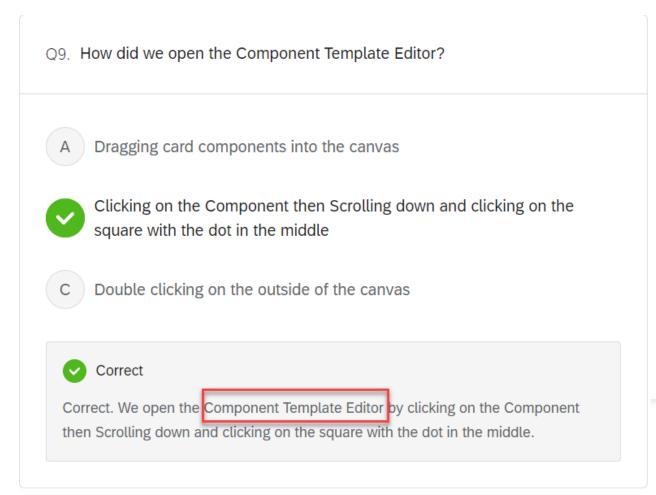
#### **JSON**

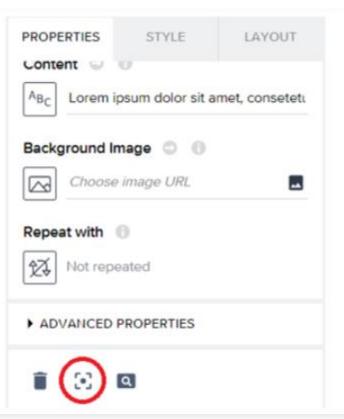
- Open standard file format and data interchange format
- Uses human-readable text to store and transmit data objects
- Consists of key-value pairs and arrays
- Based on JavaScript objects



```
"name": "Milton",
    "hobbies": ["tennis", "chess", "soccer"]
}
```

```
hobbies:
- tennis YAML
- chess
- soccer
# I can add comments. Woohoo !!
name: Milton
```





Q7. What is the use for APIs?

- A connect with colleagues
- perform some action on the system
- C create applications
- get data from the system
- communicate with a system
  - Correct

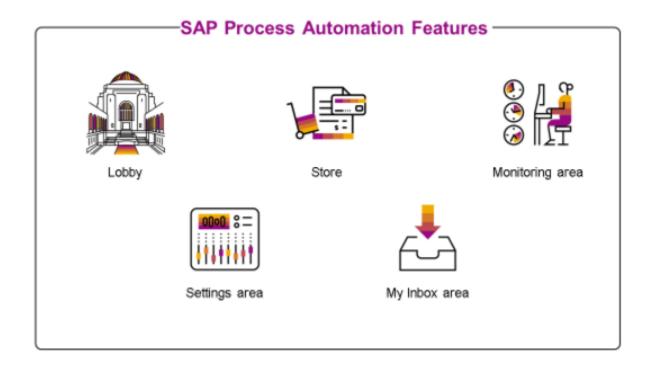
Correct. The use of APIs are to communicate with a system, get data from the system and perform some action on the system.

#### **Troubleshooting**

As you will have realized, building applications required an eye for detail. If you're not seeing the data in your UI, then check for errors. Go through the process again, step by step, to confirm they were done correctly. Create interaction showing how to do the troubleshooting checks:

Create interaction showing how to do the troubleshooting checks:

- First check that you are running the latest available version of the SAP AppGyver Preview app that's available.
- Then test the API URL in the browser to verify that your system can connect to the API.
- Then verify that you have the correct API URL specified in SAP AppGyver.
- Check that when you are importing services, you are importing the AppointmentsCollection service.
- · Next check your component bindings.





#### Lobby

Create, manage, deploy business processes

#### Store

Browse, add and use pre-packaged projects offered by SAP

#### **Monitor**

View and manage specific processes, automation jobs

#### Settings

Configure and manage desktop agents, backend settings, API keys

#### My Inbox

Displaying processing your tasks

#### Pre-requisites

- Setting up SAP Build Process Automation using the Booster
- Install and setup desktop agent

https://tools.hana.ondemand.com/#cloud

#### SAP Intelligent Robotic Process Automation: Desktop Components for Trial

SAP Intelligent Robotic Process Automation is a hybrid solution made of three components:

- . Desktop Studio for designing the automation processes
- . Cloud Factory trial tenant for orchestrating the automation
- Desktop Agent for executing the automation

Find below the desktop components, i.e. Desktop Studio and Desktop Agent, that are required to design and execute your bots

For more information on how to install and set up these desktop components, see the documentation.

Operating System	Version	File Size	Download
Windows (x86_64)	2.0.18.63	324.3 MB	sap-intelligent-rpa-2.0.18.63.msi (sha1)
Windows (x86_64)	2.0.19.50	324.3 MB	sap-intelligent-rpa-2.0.19.50.msi (sha1)
Windows (x86_64)	2.0.20.91	324.3 MB	sap-intelligent-rpa-2.0.20.91.msi (sha1)
Windows (x86_64)	2.0.21.103	324.3 MB	sap-intelligent-rpa-2.0.21.103.msi (sha1)
Windows (x86_64)	2.0.22.91	324.3 MB	sap-intelligent-rpa-2.0.22.91.msi (sha1)
Windows (x86_64)	2.0.23.85	324.3 MB	sap-intelligent-rpa-2.0.23.85.msi (sha1)

#### More Information

The downloads are provided under the terms of the SAP DEVELOPER LICENSE AGREEMENT

- Q2. What do you have to verify before you run a business process that contains one automation or more in it?
- A The Integration of a chatbot with your business process
- B The configuration of an email server
- The Desktop Agent settings and registration
- D The complete installation of a web server

Correct

Correct. You need to verify the Desktop Agent settings and registration, before you run a business process that contains one automation or more in it.

Q4. Where can an end user work on forms?

- A Process Workspace
- My Inbox
- C Monitor Workflow Application
- D ChatBot

Correct

Correct. End users can work on forms in My Inbox.

Q1. In what ways can forms be used?

- A For sending email
- For approving a sales order
- For sending notification to requestor
- D For accessing automation
  - Correct

Correct. Forms can be used for approving a sales order and for sending notification to requestor.

Order Processing Form
Approval Form
Order Confirmation Notification Form
Order Rejection Notification Form

Q8. What are the benefits of using forms?



- B Create documents for process
- One layout, one access and traceable action
- Streamline approvals in the business process
- E Send email templates to users
- Correct

Correct. One benefits of using forms is that it is a quick, simple and easy way to create interactive UI. Other benefits of using forms are that you only have one layout, one access and traceable action, and a streamline approvals in the business process.

Q5. What do have to do in the Business Process after the design of your automation?



- A Add a chatbot into your business process
- Verify and map the inputs and outputs of the artifacts including the designed automation
- C Check for task in the Inbox
- D Develop a custom script in javascript to achieve the integration



Correct. After the design of your automation, you have to verify and map the inputs and outputs of the artifacts including the designed automation in the Business Process.

Q6. Which configurations are necessary for Process Conditions?

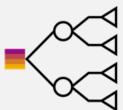
- Add a condition to the process
- B Map the condition input with process content
- Configure If and else conditions
- Define the process flow for different conditional paths
- E Add environment variables
- Correct

Correct. The following configurations are necessary for Process Conditions: Add a condition to the process, Configure If and else conditions and Define the process flow for different conditional paths.

Q7. What are different components of <strong>Decisions</strong>? Input data object Decision table C Form Decision diagram E Business Logic Correct Correct. Input data object, Decision table and Decision diagram are different components of Decisions.

- Q9. Which steps will you take while designing a decision?
- A Create policy, configure rule service, and add rules.
- Create decision, create data object, and configure input & output.
- C Integrate decision with process using API.
- Create decision table rules, configure settings, and add rows
  - Correct

Correct. While designing a decision you will take the following steps: Create policy, configure rule service, and add rules, as well as create decision table rules, configure settings, and add rows.



#### **Decision**

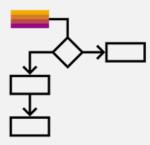
Capability through which you can model and manage complex business logic in a well-formed structure that is easy to maintain.



#### **Policy/Policies**

A decision consists of one or more policies.

Each policy consists of a collection of rules.



#### **Decision Diagram**

a flow chart that describes the execution flow of the decision logic from the input to the output.

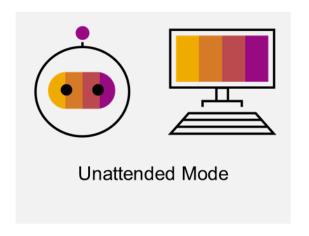
Rules

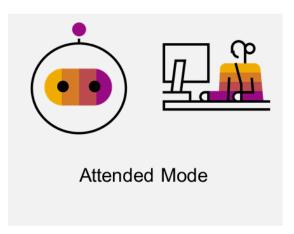


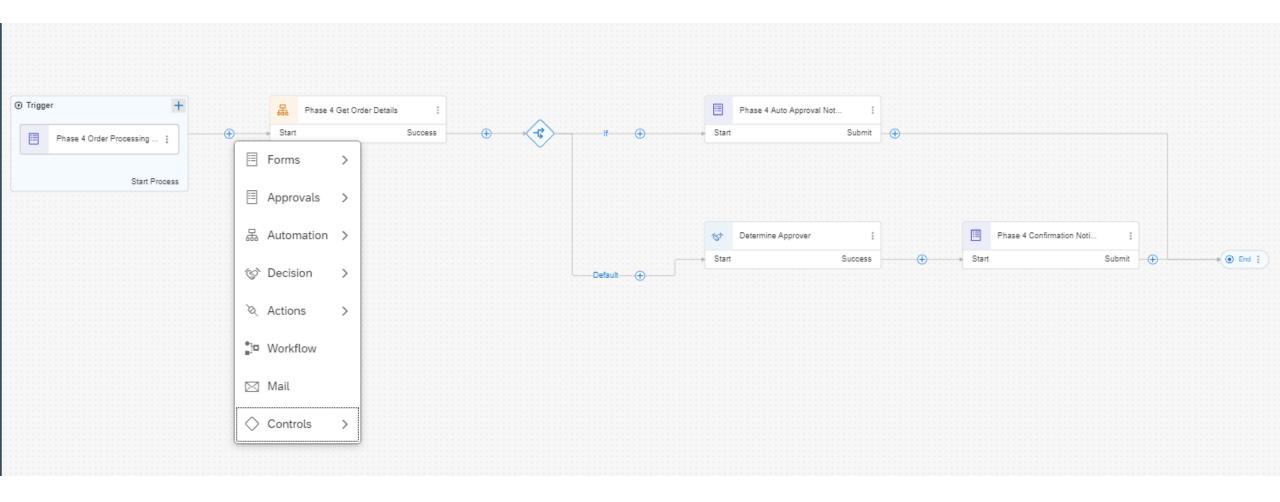


SAP Robotic Process Automation services are delivered in 2 ways

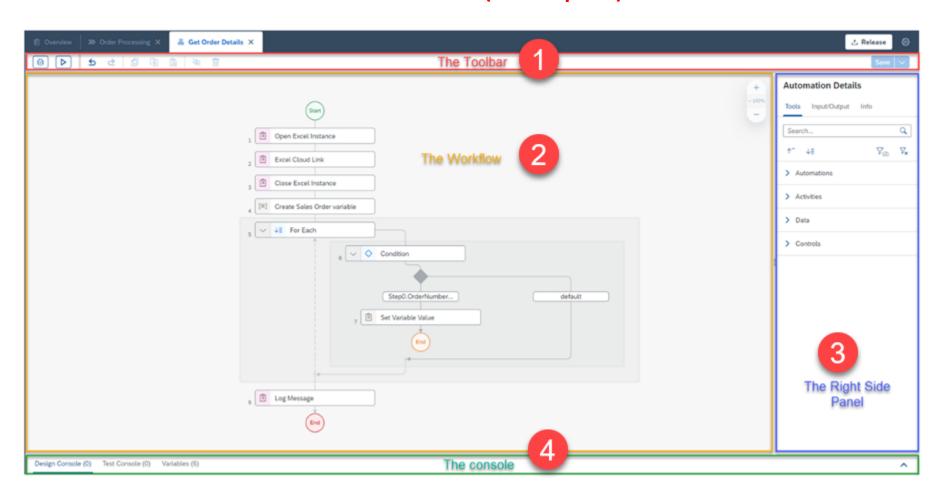
- Unattended Mode
- Attended Mode

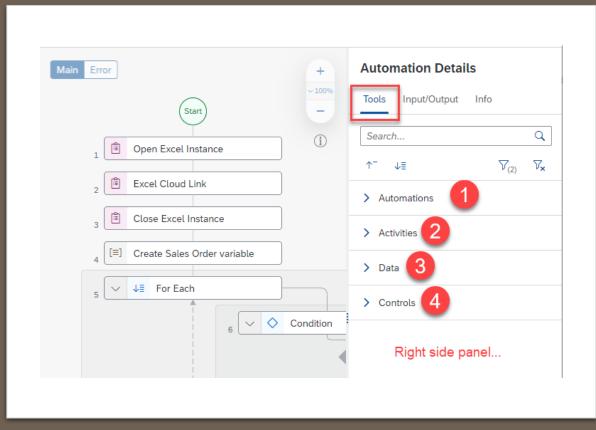






**Automation Editor (4 main parts)** 





From the right-side panel, you can add multiple things.

First, you can add an automation that has already been built. This automation could come from you, if you already built one, from colleagues, or even from the STORE or an external project to your landscape.

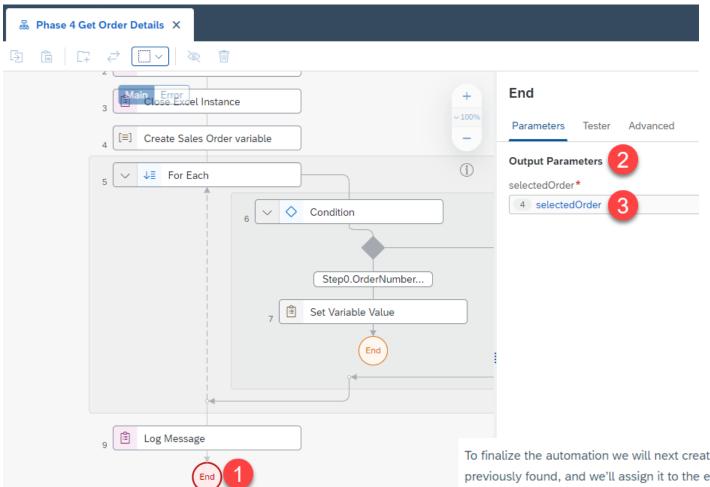
Second, you can also use captures of applications you captured on your computer. So, let's say you have an application, and you want to automate it. You create a capture of it with its screens and elements like buttons, fields, controls and then interact with the different entities inside the main flow of the automation.

Third, you have access also to what we call the activities. These activities come from the SDK packages from SAP. These activities are simple actions that you can do in your automation. It can be from using the file system, using an Excel file, or piloting an application.

We see that in detail in the exercise.

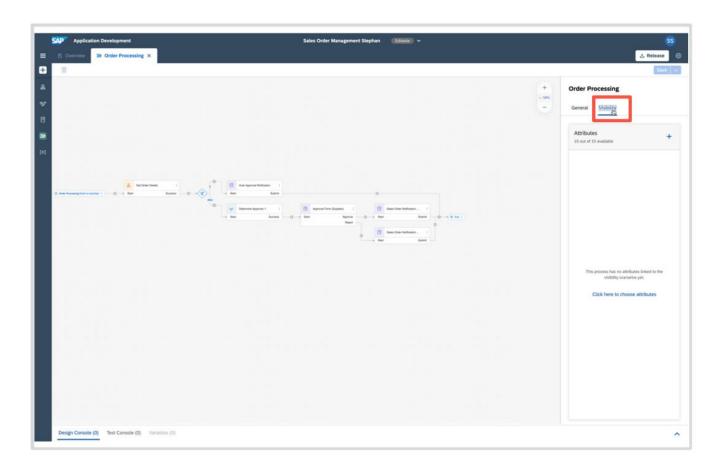
Fourth, you also have access to data types if you want to structure data or reuse variables.

And last, you can use the Controls. With that, you can use condition loops inside your automation. You can even write your own JavaScript code if the activities provided by SAP are not enough.



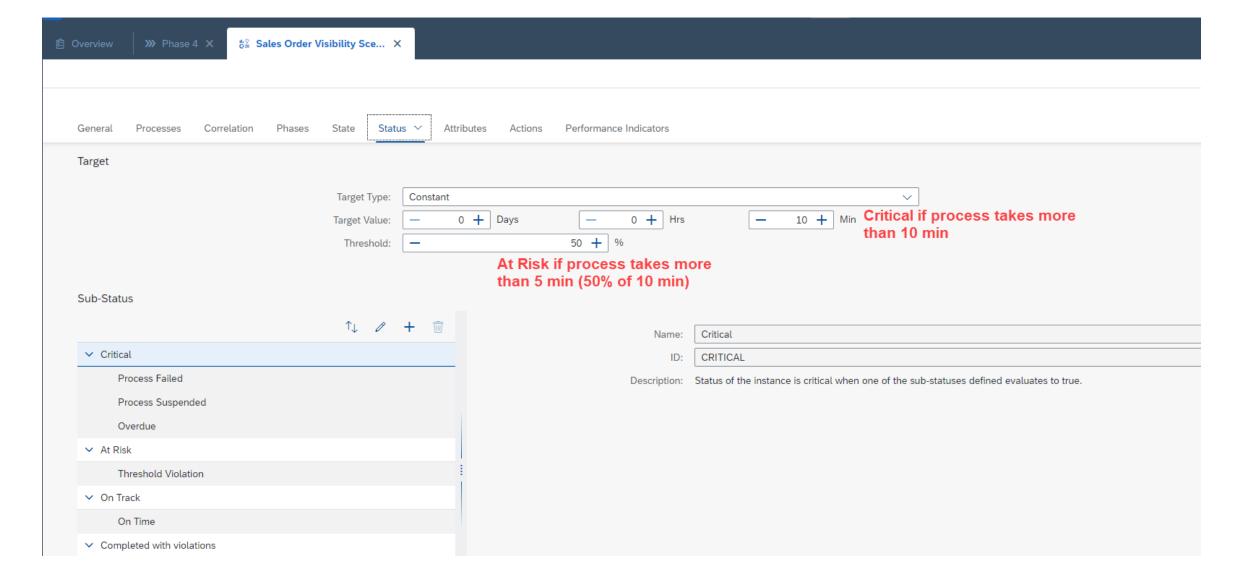
To finalize the automation we will next create an output parameter. The output of the automation will be the sales order we previously found, and we'll assign it to the end node of the automation, which means the returned value is the selected order.

After that, we'll add an activity that creates a log message that will show us the order status. Let's set this up so we can then do the final testing of our process automation.



#### Prepare the Process to be Consumed

In the Process Builder open your process and on the right-hand side select the tab **Visibility**. Here you define the connection between the process context and the soon to be created visibility scenario. Select the **Red Box** to **Continue**.



#### Use cases for automation

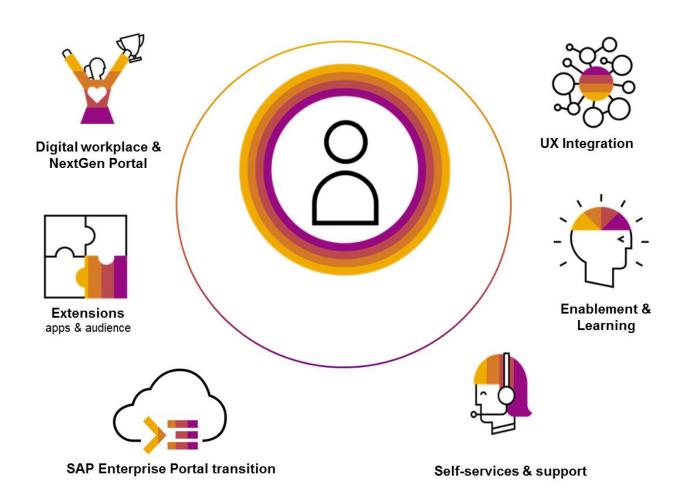
- Lead-to-cash
- Hire-to-retire
- Design-to-operate
- Source-to-pay

Digital Experience (DX) Services Portfolio at SAP (2 main offerings)

- SAP Launchpad Service
- SAP Build Work Zone

Digital Experience (DX) Services Portfolio at SAP (2 main offerings)

- SAP Launchpad Service
- SAP Build Work Zone



#### **Connecting**

- People
- Data
- Processes

**Typical Use Cases for SAP Build Work Zone** 

#### **Capabilities of SAP Build Work Zone**



App launcher (link, tile, card)



**Open app** in new tab, in-place



Navigation & URL parameters



Language



Theme & branding



Single sign-on & session management



Roles & authorizations

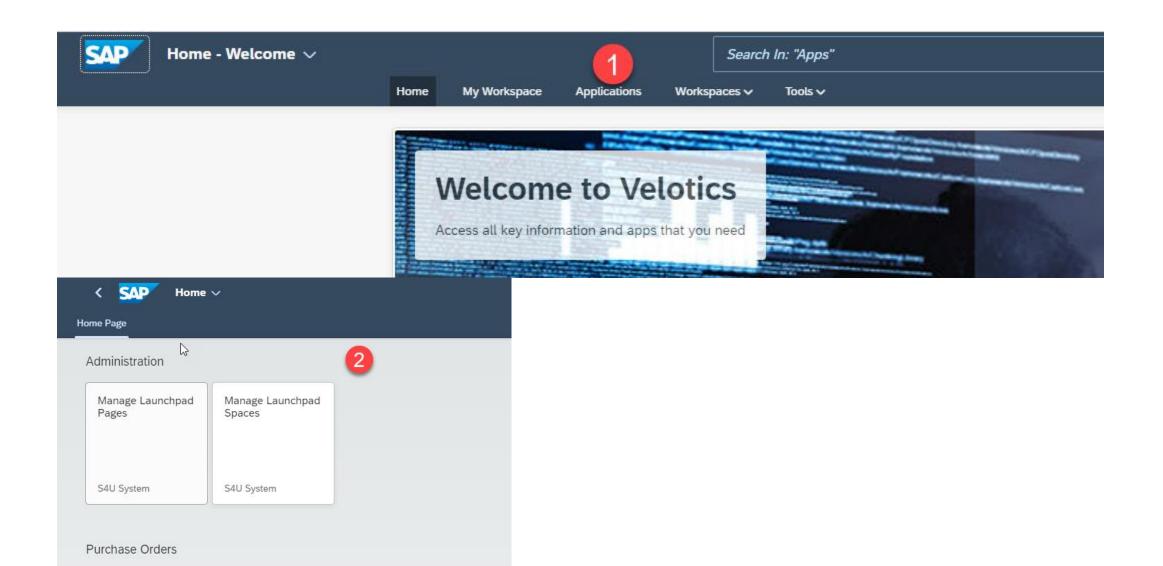


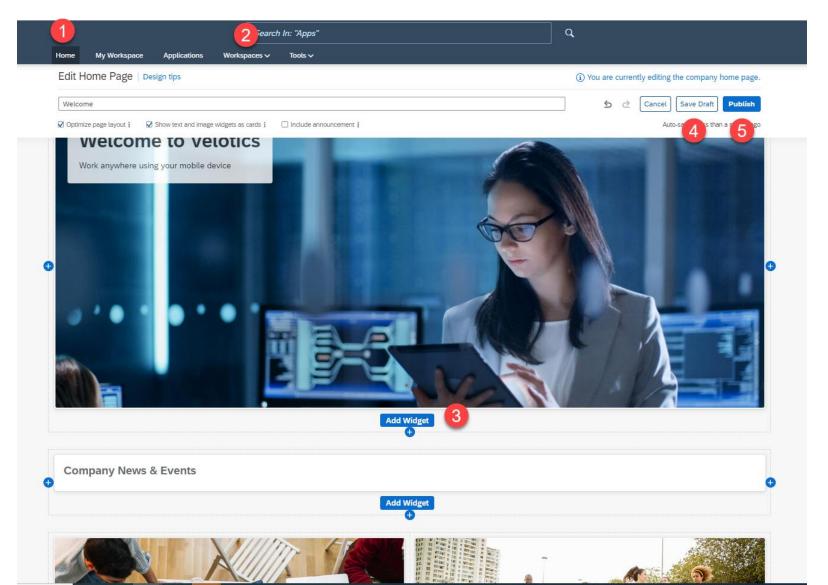
Content structure (incl. roles and apps)

Q1. In the context of user experience integration, which of the following dimensions were outlined? Ability to launch applications Roles and authorization handling Web content management Flexible URL parameters Mobile access Correct Incorrect. The Ability to launch applications, Flexible URL parameters and Roles and authorization handling were outlined in the context of user experience integration.

### Key Building Blocks of SAP Build Work Zone

- Administrative Areas
  - Enables role based access and business focused decentral ways of working
- Homepages
  - Design entry page experience for all users
- Workspaces
  - Web content presentation core element of user interaction
- Applications Launchpad
  - Built-in launchpad capabilities





### Final Summary Points – Unit 7

#### ONE-STOP-SHOP EXPERIENCES & USER ENGAGEMENT



Personal workspace that only you can see and access, you cannot invite others to it.



Workspaces that every fullaccess user in the company can view and join.



Workspaces that you can only join and view if you have been invited to them.



Workspaces in which you can work together with people from different companies who join the workspaces as external users.

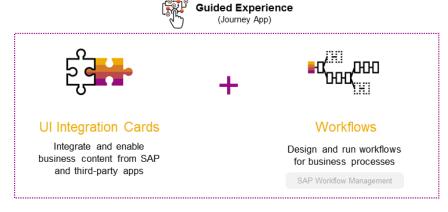
	Launchpad	Homepages	Administrative Areas	Workspaces
Features	<ul> <li>Integrate apps deployed on SAP S/4HANA on premise, SAP BTP Cloud Foundry or ABAP environment.</li> <li>Expose content of various content providers: SAP S/4HANA on premise, SAP Enterprise Portal or SAP BTP on Cloud Foundry.</li> <li>Enables individual application and application group widgets to be used across homepages and workspaces.</li> </ul>	<ul> <li>Inform users of companywide information, announcements, and much more.</li> <li>Out-of-box cards and widgets for homepages</li> <li>Flexible design and integration options with a combination of content widgets, UI cards, guided experiences and business applications.</li> </ul>	<ul> <li>Central role object to bundle different product capabilities such as homepages, templates, integration setups and more, e.g. per company division or region.</li> <li>Dedicated content section for area homepages.</li> <li>Area membership assignment based on memberlists</li> </ul>	<ul> <li>Creation of public, private and external workspaces based on the target audience.</li> <li>Out-of-box cards and widgets for workspace overview pages.</li> <li>Structured collaboration and knowledge management capabilities with e.g. forum and knowledge base.</li> <li>Include external stakeholders with restricted view into dedicated workspaces.</li> </ul>
Strengths	<ul> <li>Identity propagation eliminates a need to setup additional security roles for SAP business apps.</li> <li>Flexible, manual integration and content federation to re-use existing applications.</li> </ul>	<ul> <li>Embedded visual page editor enables end-users to design pages without IT overhead</li> <li>Multi-level navigation using subtabs for homepages.</li> </ul>	Enables decentralized (content) administration     Users gain access to a combination of features based on their individual admin area memberships.	<ul> <li>Out-of-the-box and custom workspace templates ease the creation and ensure consistency across the entire company.</li> <li>Enables decentralized (content) administration</li> <li>Workspace administrators can flexibly adjust workspace features based on desired use case.</li> </ul>

**Application Focus** 

User Engagement and Interaction

Q9. The application launchpad is an optional component of SAP Work. True Correct Correct. The application launchpad is not an optional component of SAP Work.

### **Extensibility Overview**





#### Launchpad Plugins

Extend global header bar and user menu



#### Chatbots

Develop and enable conversational experience for the most often employees' requests

SAP Conversational Al



#### API

Access and manage workspaces from third-party apps

### **Guided Experience**

- UI Integration Cards
- Workflows

- Q5. Which of the following best describes the concept of a guided experience?
- A Pre-built templates to be used when creating workspaces
- Tool to display information and application content inside workspaces or homepages
- Workflow-based cards that help you perform specific tasks through a multistep process possibly spanning multiple systems
- Correct

Correct. Guided experience is best describes as Workflow-based cards that help you perform specific tasks through a multistep process possibly spanning multiple systems.

Q4. The chatbot integration with SAP Conversational AI is an optional integration scenario for SAP Work Zone. False True Correct Correct. The chatbot integration with SAP Conversational AI is an optional integration scenario for SAP Work Zone.

Q8. Which of the following statements correctly describe the concept of the UI Integration Card?

- A Only SAP can build UI Integration Cards
- Cards from different business applications can be added to SAP Work Zone workspaces
- Declarative, consistent, and easy to consume
- Small content building blocks, consolidating data from different systems into one page
  - Correct

Correct. UI Integration Cards are small content building blocks, consolidating data from different systems into one page. They are Declarative, consistent, and easy to consume, and cards from different business applications can be added to SAP Work Zone workspaces.

	Launchpad	Homepages	Administrative Areas	Workspaces
Features	<ul> <li>Integrate apps deployed on SAP S/4HANA on premise, SAP BTP Cloud Foundry or ABAP environment.</li> </ul>	<ul> <li>Inform users of company- wide information, announcements, and much more.</li> </ul>	<ul> <li>Central role object to bundle different product capabilities such as homepages, templates, integration setups and more, e.g. per company division or region.</li> <li>Dedicated content section for area homepages.</li> <li>Area membership assignment based on memberlists</li> </ul>	<ul> <li>Creation of public, private and external workspaces based on the target audience.</li> </ul>
	<ul> <li>Expose content of various content providers: SAP S/4HANA on</li> </ul>	Out-of-box cards and widgets for homepages		<ul> <li>Out-of-box cards and widgets for workspace overview pages.</li> <li>Structured collaboration and knowledge management capabilities with e.g. forum and knowledge base.</li> </ul>
	premise, SAP Enterprise Portal or SAP BTP on Cloud Foundry.	<ul> <li>Flexible design and integration options with a combination of content widgets, UI cards, guided experiences and business applications.</li> </ul>		
	<ul> <li>Enables individual application and application group widgets to be used across homepages and workspaces.</li> </ul>			<ul> <li>Include external stakeholders with restricted view into dedicated workspaces.</li> </ul>
Strengths	<ul> <li>Identity propagation eliminates a need to setup additional security roles for SAP business apps.</li> </ul>	Embedded visual page editor enables end-users to design pages without IT overhead	<ul> <li>Enables decentralized (content) administration</li> <li>Users gain access to a combination of features based on their individual admin area memberships.</li> </ul>	<ul> <li>Out-of-the-box and custom workspace templates ease the creation and ensure consistency across the entire company.</li> </ul>
	Flexible, manual integration and content federation to re-use existing	<ul> <li>Multi-level navigation using subtabs for homepages.</li> </ul>		<ul> <li>Enables decentralized (content) administration</li> </ul>
	applications.			<ul> <li>Workspace administrators can flexibly adjust workspace features based on desired use case.</li> </ul>

**Application Focus** 

User Engagement and Interaction

### Finding More Ways to Learn the SAP Build Toolset

In this topic, you will learn about the available channels to find information about low-code / no-code learning and SAP Build content:

- SAP Learning
- SAP Discovery Center
- SAP Community
- SAP Help Portal
- SAP Build YouTube
- SAP Build LinkedIn