Tutorial Week 2 & 3 – Enterprise Systems – Sydney Campus

1. Summary of Lecture 1: Introduction to Enterprise Systems
2. Summary of Lecture 2: System Development Life Cycle and Introduction to SAI
3. Tutorial Week 2 & 3
4. Mastering SAP S/4HANA: A Comprehensive Guide to ERP System Integration and Application
5. Mastering SAP S/4HANA: A Comprehensive Guide to ERP System Integration and Application
6. Tutorial Week 2 & 3
7. Attendance

Lecturer/Tutor: Dr. Farshid Keivanian

Welcome to Weeks 2 and 3 of our tutorial series, where we dive deeper into the world of Enterprise Systems at the Sydney Campus. These sessions build upon the foundational knowledge from our previous lectures on interface design evaluation and enterprise systems. We'll explore expert reviews, usability testing, and various evaluation methods that are crucial for assessing the effectiveness of user interfaces. As we advance through these tutorials, we'll also engage with practical scenarios and hands-on SAP exercises to integrate theory with application, ensuring a comprehensive understanding of systems development and ERP system functionalities. This will prepare you for more complex concepts and applications in the coming weeks.

1. Summary of the Lecture 1: Introduction to Enterprise Systems

Overview of Enterprise Systems

Enterprise Systems are large-scale software applications designed to integrate and manage core business processes across an organization. Common types of ES include:

- **Enterprise Resource Planning (ERP):** Systems that integrate core business processes like finance, HR, manufacturing, supply chain, services, procurement, and others.
- **Customer Relationship Management (CRM):** Systems focused on managing customer information, sales, and marketing.
- **Supply Chain Management (SCM):** Systems that manage the flow of goods and services from manufacturing to customer delivery.

1. Summary of the Lecture 1: Introduction to Enterprise Systems

Objectives of Enterprise Systems

- **Integration:** Bringing together various business processes to ensure they work cohesively.
- **Automation:** Reducing the need for manual intervention in business processes.
- **Data Analytics:** Providing tools to analyze business operations and make informed decisions.

1. Summary of the Lecture 1: Introduction to Enterprise Systems

Benefits of Enterprise Systems

- Improved efficiency and productivity by streamlining processes.
- Enhanced visibility into operations, leading to better decision-making.
- Increased scalability and flexibility in business operations.

Challenges of Implementing Enterprise Systems

- High initial costs and ongoing maintenance expenses.
- Complexity of installation and customization.
- Resistance to change from employees.

1. Summary of the Lecture 1: Introduction to Enterprise Systems

Practical Example: A Retail Company in Australia Implementing ERP

Scenario:

Imagine a mid-sized retail company based in Sydney, Australia, aiming to manage its growing operations more effectively. The company decides to implement an ERP system to improve its inventory management, sales processing, and customer relationship management.

1. Summary of the Lecture 1: Introduction to Enterprise Systems

Steps Involved:

1. **Requirement Analysis:** Understanding the specific needs of the business, including inventory turnover rates and customer interaction data.
2. **System Selection:** Choosing an ERP system that best fits their needs, possibly SAP or Oracle.
3. **Customization and Integration:** Tailoring the ERP system to align with the company's processes and integrating it with existing systems.
4. **Training and Change Management:** Training staff to use the new system and managing the transition process.

1. Summary of the Lecture 1: Introduction to Enterprise Systems

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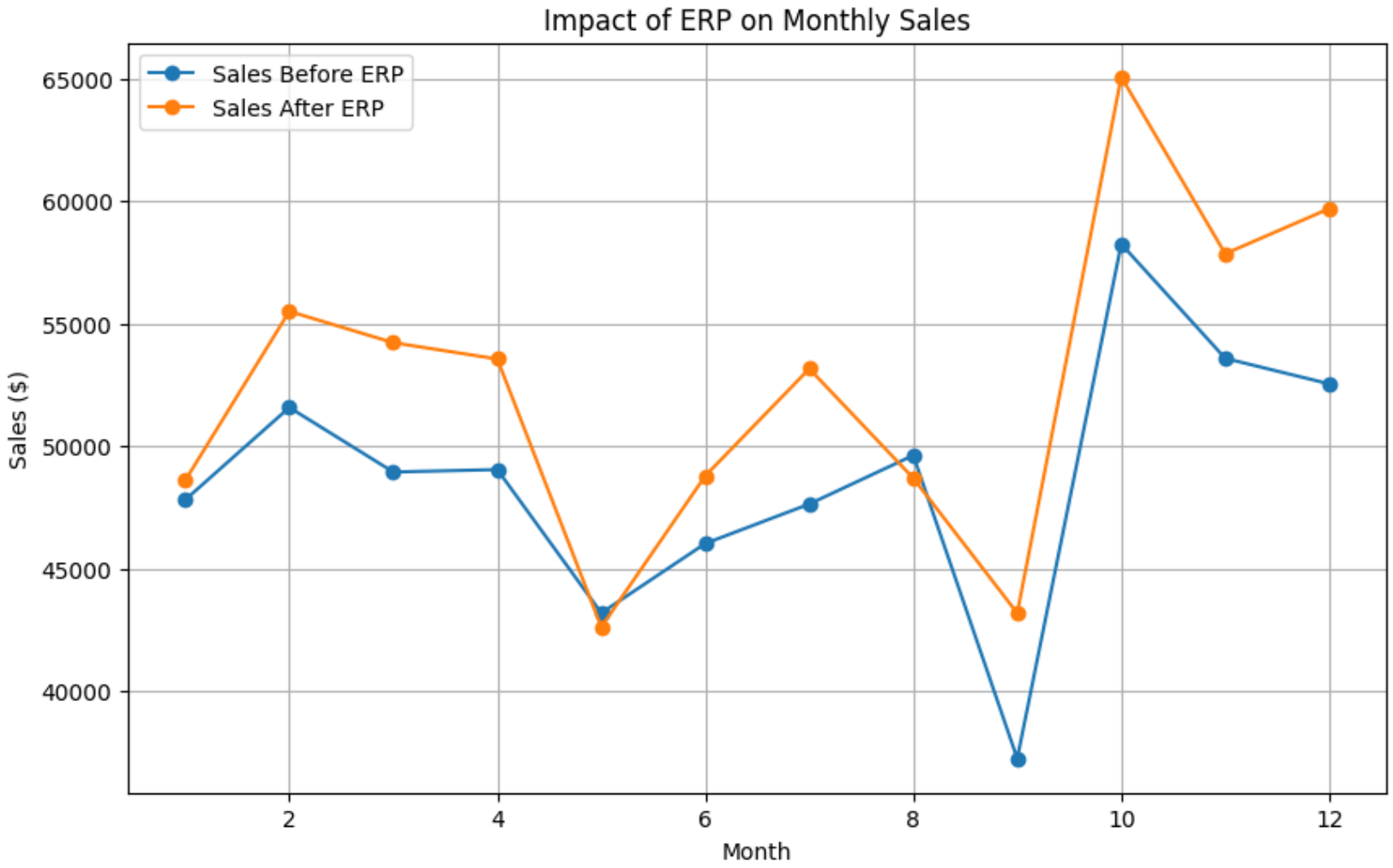
Data Analysis:

To show the impact of the ERP implementation, we could analyze monthly sales data before and after the ERP goes live.

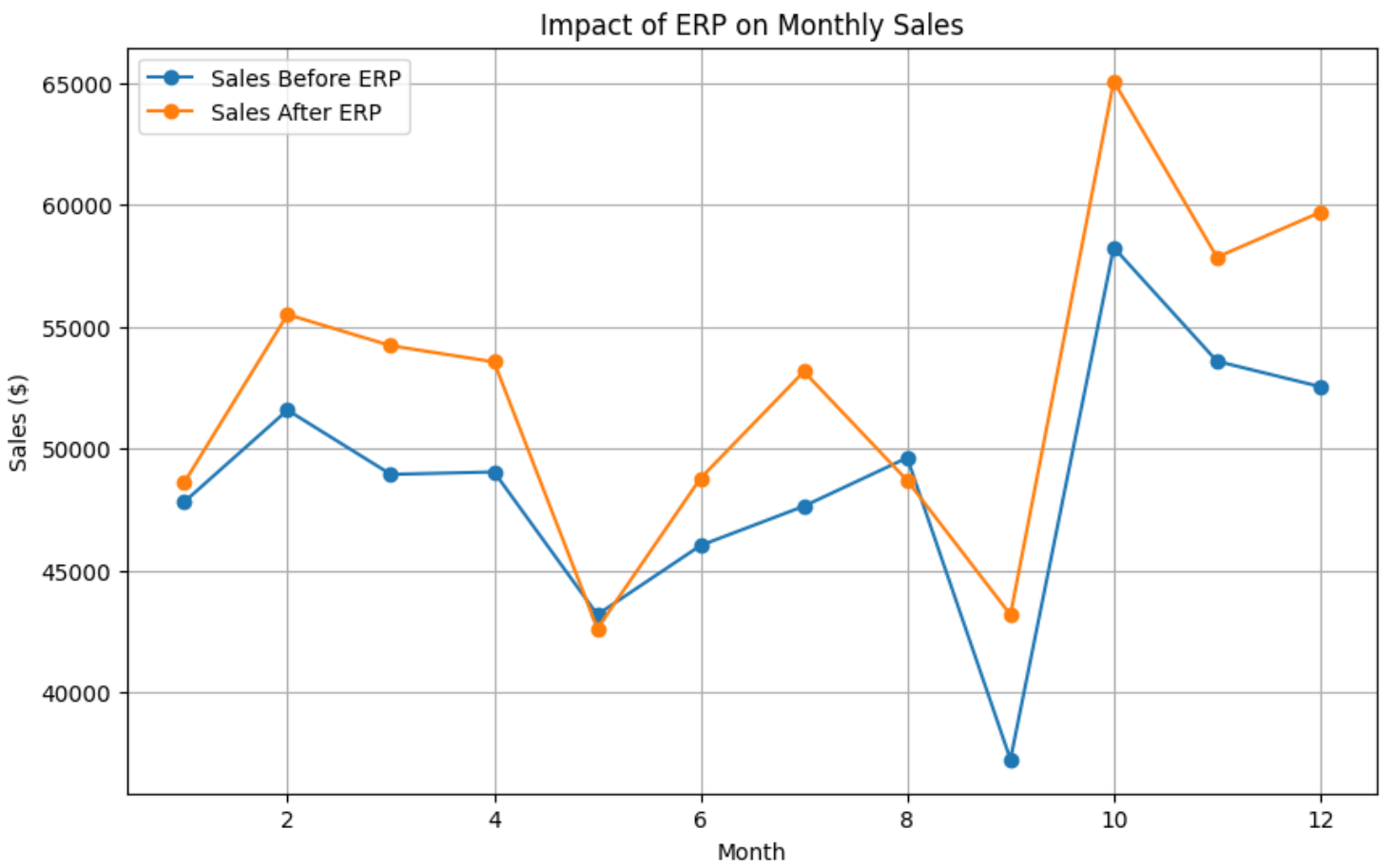
- Let's generate a hypothetical plot showing this:

This plot would ideally show an upward trend in sales post-implementation, illustrating the potential benefits of an ERP system for streamlining operations and boosting sales.



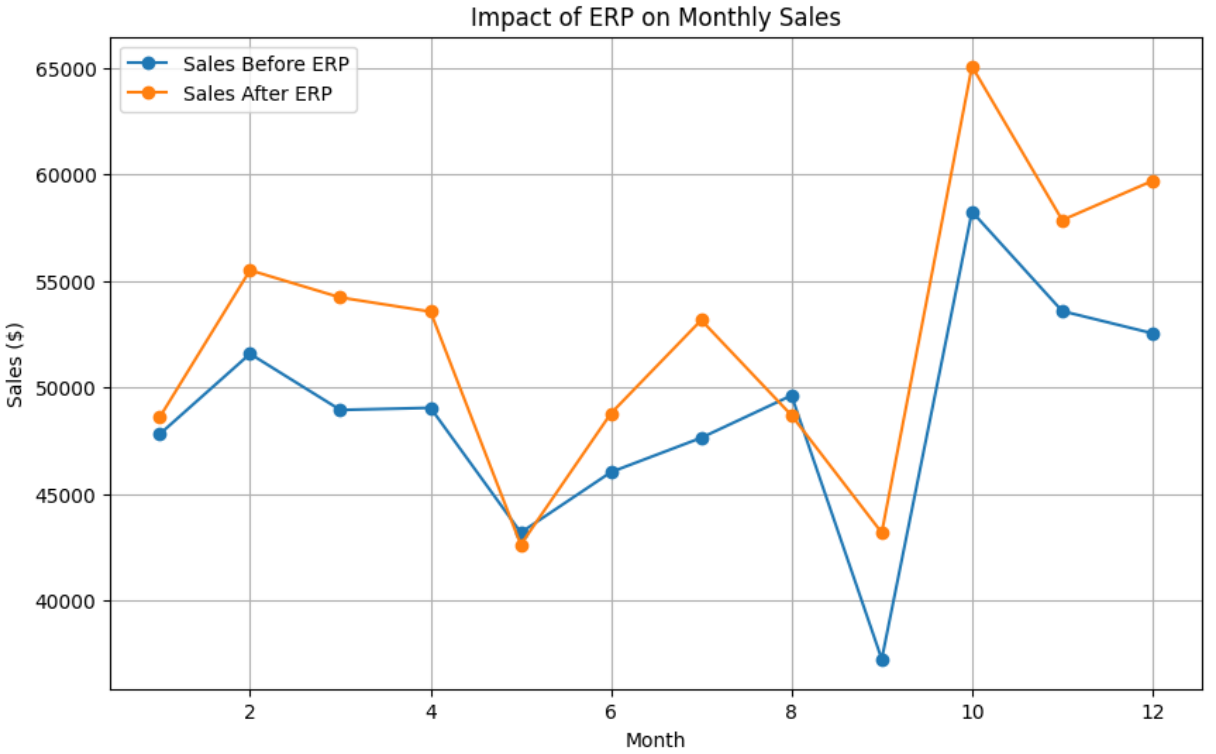
The plot compares monthly sales figures before and after the implementation of an Enterprise Resource Planning (ERP) system. Here's an analysis based on the visual information provided:

1. Sales Trends: There are two distinct lines on the plot representing sales data over a 12-month period. The blue line represents sales before the ERP was implemented, and the orange line represents sales after the ERP implementation.



1. Summary of the Lecture 1: Introduction to Enterprise Systems

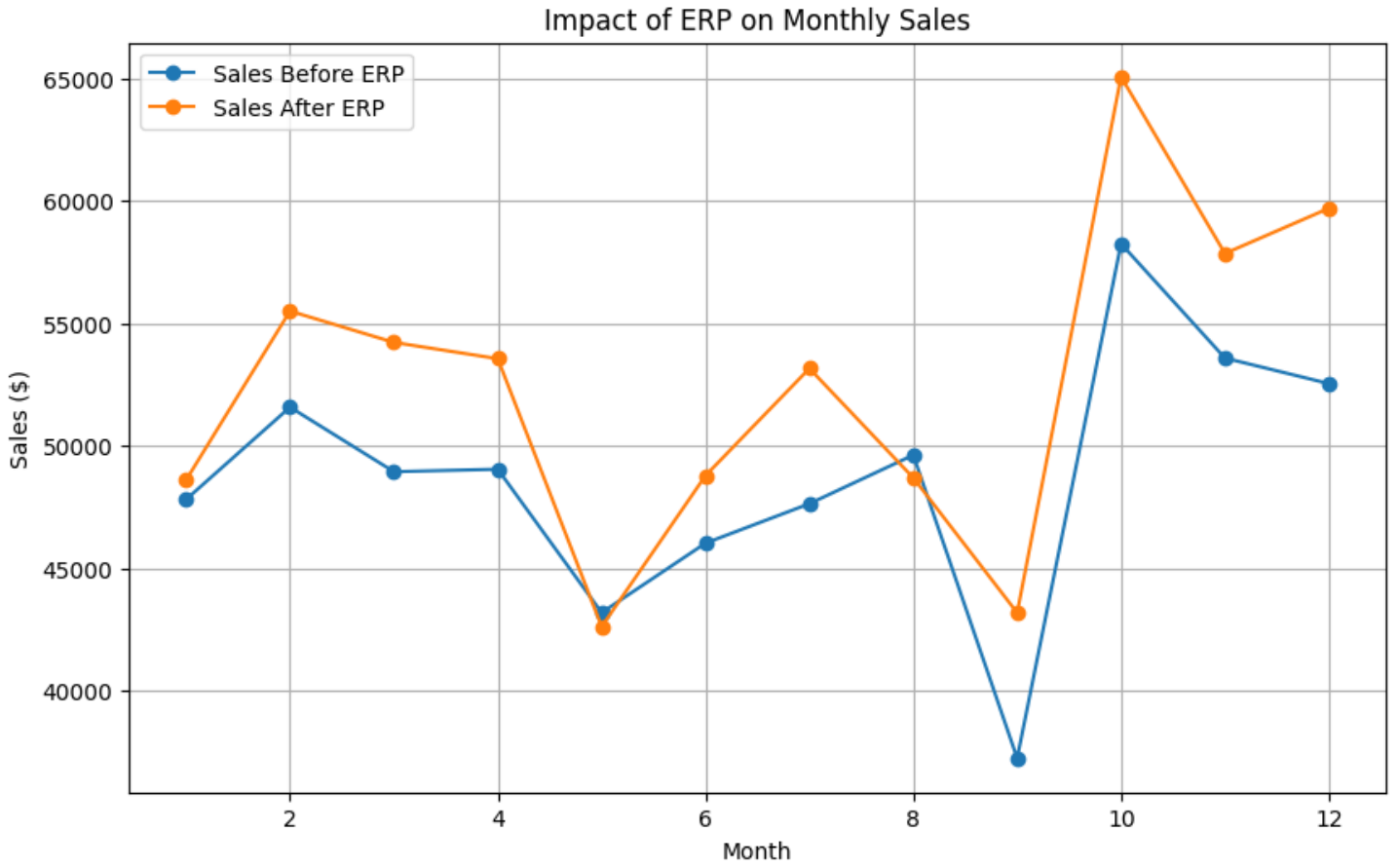
2. Volatility: The sales data both before and after the ERP implementation show variability throughout the year. This is typical for retail sales, which can fluctuate due to various factors such as seasonality, promotions, and market conditions.



3. Post-ERP Increase: The sales after ERP implementation, on average, seem to be higher than the sales before. This suggests that the ERP system may have had a positive impact on sales performance. However, without statistical analysis, we can't confirm if the increase is significant or simply due to natural fluctuations.

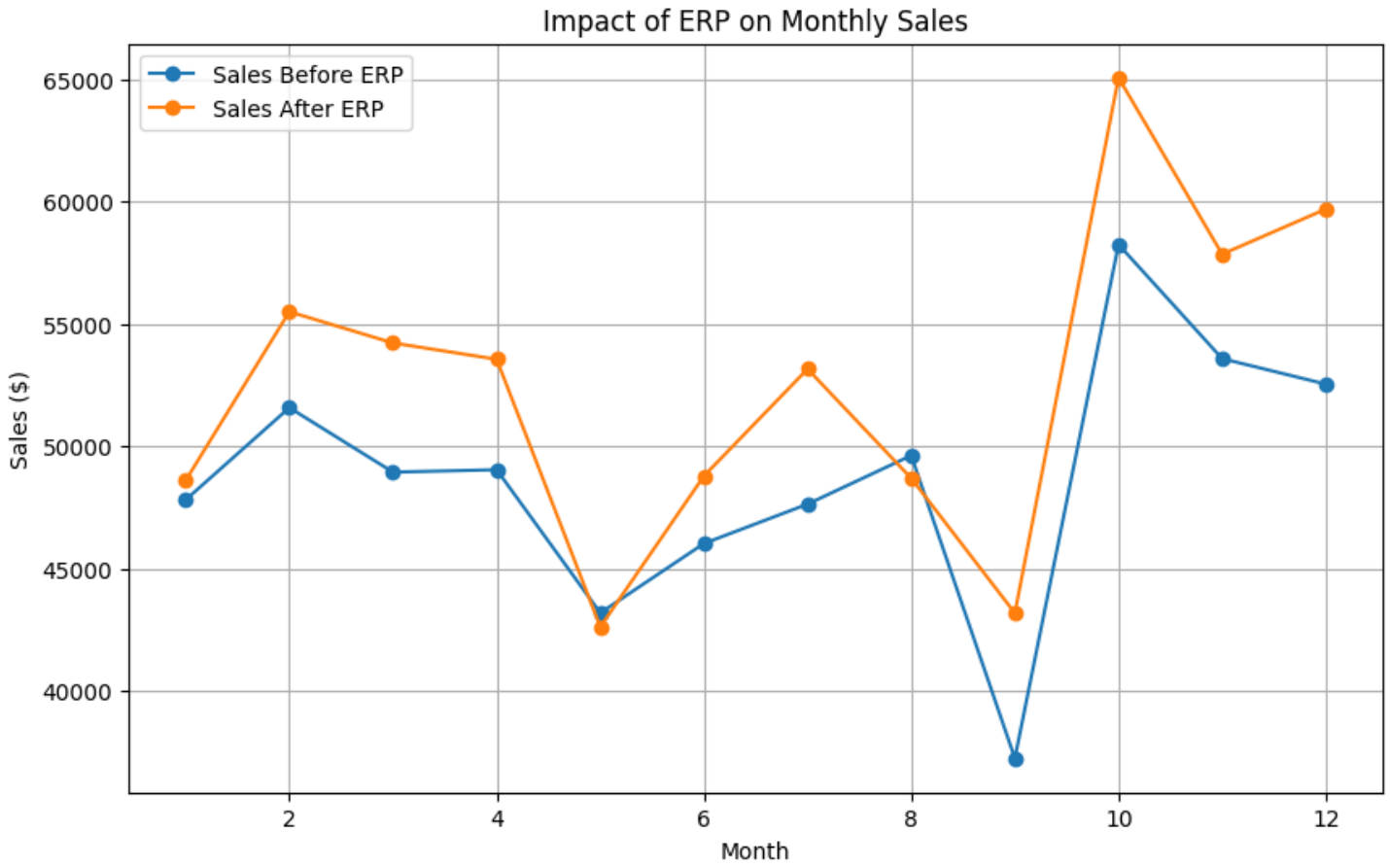
4. Seasonal Patterns: It's not clear from the plot if there are any seasonal patterns, as there is only one year of data. Multiple years would be needed to identify seasonality.

5. Data Spread: The range of sales both before and after ERP implementation shows a wide spread, indicating that there could be high variability in monthly sales figures. This could be due to external factors affecting sales or internal operational issues.



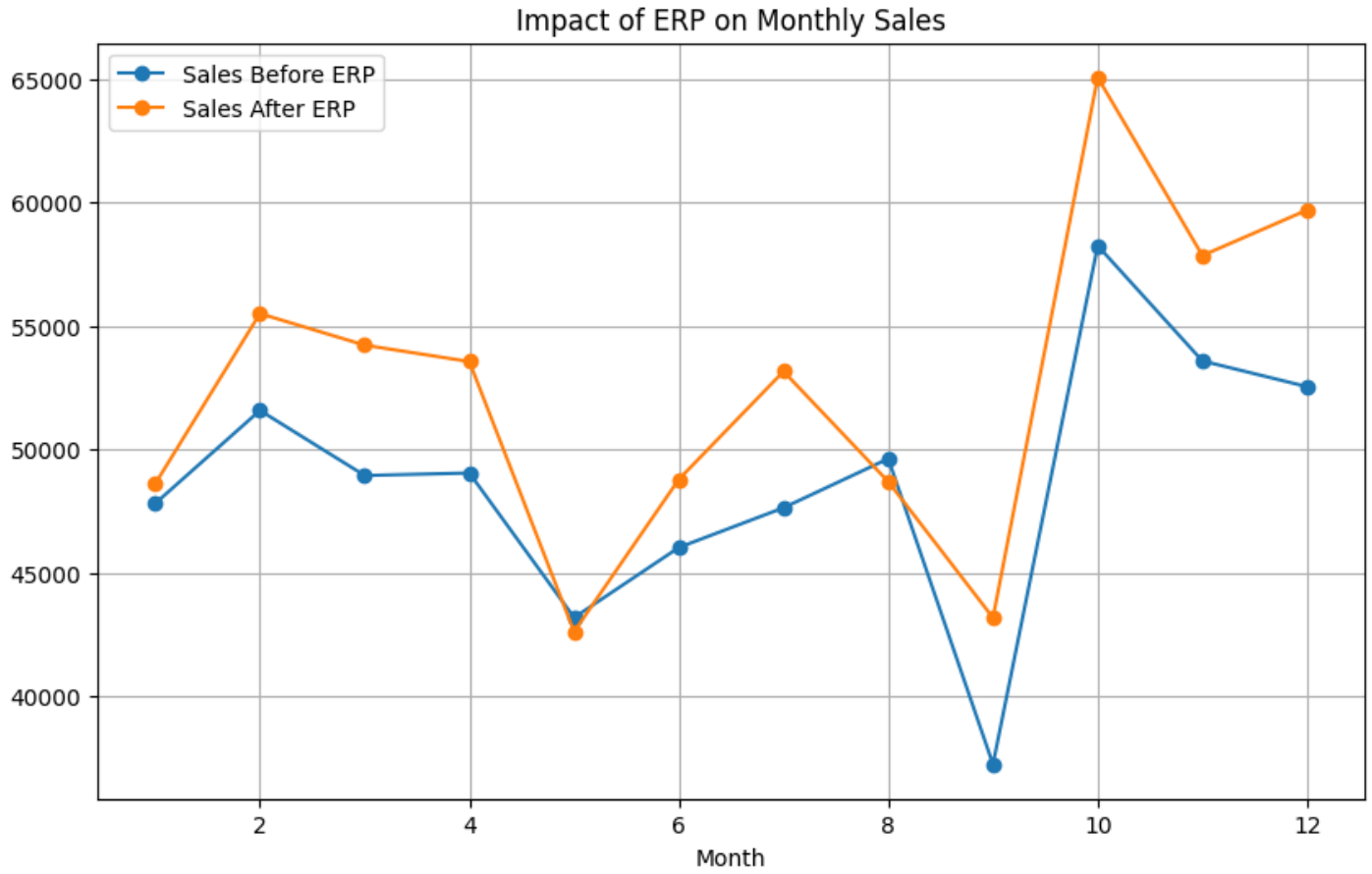
1. Summary of the Lecture 1: Introduction to Enterprise Systems

6. Highest and Lowest Sales: There are noticeable peaks and troughs in the plot. The highest sales after ERP implementation occur in the 11th month, while the lowest sales are seen in the 9th month. This could be due to seasonal effects or specific business activities.



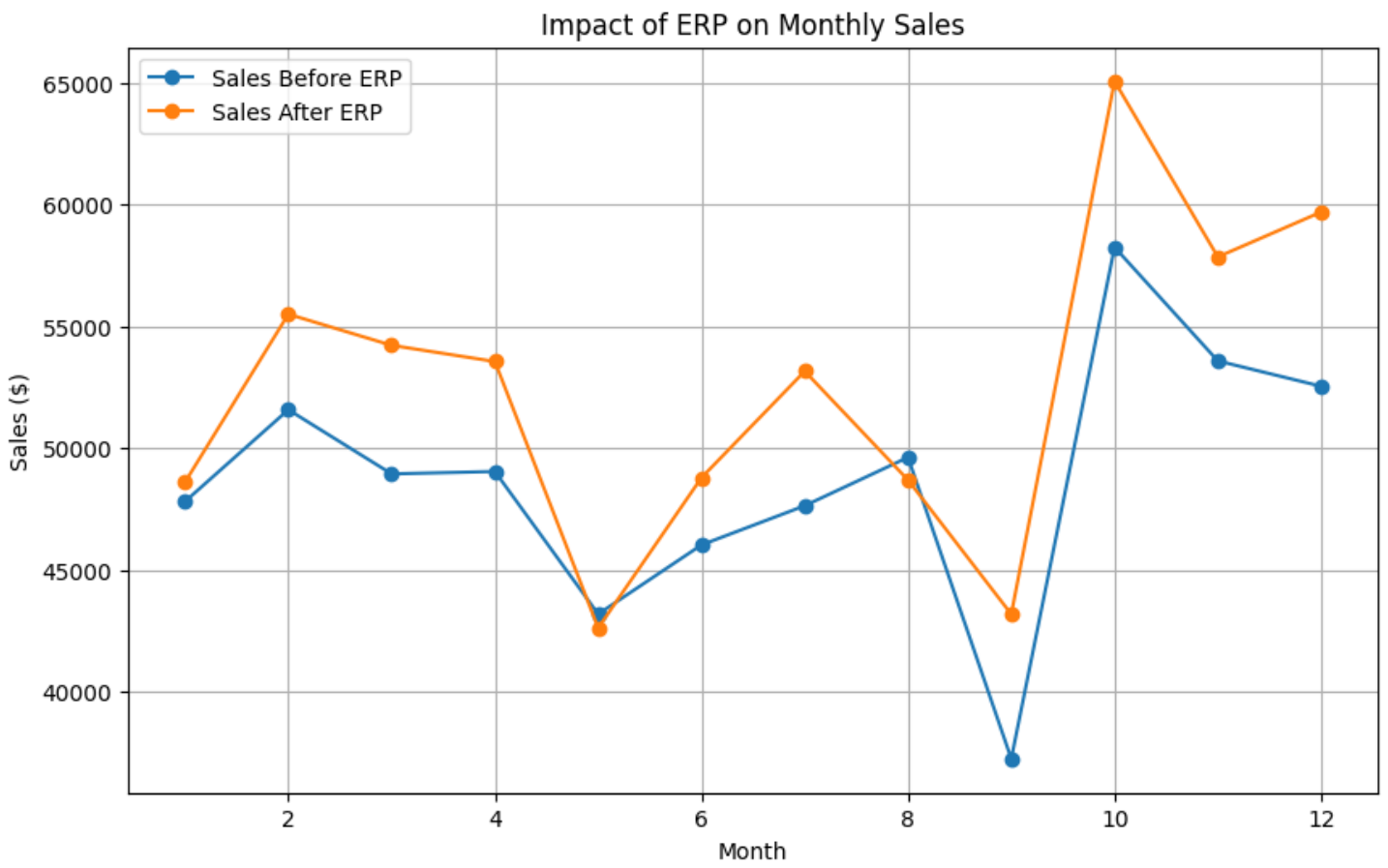
1. Summary of the Lecture 1: Introduction to Enterprise Systems

7. Data Generation: The data is synthetically generated using a normal distribution for both sets, with an imposed average increase of 10% for the post-ERP implementation data. In real-world scenarios, actual sales data would be needed for a substantive analysis.



To provide a more thorough analysis, we would typically:

- Assess the statistical significance of the difference in sales before and after ERP implementation using hypothesis testing.
- Analyze the data for patterns such as seasonality, trends, and outliers.
- Compare the results against industry benchmarks or internal targets to determine the relative success of the ERP implementation.



Given the random nature of the data generation, the analysis here is hypothetical. Real-world sales data would potentially include many more variables and require a deeper analytical approach to yield meaningful insights.

2. Enhancing SAP Software User Experience with Fiori: A Guide to Developing Custom Data Visualizations

SAP Fiori is a user experience design for SAP software. It represents a personalized, responsive, and simple user experience across devices and deployment options. Fiori uses web-based technologies like HTML5 and SAPUI5 to create a modern interface for SAP applications. While SAP Fiori itself is not a reporting tool, it provides a way to access SAP reports that have been created in the backend system.

For example, if the sales data is stored in an SAP system, you could use the analytical apps provided by SAP Fiori to visualize the data. These apps can connect to the backend SAP HANA database, where the data is processed, and then display the results in Fiori's user-friendly interface.

2. Enhancing SAP Software User Experience with Fiori: A Guide to Developing Custom Data Visualizations

However, to create custom visualizations, we would need to:

- Use SAP Analytics Cloud or SAP BusinessObjects for more complex and customizable reporting.
- Develop a custom SAPUI5 application that retrieves data from the SAP backend and uses a charting library to plot it.

SAPUI5 has its own set of controls for data visualization (e.g., VizFrame), which can be used to create charts and graphs.

2. Enhancing SAP Software User Experience with Fiori: A Guide to Developing Custom Data Visualizations

Here's a simplified outline of the steps for creating a similar chart in an SAP system:

1. **Data Preparation:** Ensure that the relevant sales data is available in the SAP system and accessible through an OData service or other API.
2. **SAPUI5 Application Development:**

- Develop a custom SAPUI5 application.
- Utilize SAPUI5 data visualization libraries to create the chart.
- Bind the data source to the chart to display the data.

3. **Deployment:**

- Deploy the application on the SAP Fiori launchpad.
- Ensure that proper authorizations are set so the end-users can access it.

2. Enhancing SAP Software User Experience with Fiori: A Guide to Developing Custom Data Visualizations

To actually produce these results using SAP Fiori, you would need access to the SAP system, relevant permissions, and possibly the help of an SAP developer to create or customize an app for these specific reporting needs. The detailed implementation would be quite technical and would go beyond what we could outline in a general summary.

3. A summary of Lecture 2: System Development Life Cycle and Introduction to SAP

Lecture 2 focuses on understanding the Systems Development Life Cycle (SDLC), the ERP Implementation Life Cycle, and introducing SAP ERP systems. The lecture aims to compare and contrast the SDLC with the ERP Life Cycles (ERPLC), emphasizing the roles of project management office (PMO) and project organization in successful ERP implementations. Key components include:

3. A summary of Lecture 2: System Development Life Cycle and Introduction to SAP

- **SDLC Overview:** A review of traditional methodologies and approaches of SDLC.
- **ERP Implementation Life Cycle:** Understanding ERP implementation through a systematic approach, highlighting traditional and rapid ERP life cycles.
- **Introduction to SAP:** Overview of SAP as a company, its history, ERP solutions, and key business suits.
- **Case Study Review:** Application of theories through the Global Bike company case study, which is a practical application in an ERP environment.

3. A summary of Lecture 2: System Development Life Cycle and Introduction to SAP

Practical Example: SAP Implementation in an Australian Context

Scenario

Consider an Australian manufacturing company, "Aussie Cycles," which specializes in producing high-end bicycles. The company is transitioning from legacy systems to SAP ERP to streamline operations, enhance production efficiency, and improve inventory management.

3. A summary of Lecture 2: System Development Life Cycle and Introduction to SAP

Implementation Steps

1. **Project Preparation:** Define project goals, scope, and establish a project team. Secure executive buy-in from Aussie Cycles' senior management.
2. **Business Blueprint:** Develop a detailed plan of the company's business processes to configure SAP ERP, focusing on critical areas such as Procurement, Sales, Inventory, and Financials.

3. A summary of Lecture 2: System Development Life Cycle and Introduction to SAP

3. **Realization:** Configure the SAP system according to the blueprint, perform necessary customization, and prepare for testing.
4. **Final Preparation:** Conduct user training, system testing, and data migration. Prepare for go-live by ensuring all business and system requirements are met.
5. **Go-Live and Support:** Switch operations from the legacy system to the SAP ERP system. Provide ongoing support and resolve any post-implementation issues.

3. A summary of Lecture 2: System Development Life Cycle and Introduction to SAP

Example: Inventory Management Enhancement

Current Problem:

Aussie Cycles has issues with stock outs and excess inventory due to poor inventory management and forecasting.

SAP Solution:

Implement SAP's Material Management module to automate inventory tracking, improve material requirement planning, and optimize stock levels based on real-time data.

Expected Outcome:

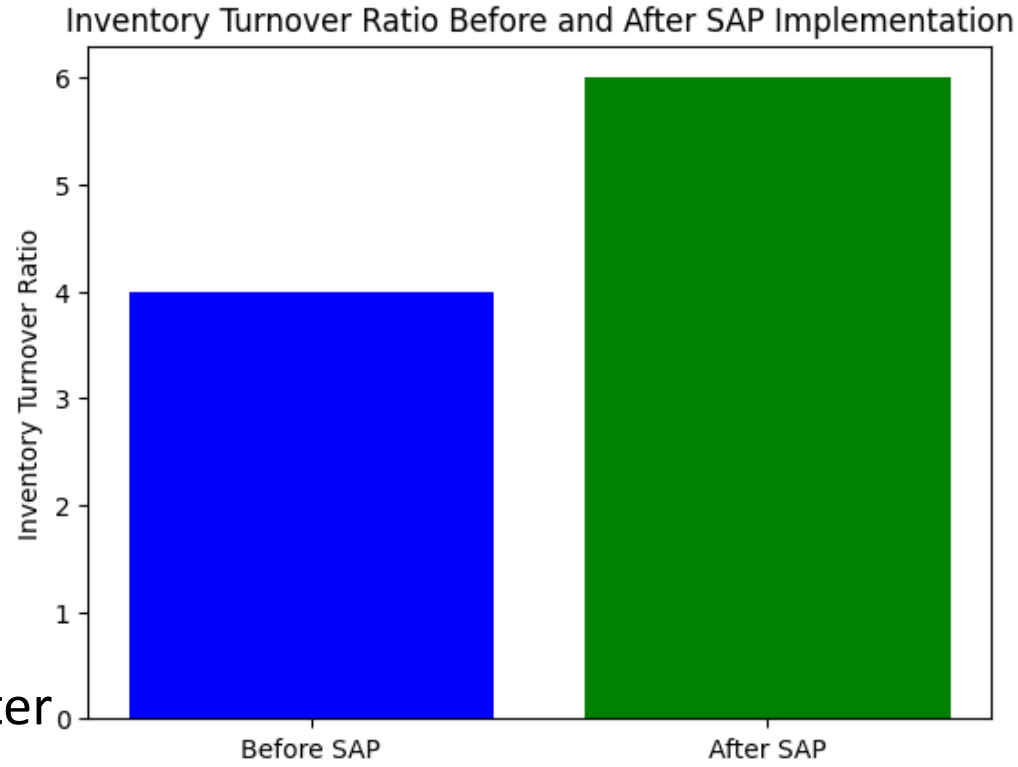
Enhanced production planning, reduced storage costs, and improved customer satisfaction through better product availability.

3. A summary of Lecture 2: System Development Life Cycle and Introduction to SAP

Visualization: Impact of SAP Implementation on Inventory Efficiency

Let's create a simple plot to visualize the expected improvement in inventory turnover ratio before and after SAP implementation. This ratio measures how often a company replaces its inventory in a given period and is a critical metric for assessing the efficiency of inventory management.

The bar chart illustrates the hypothetical impact of SAP implementation on the inventory turnover ratio of a business, where the inventory turnover ratio represents the number of times a company's inventory is sold and replaced over a period.



Before the implementation of SAP, the turnover ratio was 4, indicating that the inventory was turned over 4 times a year. After implementing SAP, the ratio increased to 6, suggesting a more efficient use of inventory, with stock being replenished 6 times a year. This 50% increase in the turnover ratio implies that the company is able to sell and restock its inventory more frequently, which can be indicative of better inventory management and potentially improved sales processes, assuming constant or improved sales levels.

4. Mastering SAP S/4HANA: A Comprehensive Guide to ERP System Integration and Application

For us to effectively understand about SAP S/4HANA and its application within enterprise systems, a structured approach to the content can be extremely beneficial. Here's a comprehensive breakdown of key concepts, integrated with practical examples and relevant visual aids when necessary.

Core Concepts for Understanding SAP S/4HANA

1. Introduction to ERP Systems

- What is an ERP System?
- Purpose and Benefits of ERP Systems
- Overview of SAP S/4HANA as an advanced ERP system.

2. Components of SAP S/4HANA

Week 4 & 5, Week 6 & 7, Week 8 & 9

- **Core Modules:** Financials, Controlling, Sales, Accounting, Procurement, Fulfillment, Human Resources.
- **SAP Fiori:** Introduction to the user interface used in S/4HANA for enhanced user experience.

3. Navigating SAP S/4HANA

- Login and User Interface: How to access and navigate the system.
- Use of Fiori Launchpad: Understanding its layout and customization options.

4. Data Management

- Master Data vs. Transactional Data: Definitions and roles within SAP systems.
- Material Master: Importance in inventory and supply chain management.

5. Business Process Integration

- How SAP integrates and automates various business processes across departments.
- Example workflows like Order to Cash or Procure to Pay.

6. Reporting and Analytics

- Overview of reporting tools available in SAP S/4HANA.
- How to generate and customize reports.

5. Mastering SAP S/4HANA: A Comprehensive Guide to ERP System Integration and Application

Practical Example in Australia

To provide a practical example, consider an Australian manufacturing company using SAP S/4HANA to integrate and streamline their operations:

- **Company Profile:** A Melbourne-based company producing and distributing electronics.
- **Business Need:** Integration of processes across multiple departments from manufacturing to sales.
- **SAP Implementation:** Utilization of SAP modules to manage production schedules, inventory, procurement, sales orders, and customer relationships.

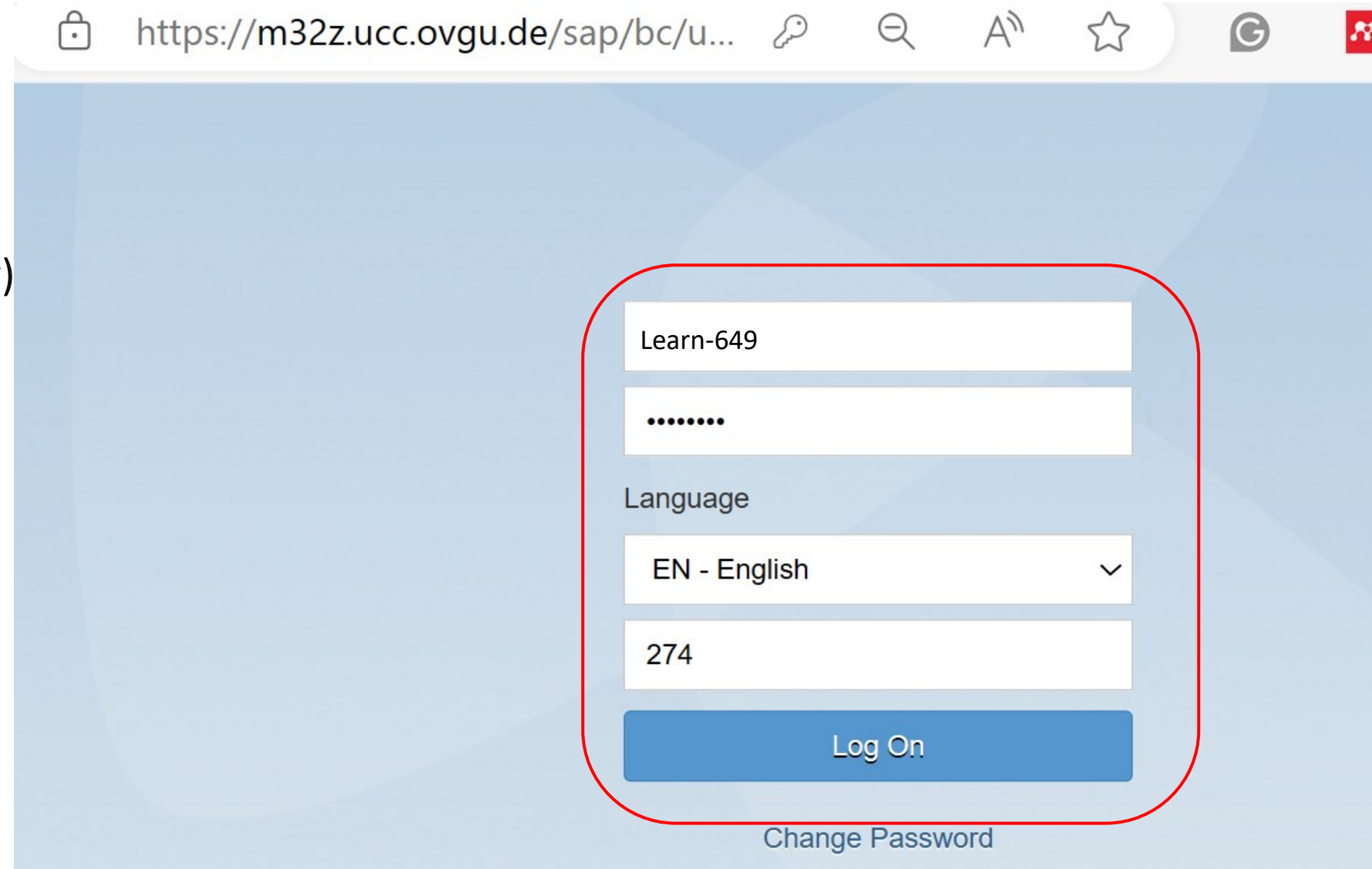
6. Tutorial Week 2 & 3

A) SAP Log in: https://m32z.ucc.ovgu.de/sap/bc/ui2/flp

Username) Learn-XXX

Learn-601 to Learn-650 (Sydney)

Initial Password) learnGBI



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HS2041 – Enterprise Systems

Introduction to SAP ERP S/4HANA

Overview

- SAP is a German Company (formed in 1972), that is currently one of the world's leading producers of software for the management of business processes (Enterprise Resource Planning Systems etc)
- SAP stands for **S**ystem **A**pplications and **P**roducts in data processing.
- S/4HANA refers to the **4th Generation** of SAP Business Suite based on the in-memory database (**H**igh performance **AN**alytic **A**ppliance) that allows companies to perform transactions and analyse business data in real time.
- **Fiori** is a design language and user experience approach that supports the creation of business apps with a consumer-grade user experience, turning casual users into SAP experts with simple screens that run on any device.

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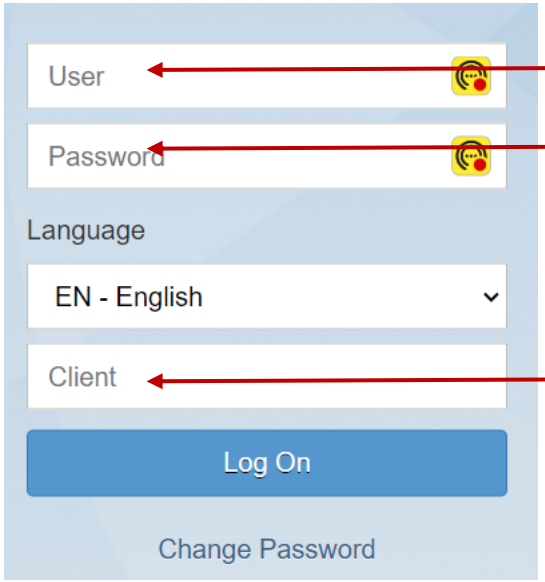
Logging in to S/4HANA

Logging in to the SAP S/4HANA System

- To access the SAP system, use the Web-GUI link below:
  - https://m32z.ucc.ovgu.de/sap/bc/ui2/flp
- The SAP Login Screen appears, follow the advice to sign in:



Your username is Learn-XXX (XXX is the number provided by your Lecturer/Tutor.

The initial password is learnGBI (case sensitive).

The Client number for Holmes Institute is 274

- The password needs to be changed after the initial sign-in and will be used for all future log-ins.

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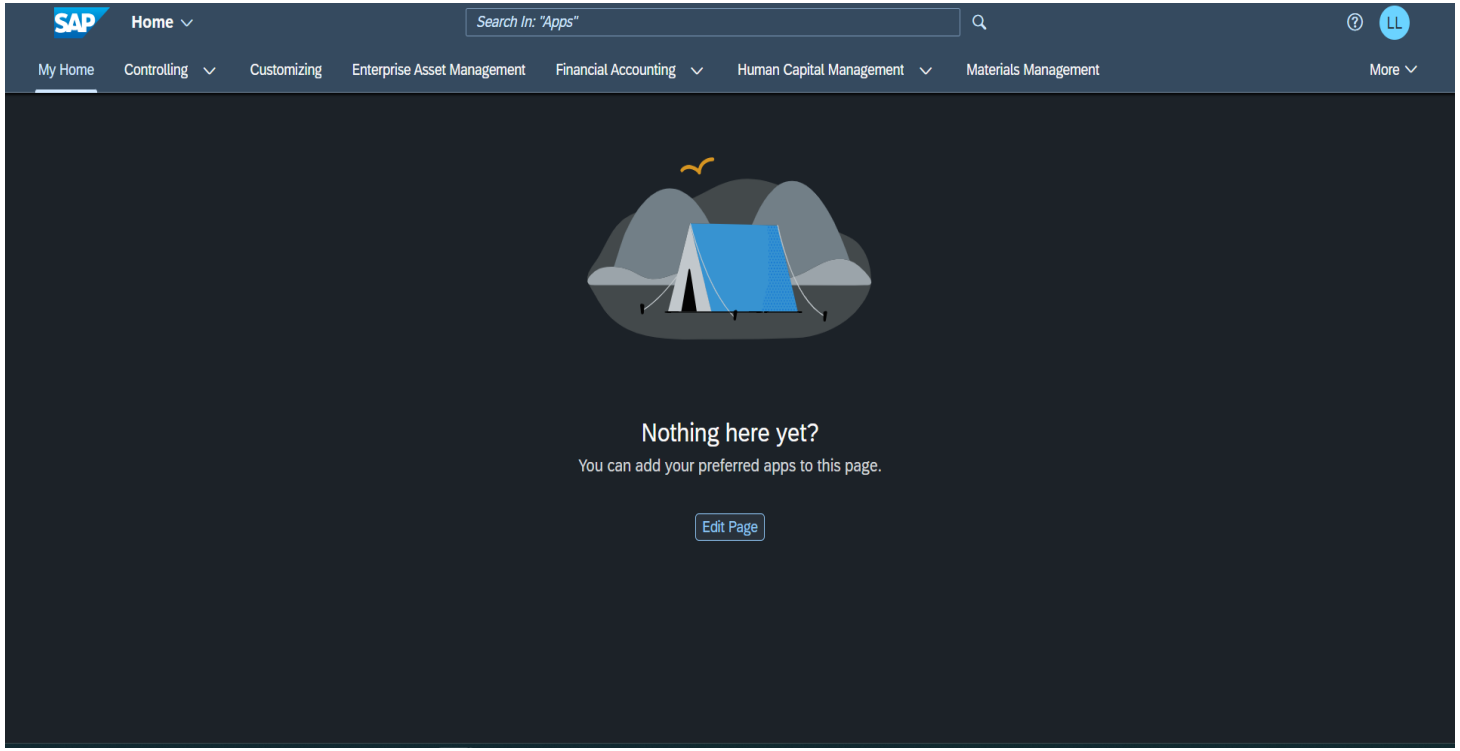
Understanding the GUI Interface for S/4HANA

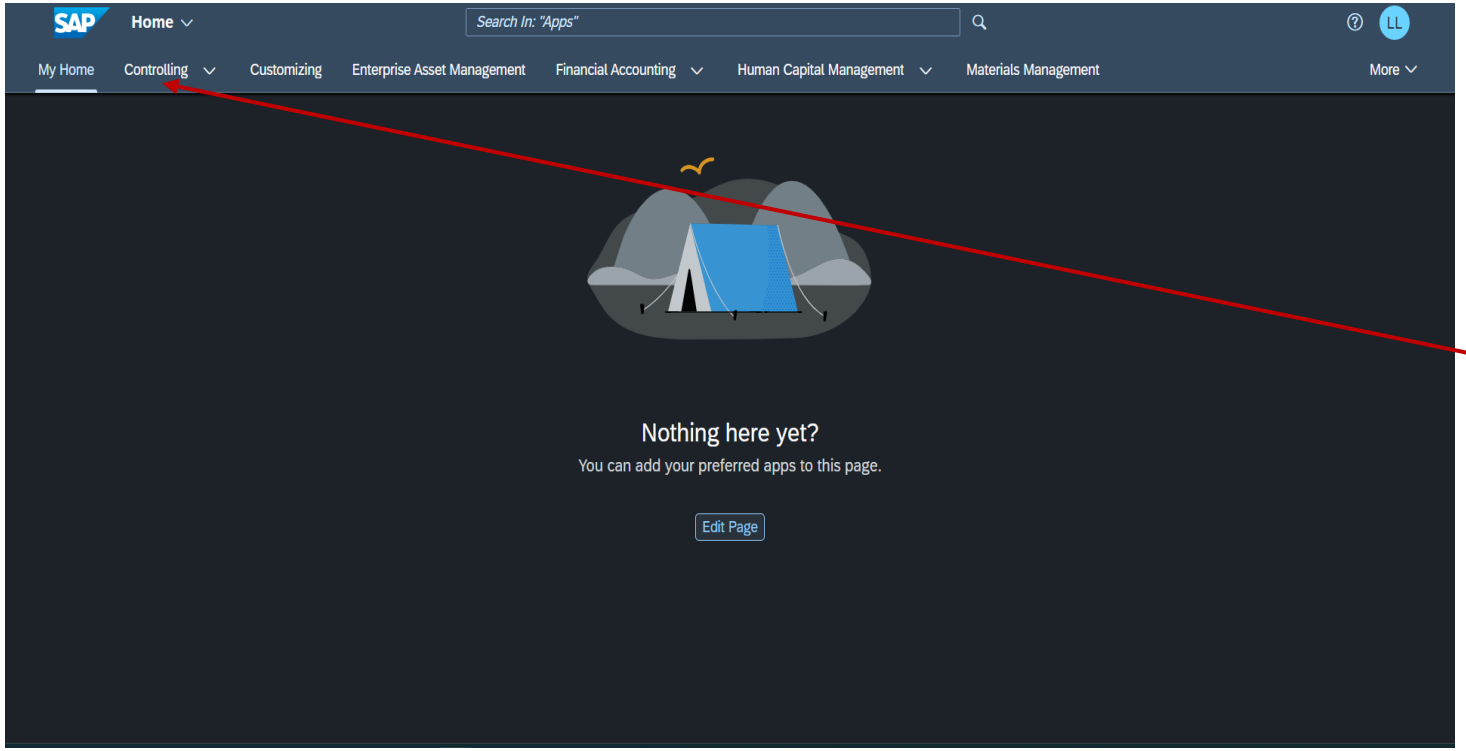
SAP S/4HANA Fiori Launch Pad

- The first screen that appears is the SAP Fiori launch home pad and is the main entry point for the SAP Fiori apps on mobile and desktop devices.



Exploring the Controlling Space

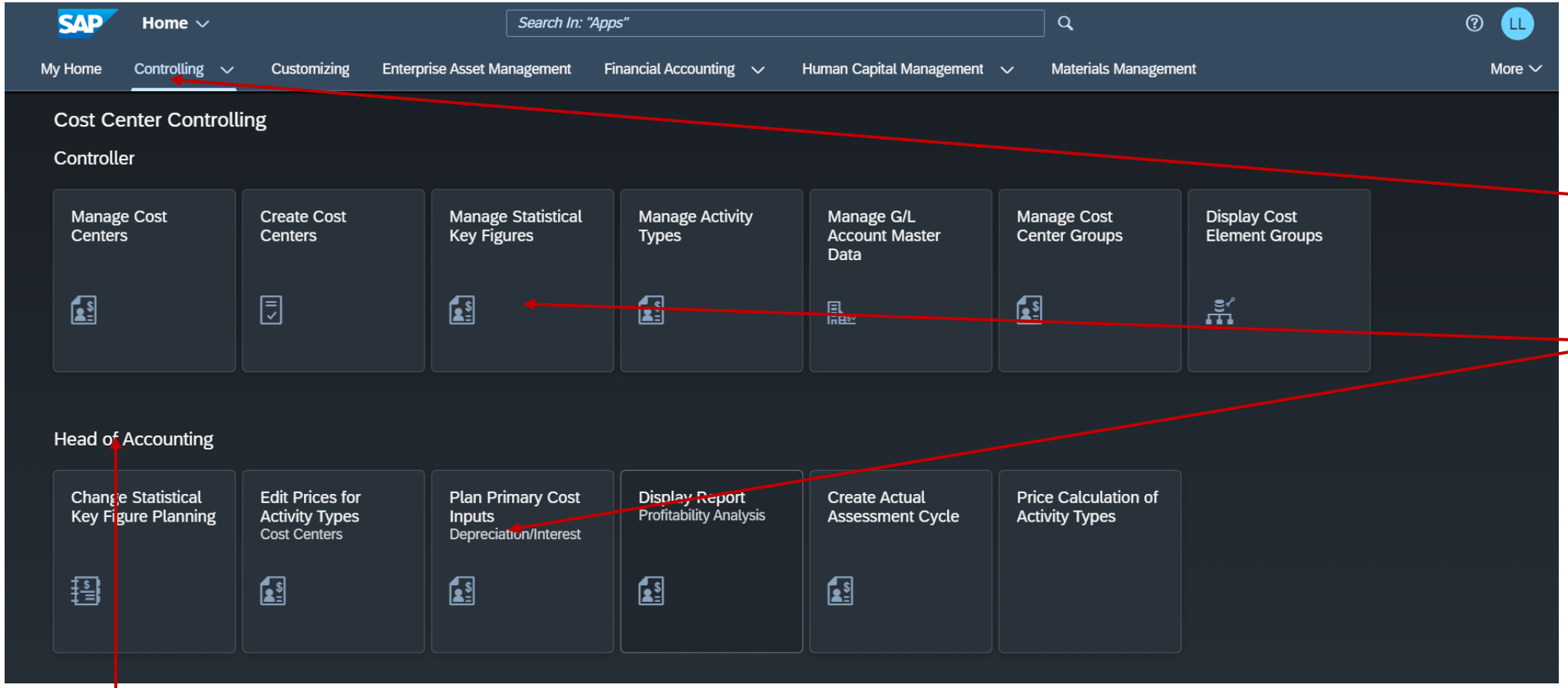
- For the Introduction workshop (Week 2 & 3), we will be using the Controlling space from the Selection bar.



Click on **Controlling** in the Space Selection Bar

Understanding the Fiori GUI

- The Fiori GUI includes several elements as referred below:



Space Selection Bar

Tiles

Role

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Global Bikes Inc. (Case Study Scenario)

Case Study Scenario

- Global Bikes Inc (GBI) is a fictitious company whose data is provided in the SAP System for analytical purposes.
- The company (GBI) was founded in 2001 following the merger of two bicycle manufacturers, one based in the US and the other in Germany.
- GBI has three lines of business:
  - deluxe and professional touring bikes,
  - men's and women's off-road bikes,
  - and bike accessories.
- GBI sells its bikes to a network of specialised dealers throughout the world, and it procures its raw materials from a variety of suppliers globally.

Case Study Scenario (Contd)

- GBI has two manufacturing facilities in the US and one in Germany.
- It also has three additional warehouses, two in the US and one in Germany.
- GBI has more than 100 employees globally.
- The organisation uses SAP ERP to support its processes.
- The company has a new bicycle for sale- Mongoose Mountain Bike. The SAP systems contain all the necessary data to support GBI's business processes.

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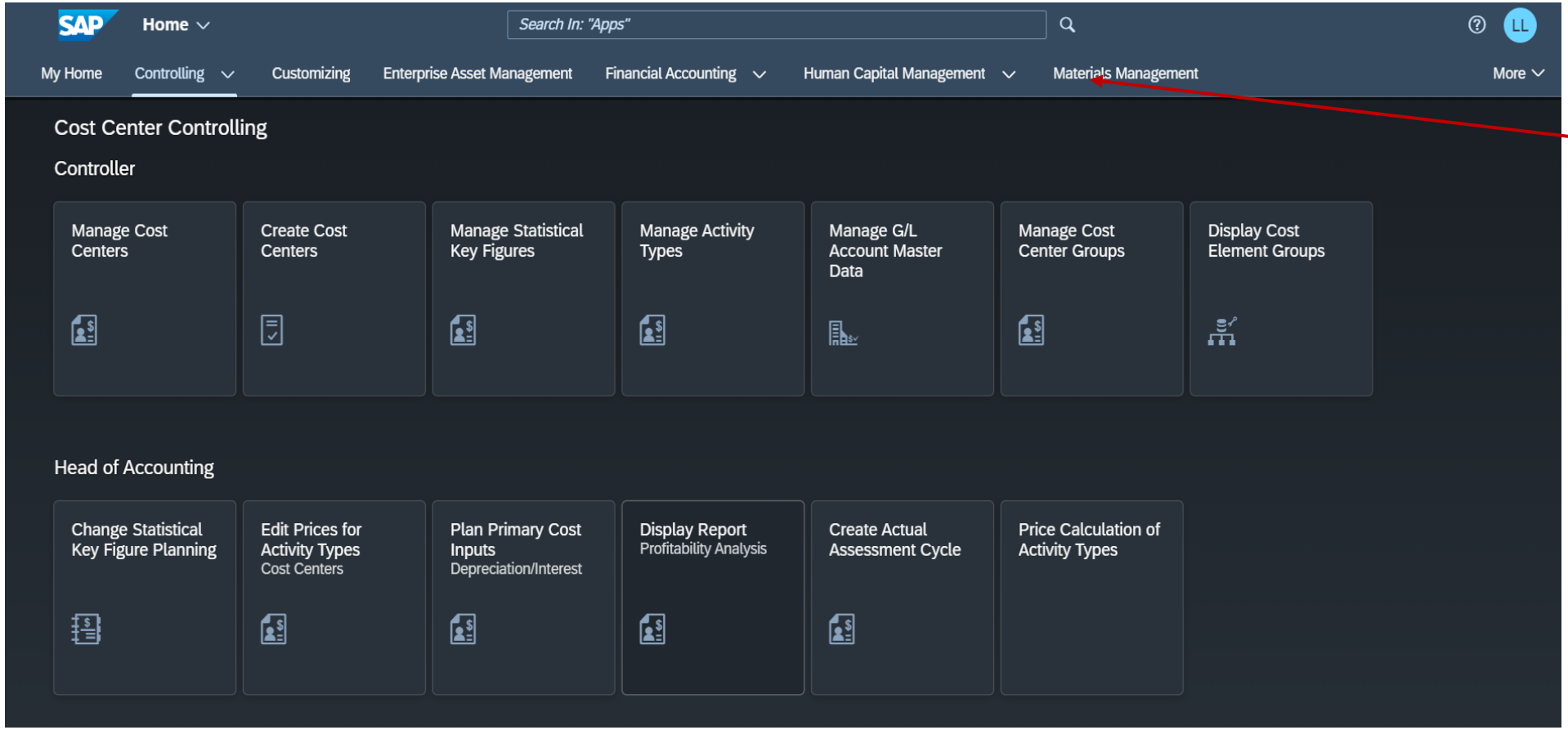
Understanding Data Navigation in SAP S/4HANA

Master Data Navigation

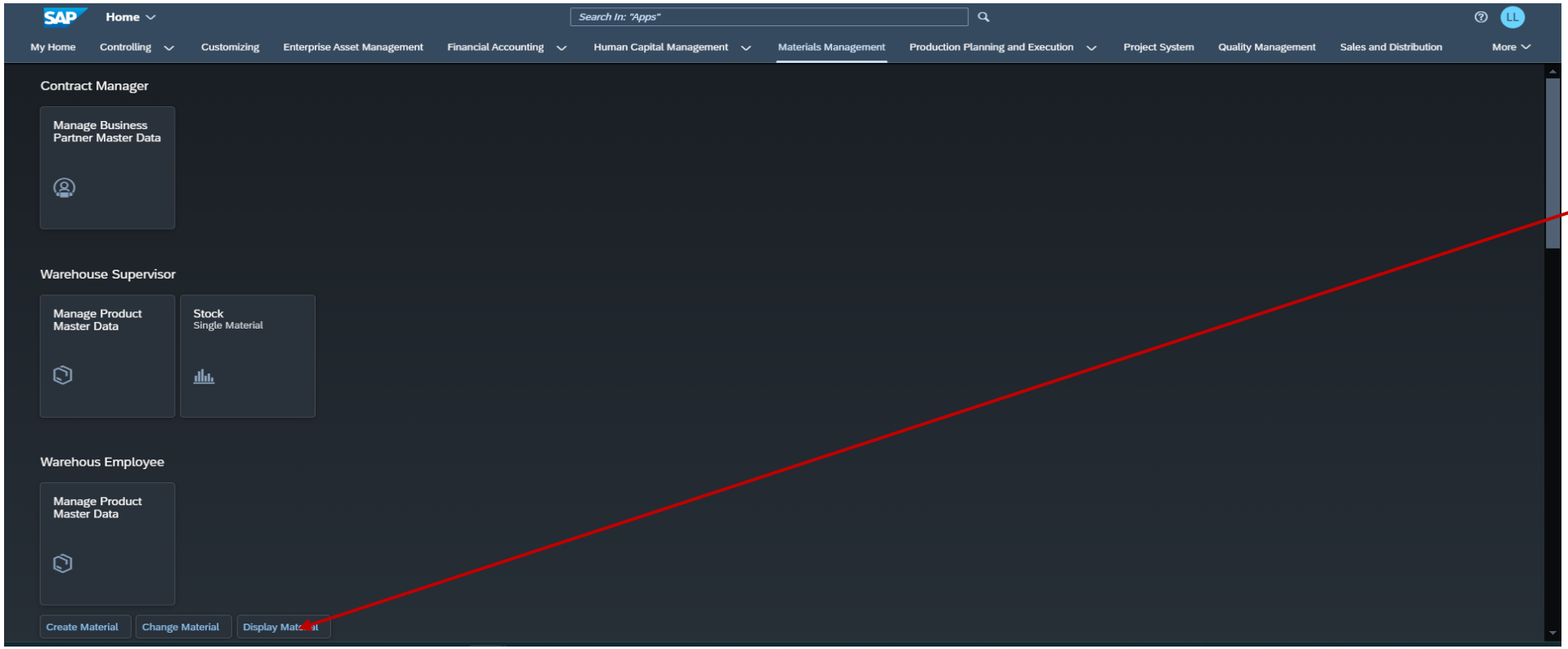
- This exercise is focused on navigating the Master Data for a particular product.



Click on Materials Management Space to view the apps and roles

Master Data Navigation (Contd)

- The task is to view the particulars of a specific product “Deluxe Touring Bike”. The roles in the space indicate that the “Warehouse Employee” role is suitable to “Display Materials”



Click on Display Material In the role of Warehouse Employee to start the transaction.

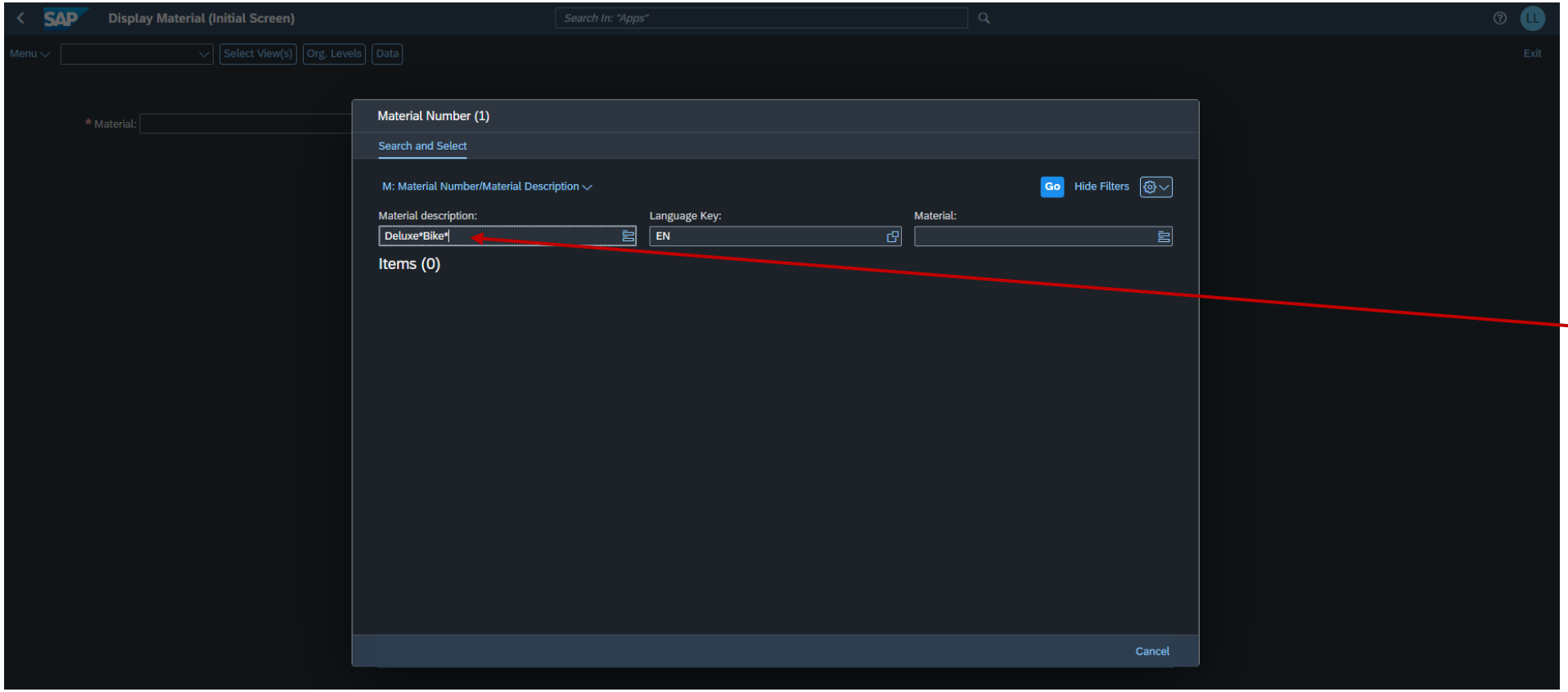
Master Data Navigation (Contd)

- Searching for a particular item can be initiated by using wildcards as illustrated in the tutorial handout.
- To commence the search, the search dialog box must be displayed.

Click on Icon to display the search dialog box.

Master Data Navigation (Contd)

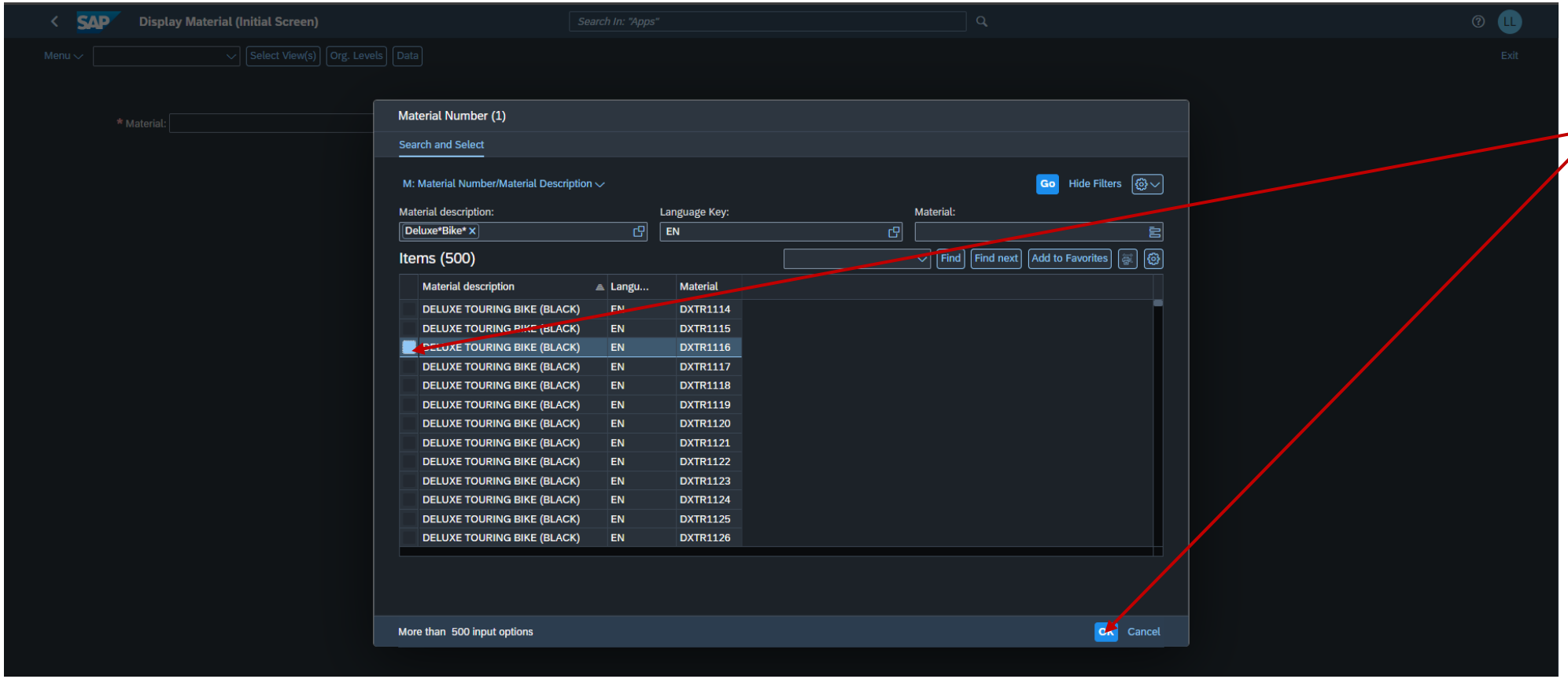
- We will use the materials description to search for the Deluxe Touring Bike particulars.



Type Deluxe*Bike* in the Material Description and press the Enter key

Master Data Navigation (Contd)

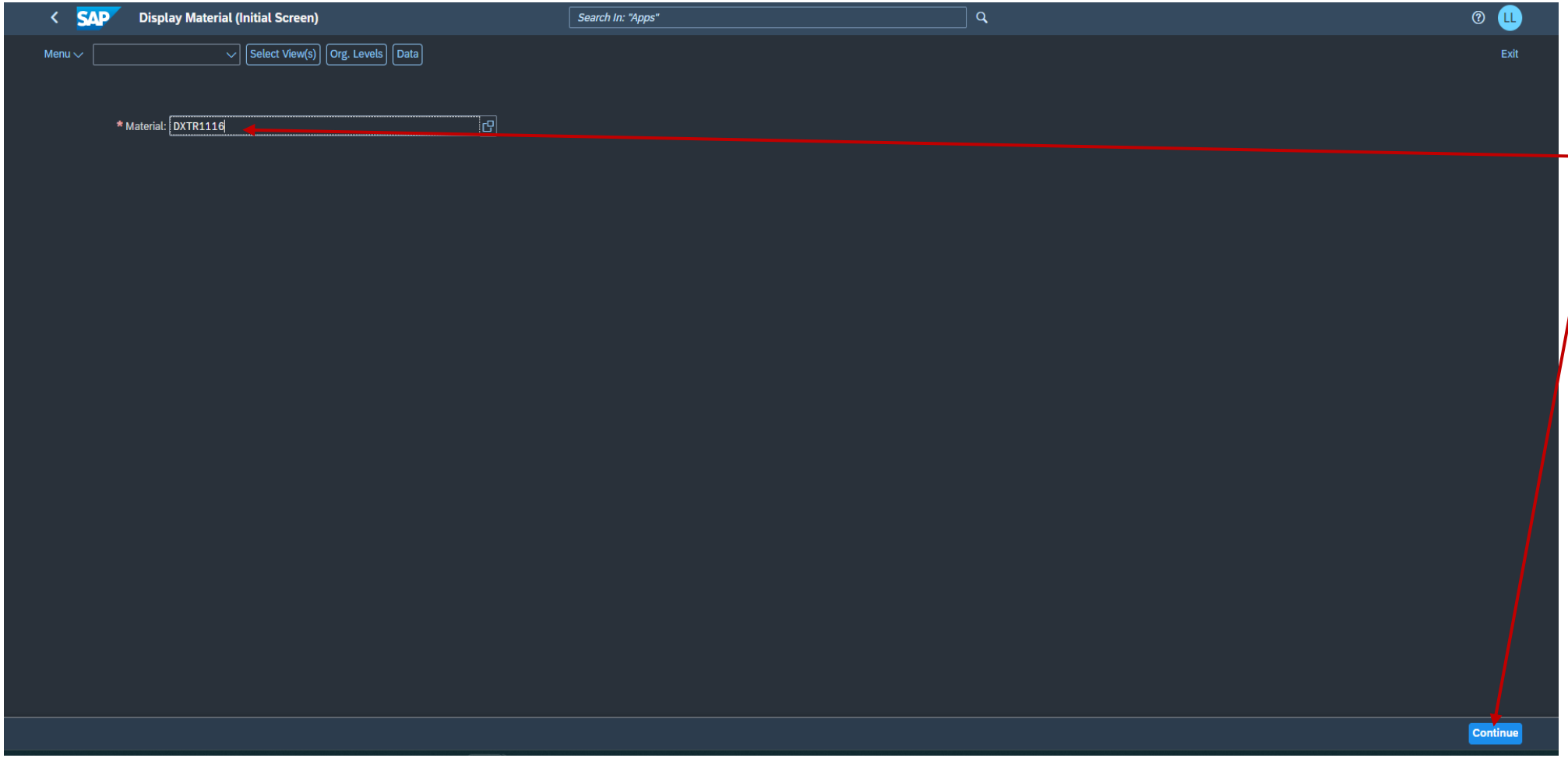
- To view the product details, click on any matching item from the list.



Select any matching item from the list and press ok

Master Data Navigation (Contd)

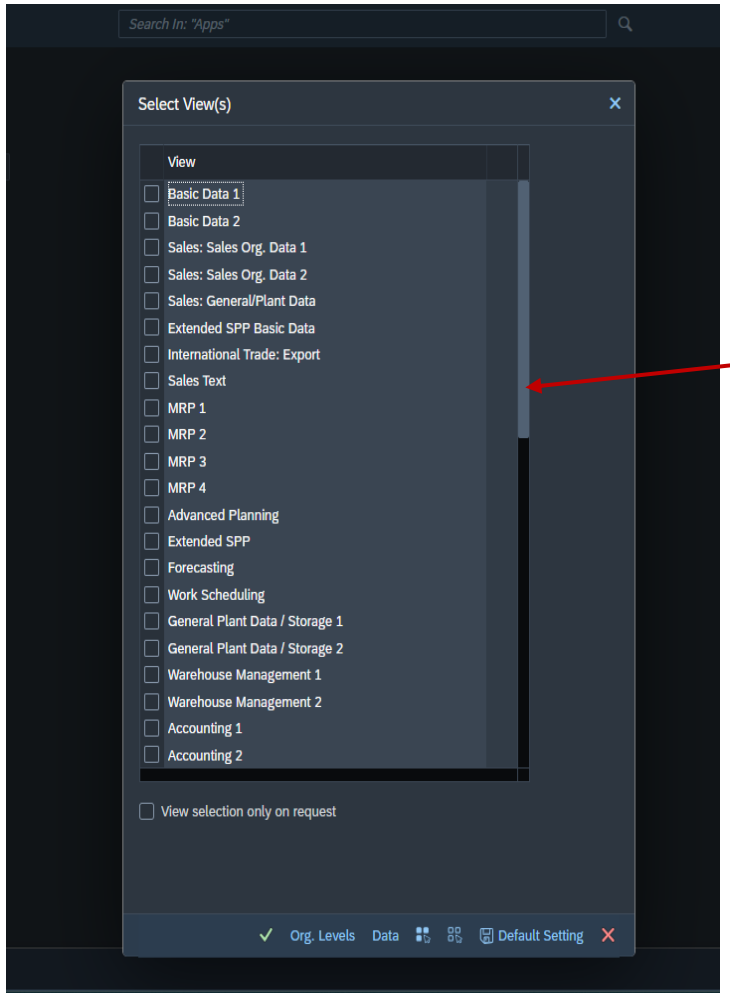
- The selection is displayed as Item code, press continue.

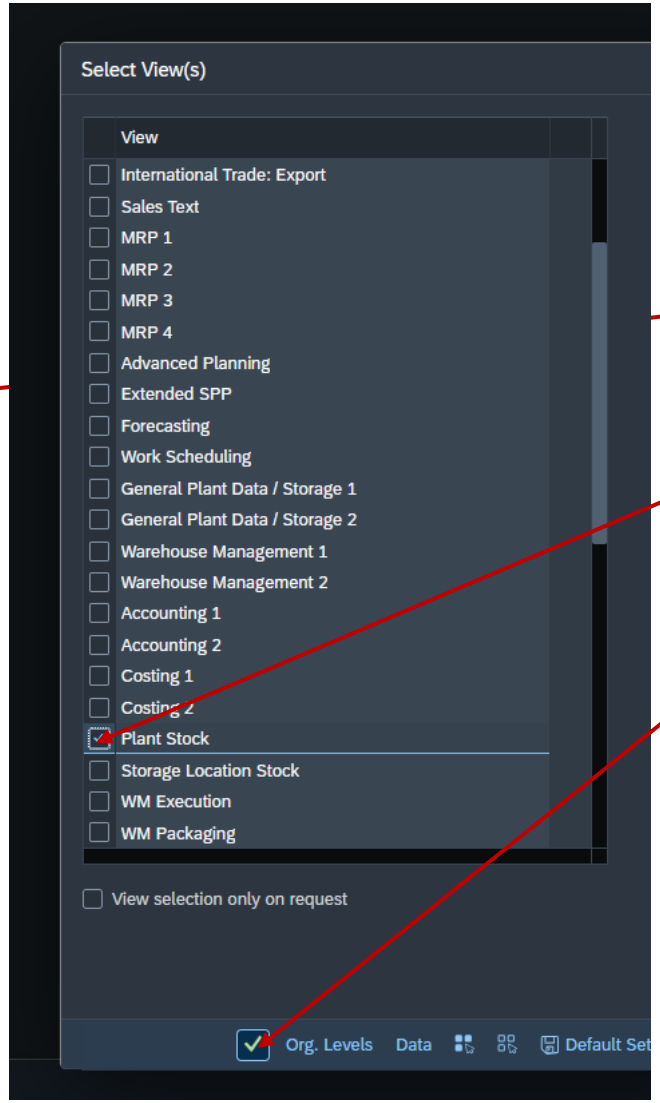


Product Item code is displayed, press continue.

Master Data Navigation (Contd)

- The next screen requires the selection of the data source.

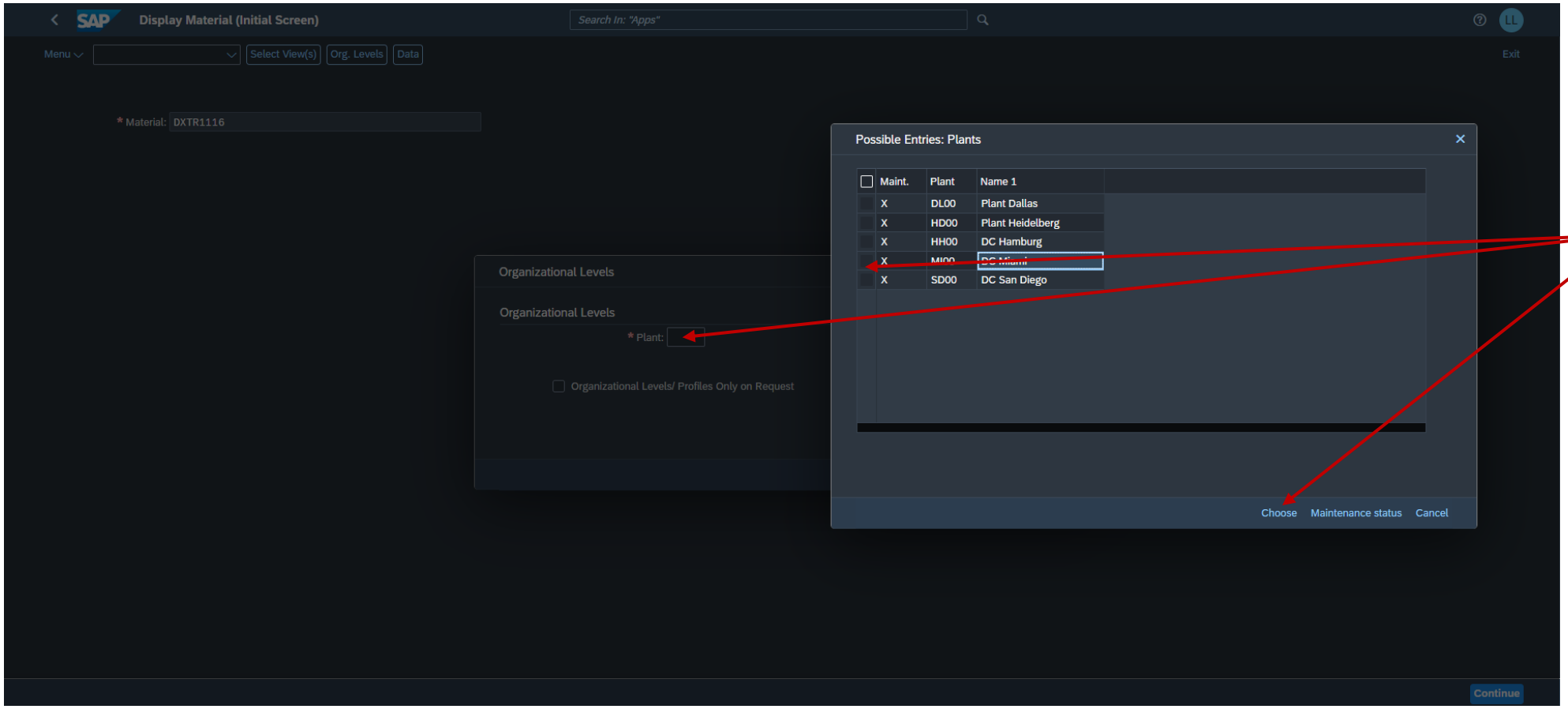




Use the scroll bar to view more options, and select Plant Stock and click on ✓

Master Data Navigation (Contd)

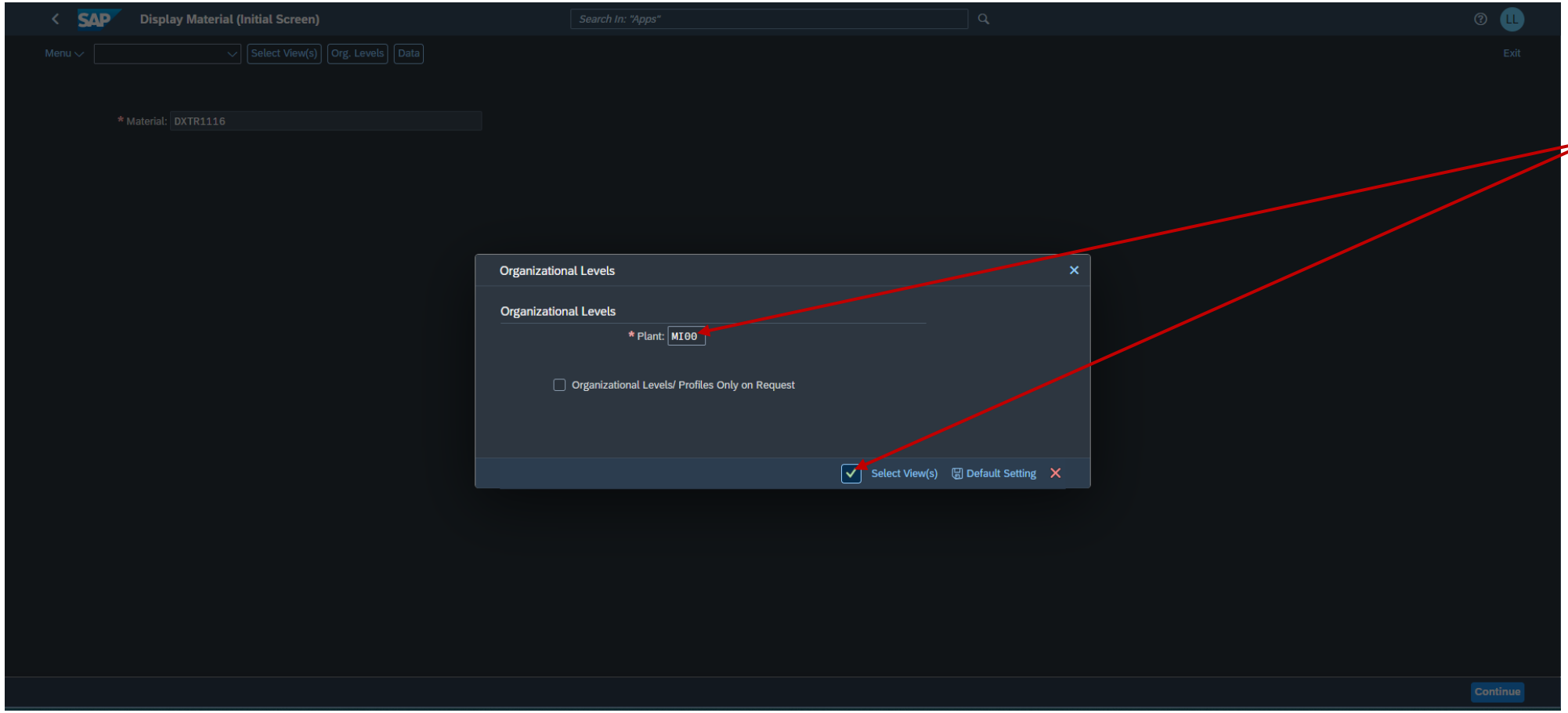
- Next screen requires the selection of the plant location.



Use the Plant selection to view the options and then select DC Miami from the options and click choose.

Master Data Navigation (Contd)

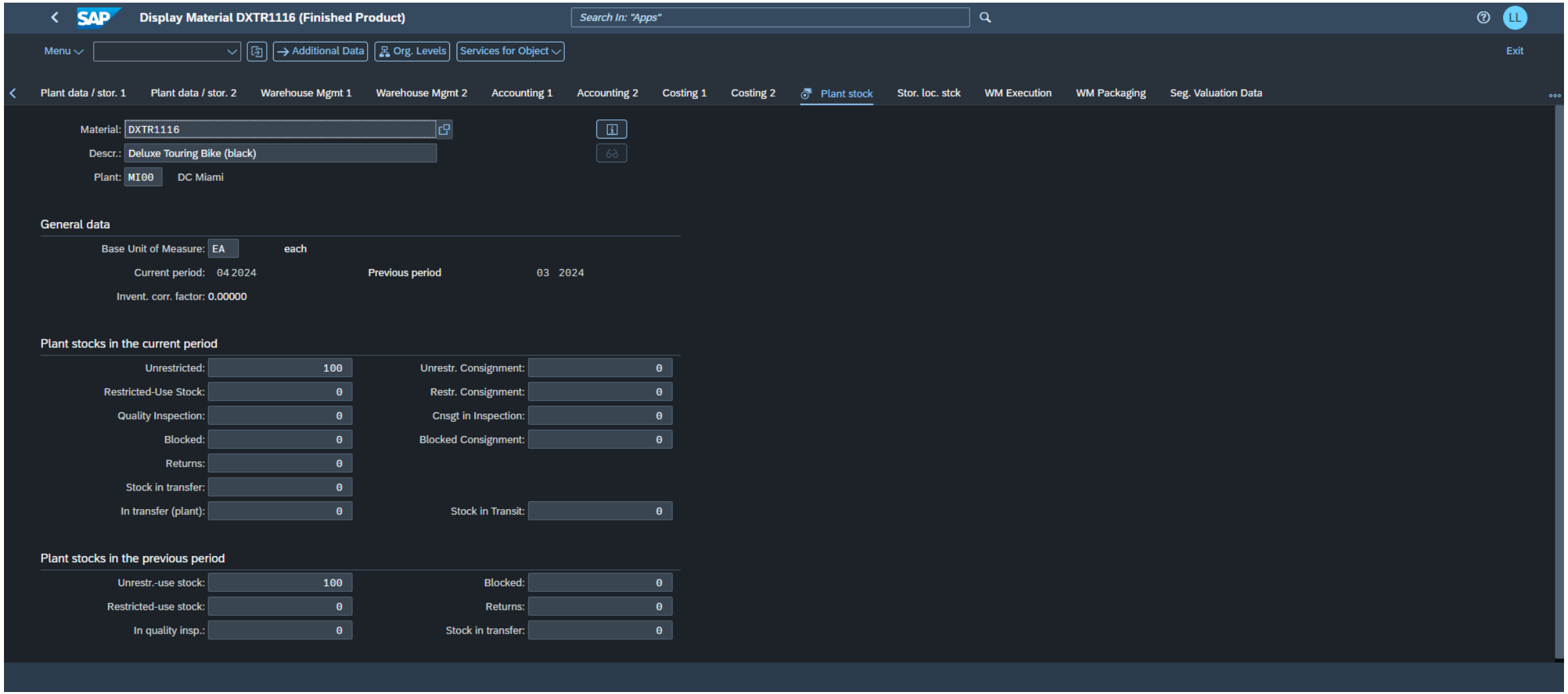
- Location code is displayed, select to view the materials detail.



Location code is displayed. Click ✓ to proceed.

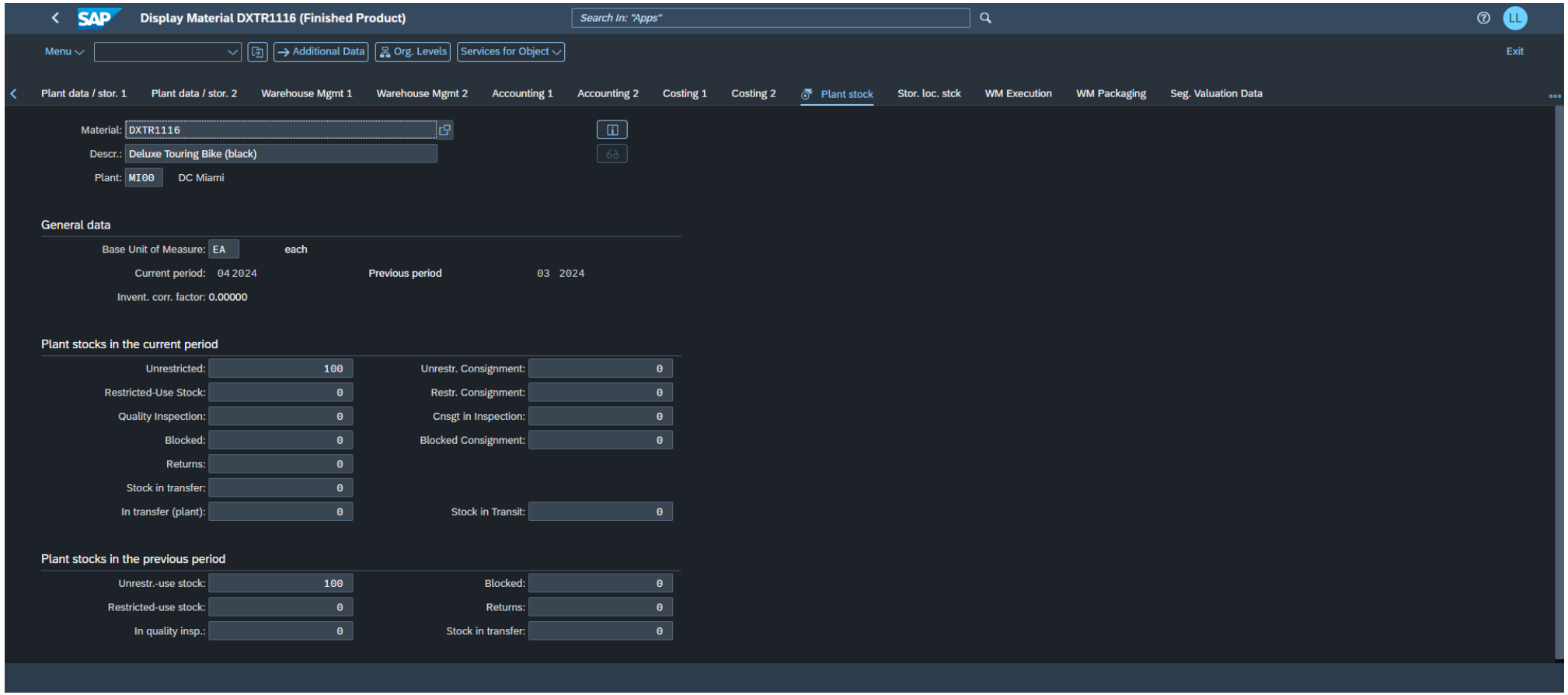
Master Data Navigation (Contd)

- Plant stock information is displayed.



Master Data Navigation (Contd)

- We are interested to find the Price & Weight of the Deluxe Touring Bike

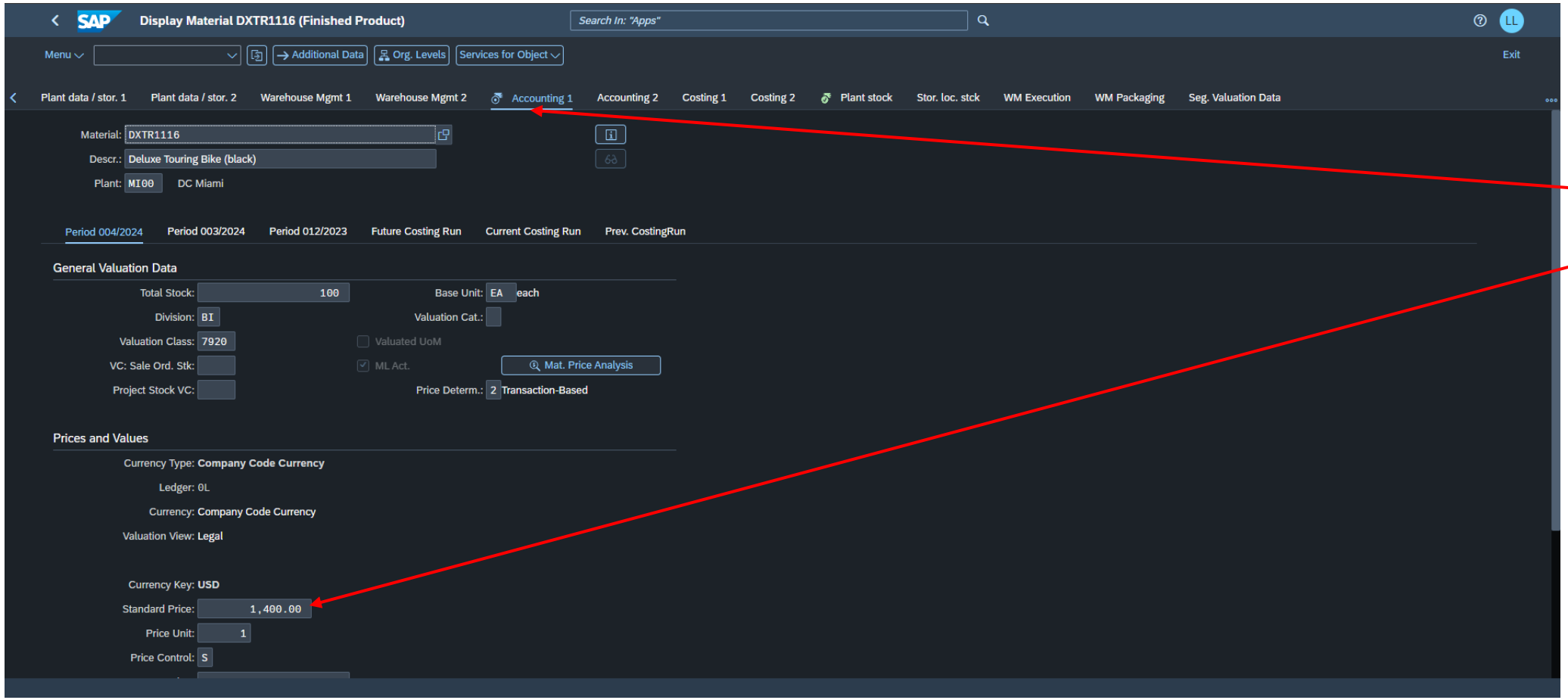


Hints:
The Price is stored in the Accounting 1 space.

The Weight is stored in the Basic Data 1 space.

Master Data Navigation (Contd)

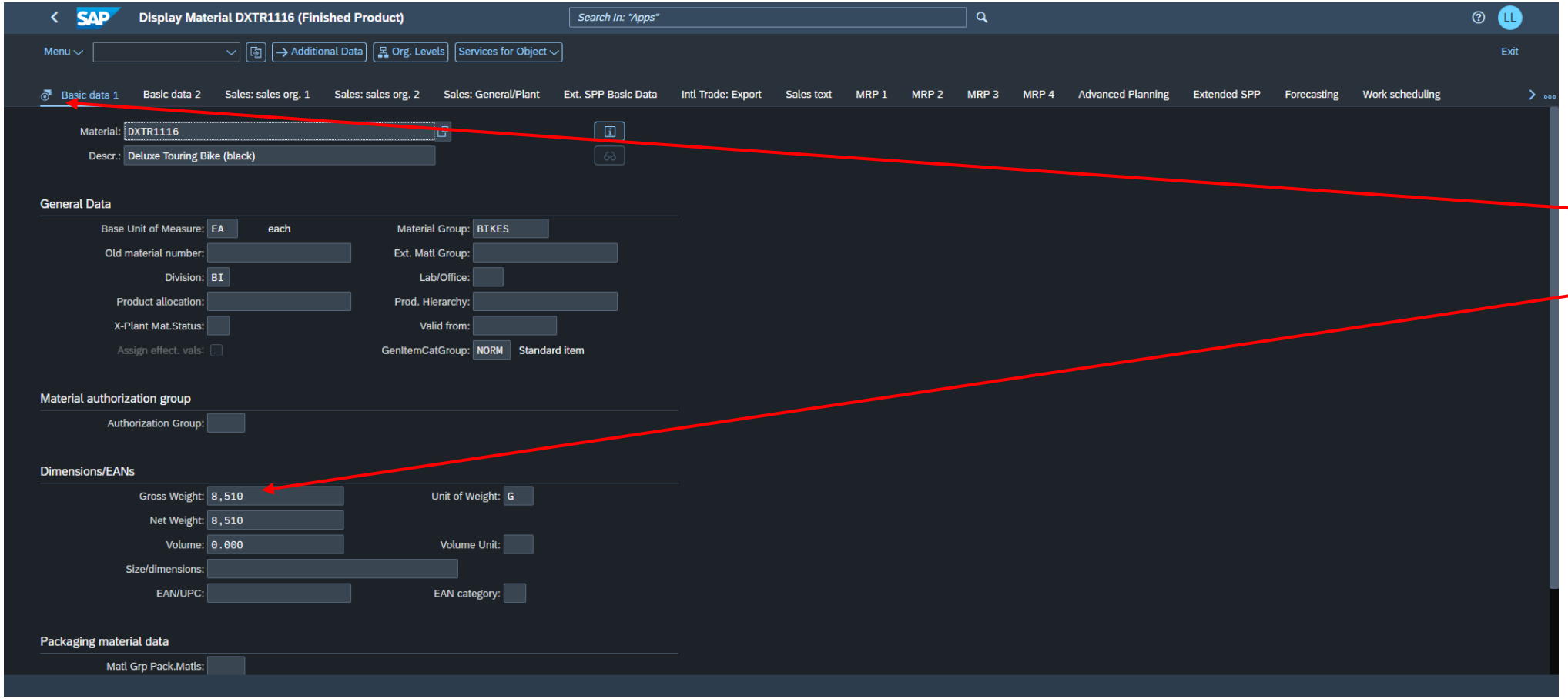
- Accounting 1 Space, for Price data



Accounting 1 space and Price Data

Master Data Navigation (Contd)

- Basic Data 1 Space, for Weight data



Basic Data 1 space and Weight data

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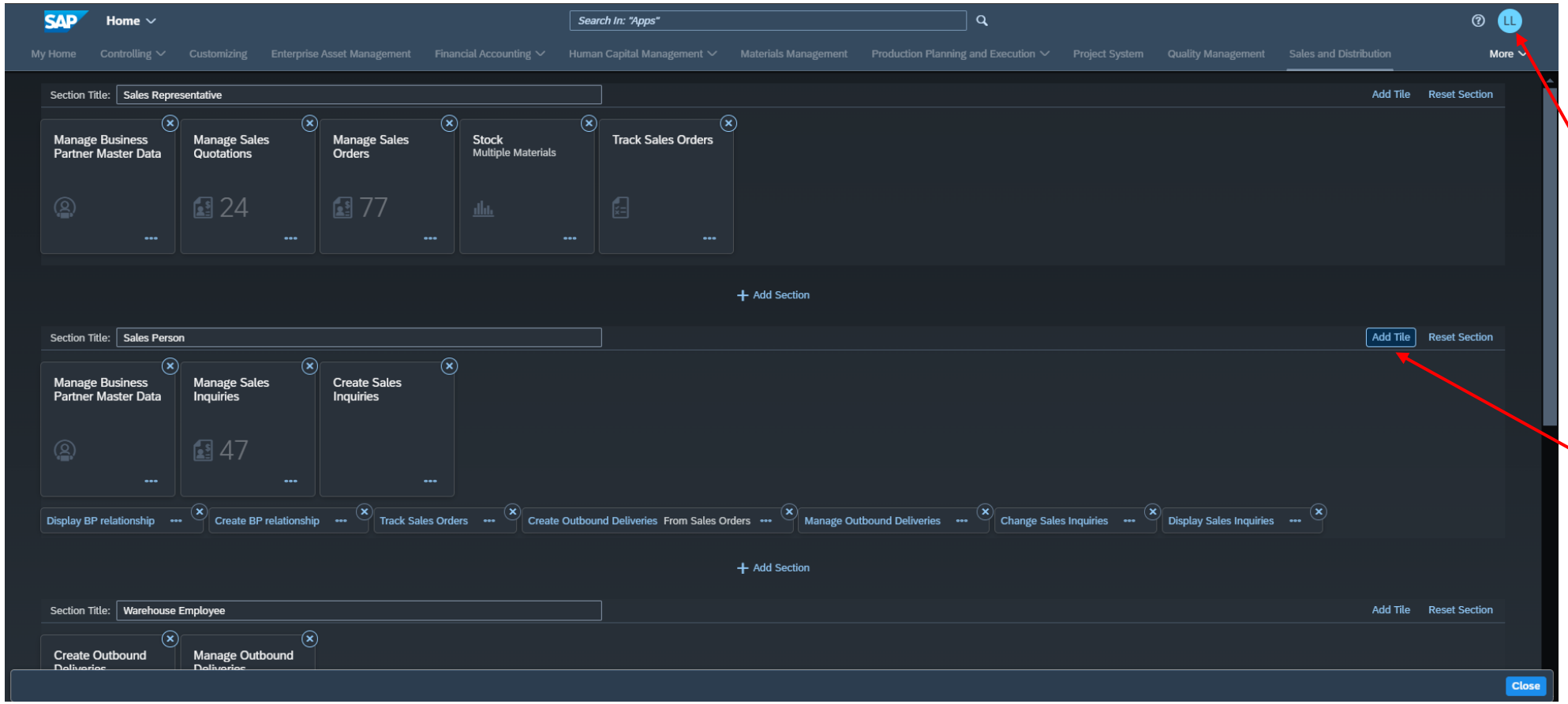
Understanding Reports in SAP S/4HANA

SAP S/4HANA Reports

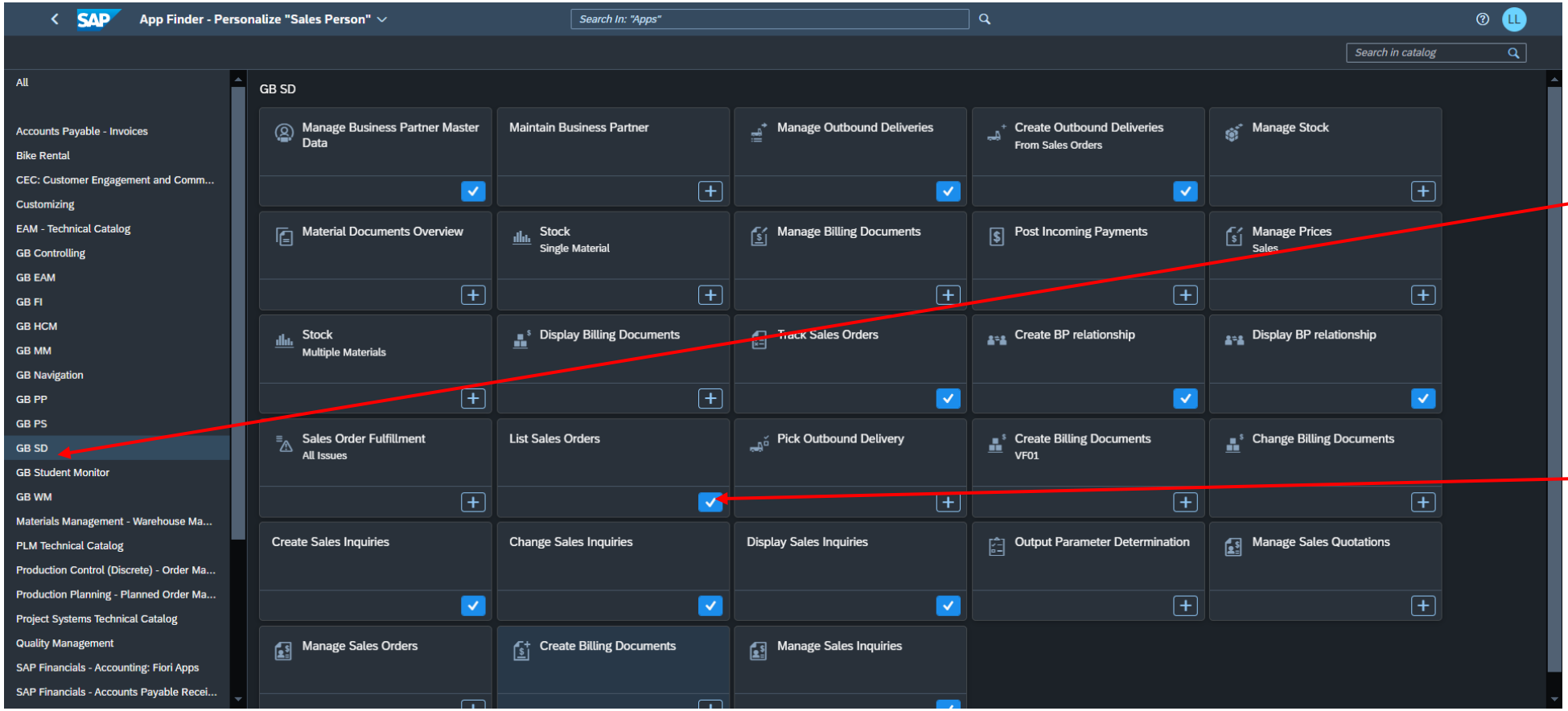
- The List Sales Order app is not included by default. Add it to the Salesperson Role in the Sales & Distribution Space.



To add the List Sales Order app Click LL the profile and select Edit Current Page.
In the Sales Person role, click on add Tile.

SAP S/4HANA Reports

- Add the List Sales Order App to the SAP Sales and Distribution Space.

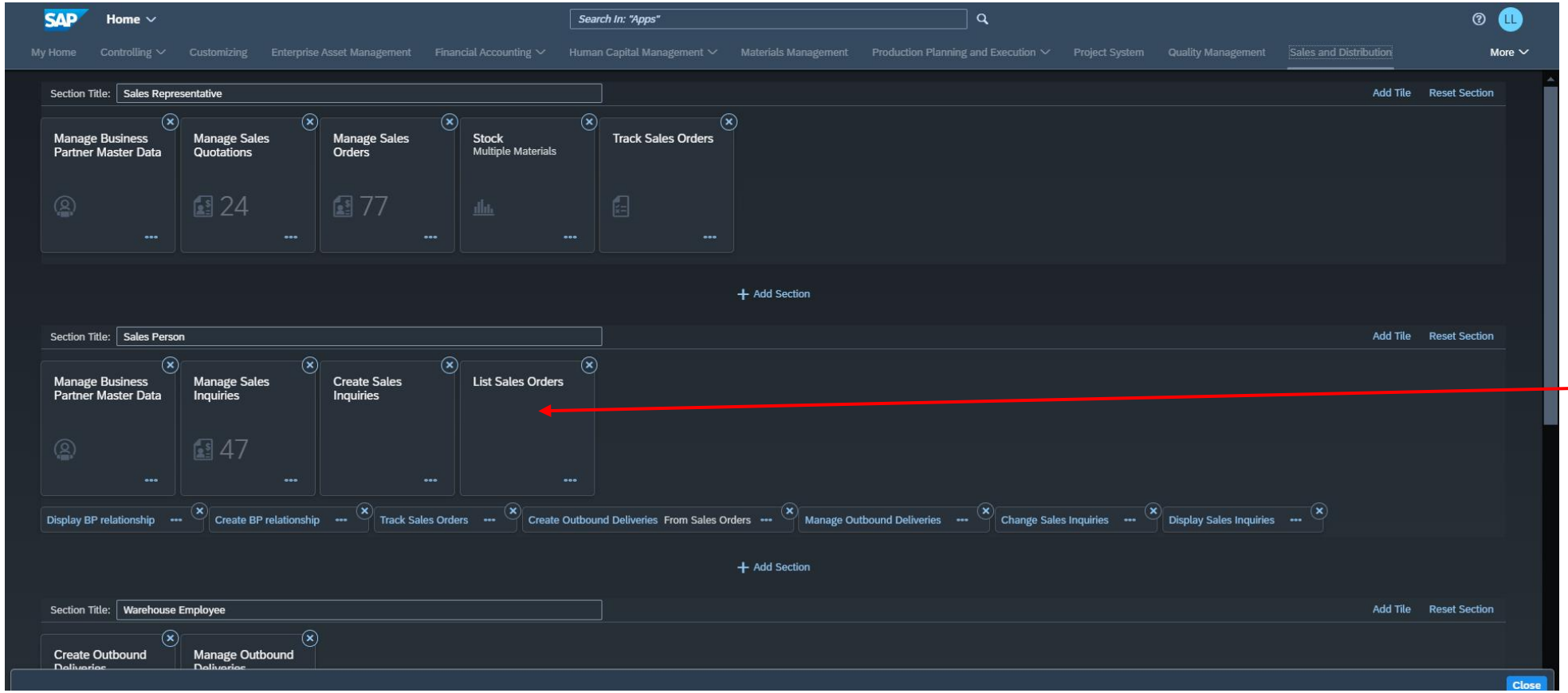


Select the GB SD (Global Bikes Sales & Distribution) from the left pane and click on the + for List Sales Order app.
Notice + changes to ✓.

Return to the Sales and Distribution Space.

SAP S/4HANA Reports

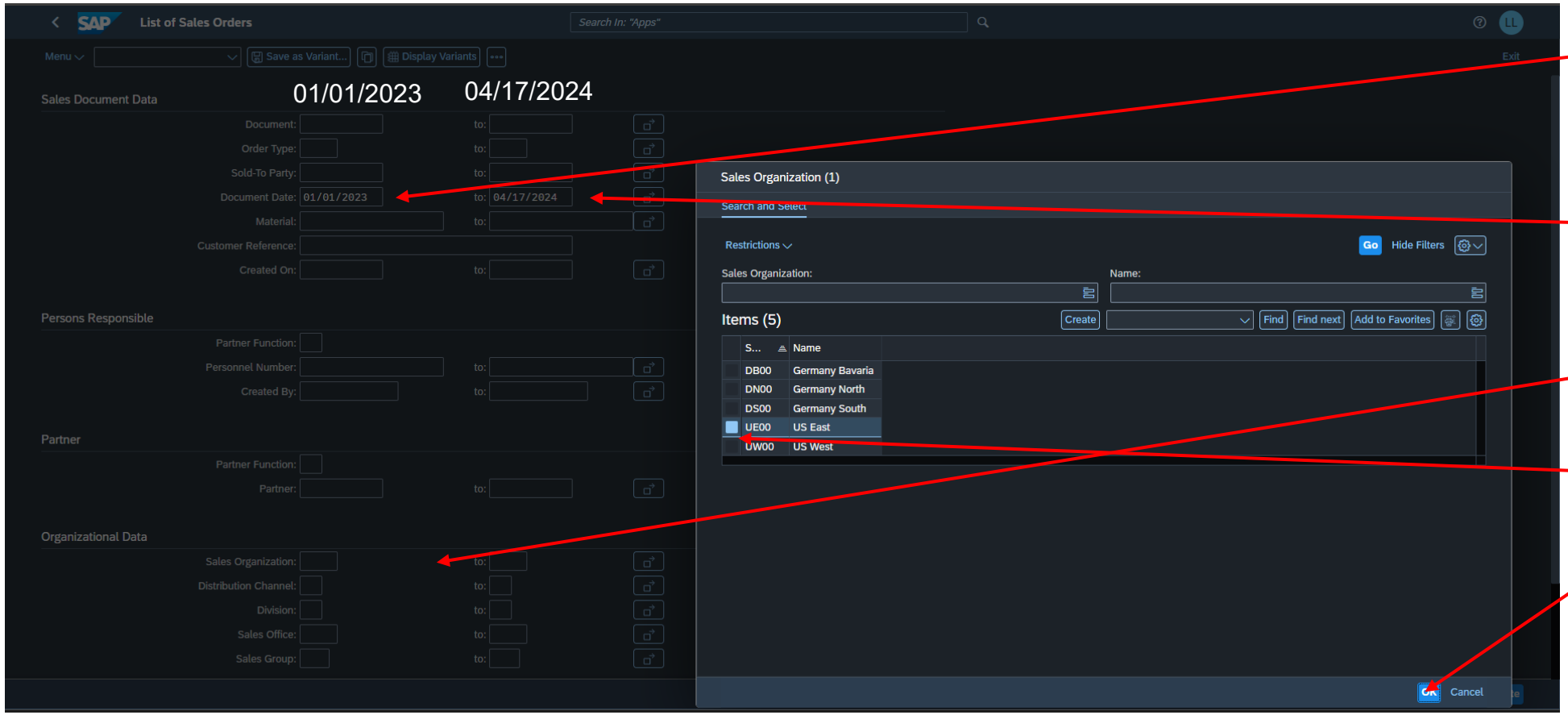
- The List Sales Order app is now included in the Salesperson Role in the Sales & Distribution Space.



The List Sales Order App is added in the Sales Person Role

SAP S/4HANA Reports

- We need to run a report for all sales from “1/1/2023” till today for the Eastern United States (UE00).



Enter “1/1/2023” in the Document Date field.

Enter Current date in Date to field.

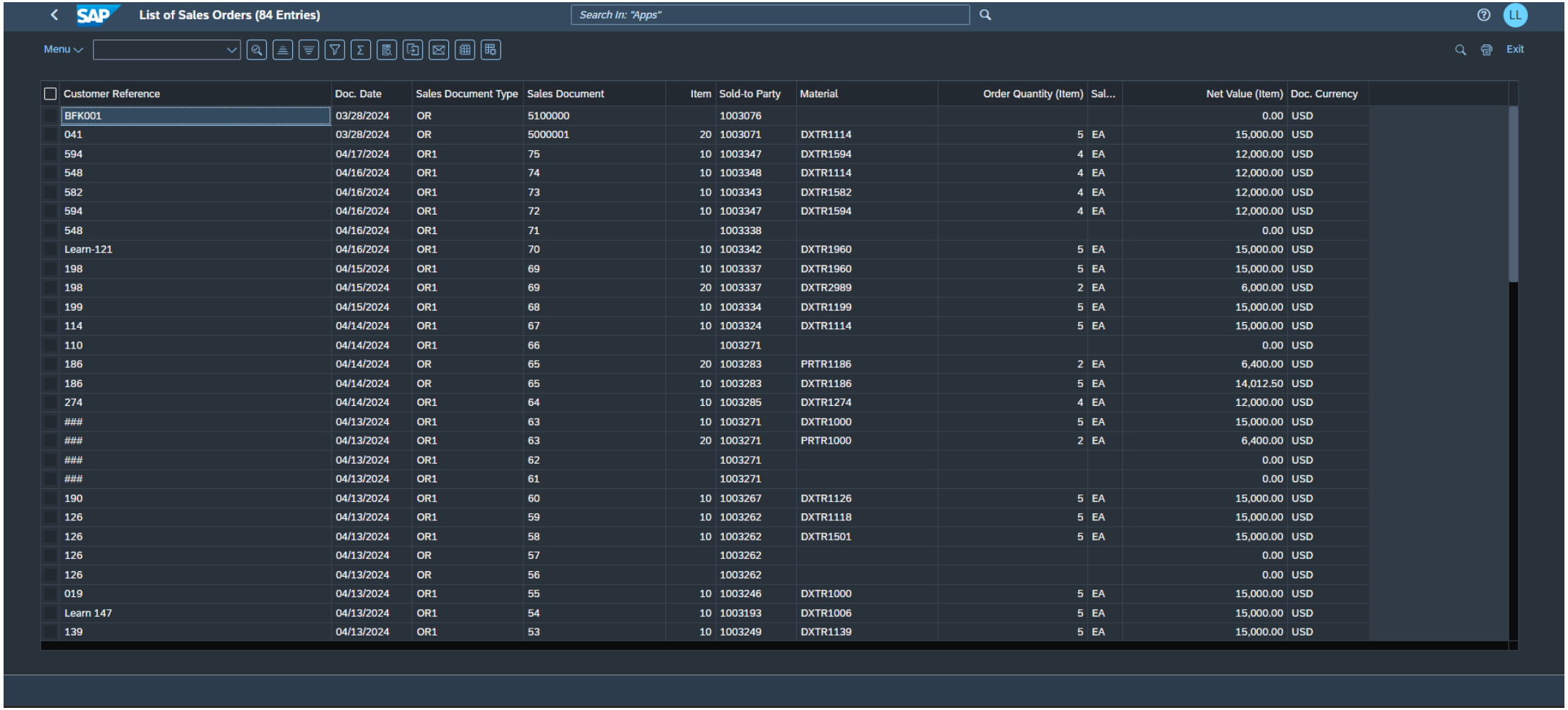
Select UE00 from the Sales Organisation field.

Select Ok.

Press Execute on the next screen.

SAP S/4HANA Reports

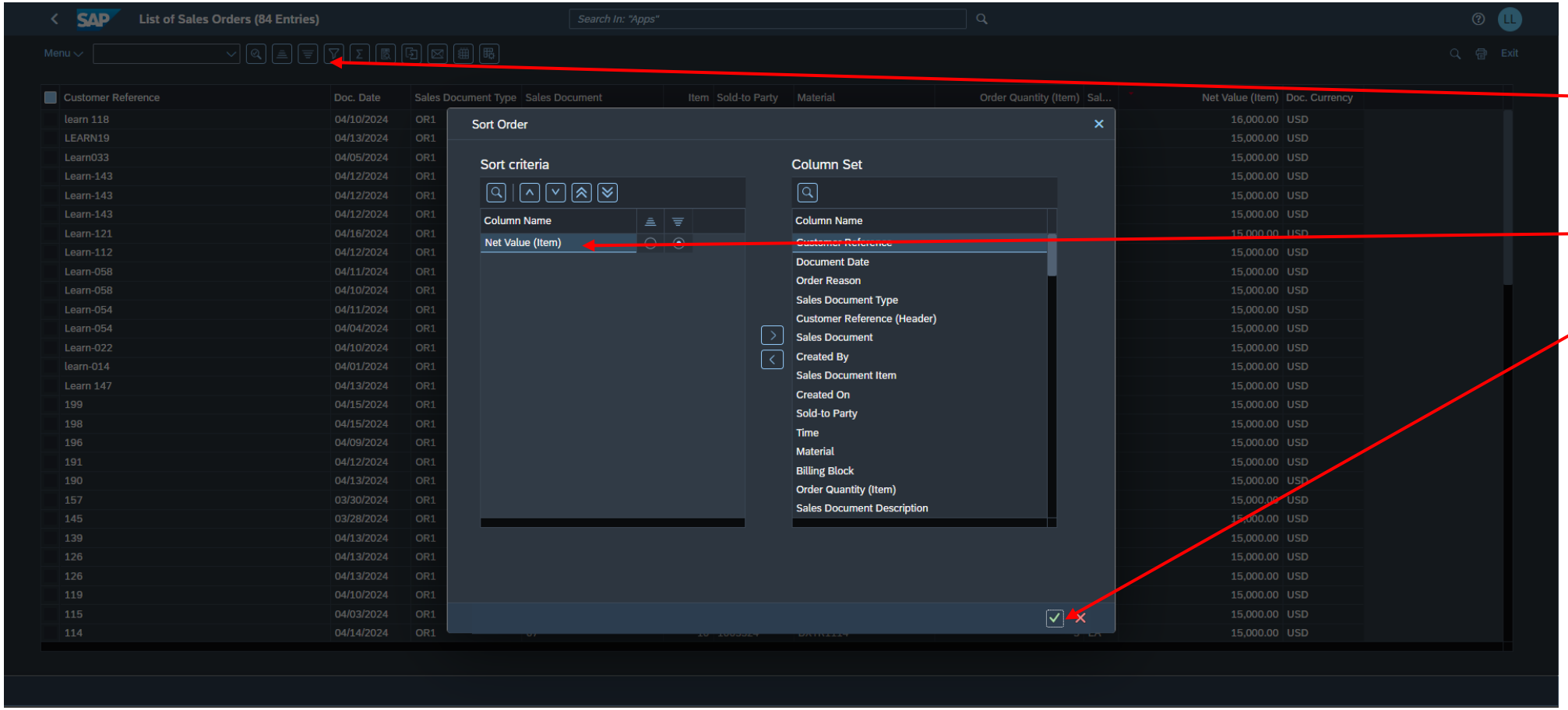
- The Sales Order report is displayed.



Customer Reference	Doc. Date	Sales Document Type	Sales Document	Item	Sold-to Party	Material	Order Quantity (Item)	Sal...	Net Value (Item)	Doc. Currency
BFK001	03/28/2024	OR	5100000		1003076				0.00	USD
041	03/28/2024	OR	5000001	20	1003071	DXTR1114	5	EA	15,000.00	USD
594	04/17/2024	OR1	75	10	1003347	DXTR1594	4	EA	12,000.00	USD
548	04/16/2024	OR1	74	10	1003348	DXTR1114	4	EA	12,000.00	USD
582	04/16/2024	OR1	73	10	1003343	DXTR1582	4	EA	12,000.00	USD
594	04/16/2024	OR1	72	10	1003347	DXTR1594	4	EA	12,000.00	USD
548	04/16/2024	OR1	71		1003338				0.00	USD
Learn-121	04/16/2024	OR1	70	10	1003342	DXTR1960	5	EA	15,000.00	USD
198	04/15/2024	OR1	69	10	1003337	DXTR1960	5	EA	15,000.00	USD
198	04/15/2024	OR1	69	20	1003337	DXTR2989	2	EA	6,000.00	USD
199	04/15/2024	OR1	68	10	1003334	DXTR1199	5	EA	15,000.00	USD
114	04/14/2024	OR1	67	10	1003324	DXTR1114	5	EA	15,000.00	USD
110	04/14/2024	OR1	66		1003271				0.00	USD
186	04/14/2024	OR	65	20	1003283	PRTR1186	2	EA	6,400.00	USD
186	04/14/2024	OR	65	10	1003283	DXTR1186	5	EA	14,012.50	USD
274	04/14/2024	OR1	64	10	1003285	DXTR1274	4	EA	12,000.00	USD
###	04/13/2024	OR1	63	10	1003271	DXTR1000	5	EA	15,000.00	USD
###	04/13/2024	OR1	63	20	1003271	PRTR1000	2	EA	6,400.00	USD
###	04/13/2024	OR1	62		1003271				0.00	USD
###	04/13/2024	OR1	61		1003271				0.00	USD
190	04/13/2024	OR1	60	10	1003267	DXTR1126	5	EA	15,000.00	USD
126	04/13/2024	OR1	59	10	1003262	DXTR1118	5	EA	15,000.00	USD
126	04/13/2024	OR1	58	10	1003262	DXTR1501	5	EA	15,000.00	USD
126	04/13/2024	OR	57		1003262				0.00	USD
126	04/13/2024	OR	56		1003262				0.00	USD
019	04/13/2024	OR1	55	10	1003246	DXTR1000	5	EA	15,000.00	USD
Learn 147	04/13/2024	OR1	54	10	1003193	DXTR1006	5	EA	15,000.00	USD
139	04/13/2024	OR1	53	10	1003249	DXTR1139	5	EA	15,000.00	USD

SAP S/4HANA Reports

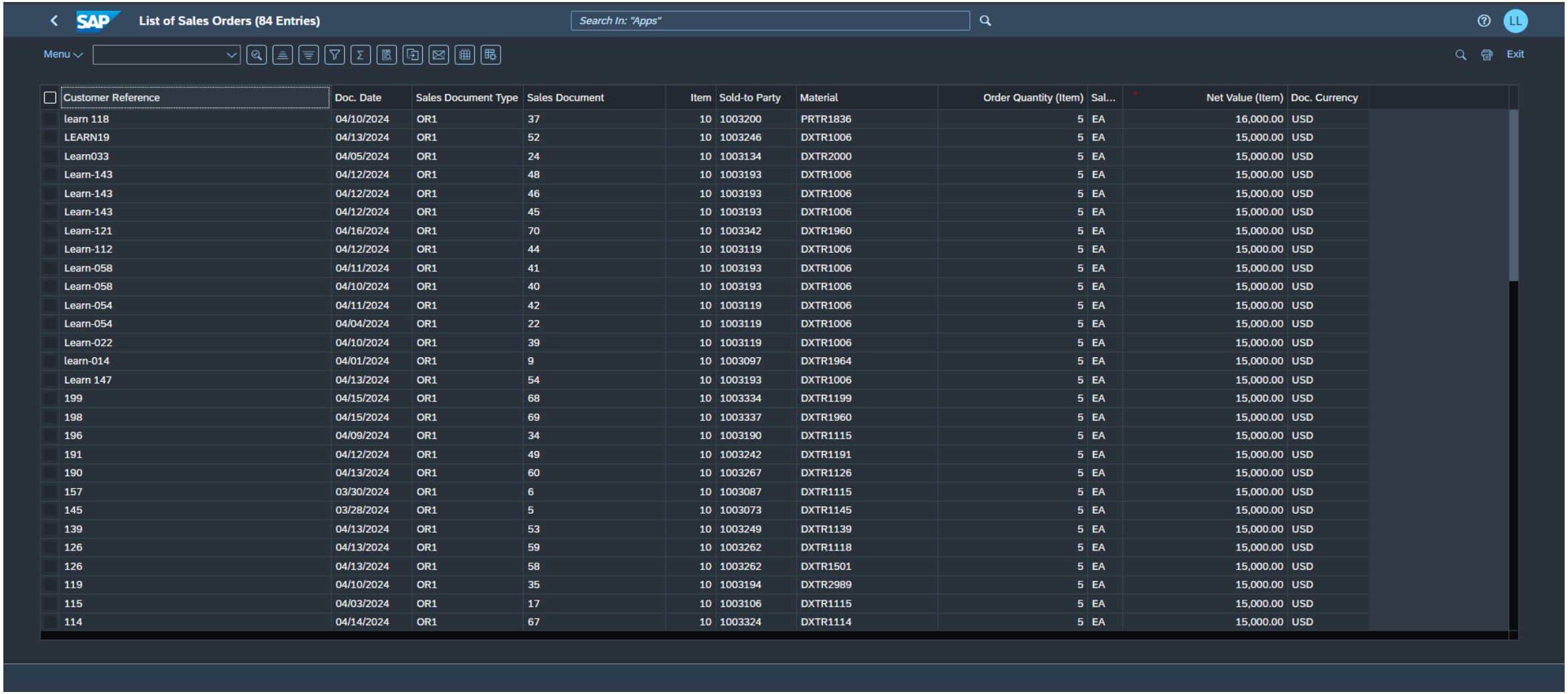
- To make the report meaningful, we can sort on Net Value of the Order.



Click on Sort.
From the sorting criteria, select Net Value.
Select ✓

SAP S/4HANA Reports

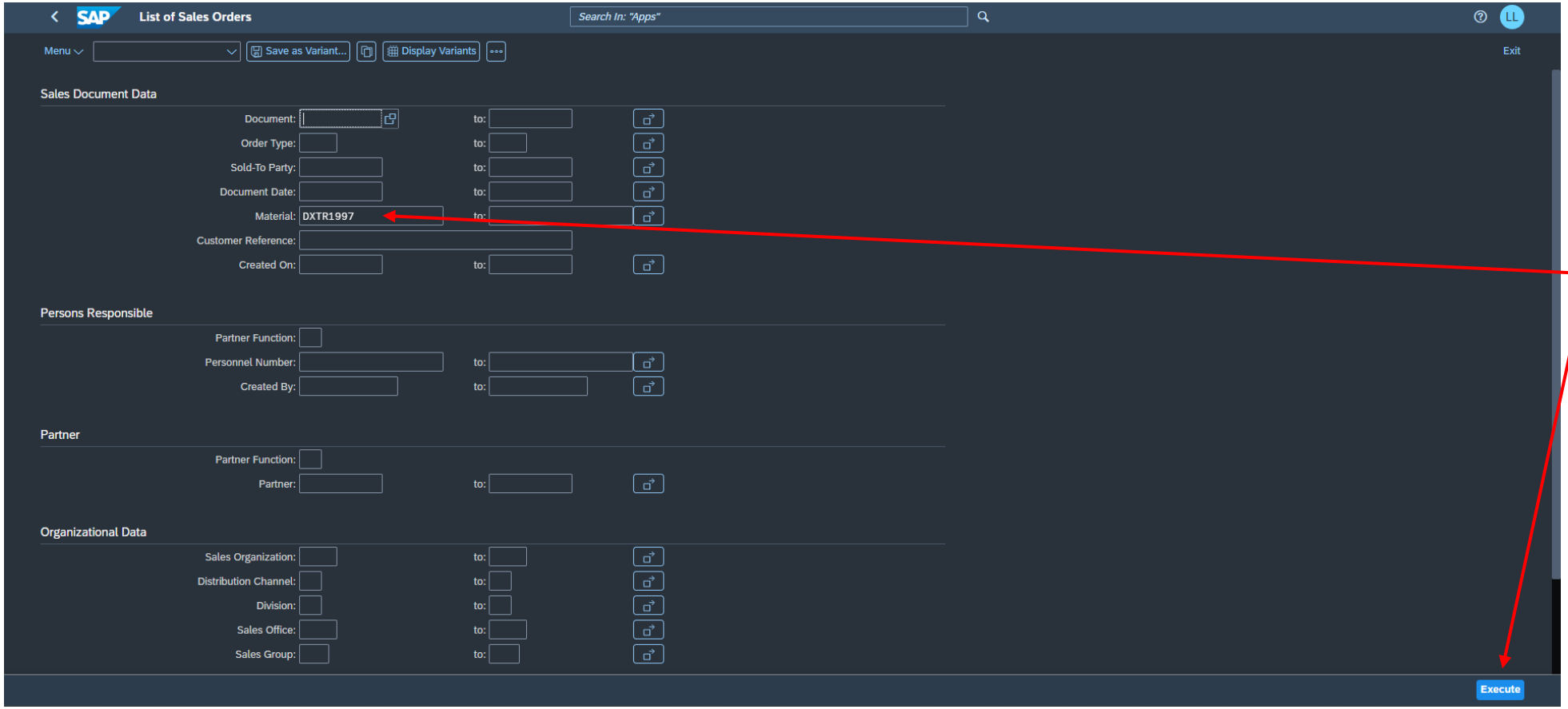
- The Sorted Sales Order report is displayed.



Customer Reference	Doc. Date	Sales Document Type	Sales Document	Item	Sold-to Party	Material	Order Quantity (Item)	Sal...	Net Value (Item)	Doc. Currency
learn 118	04/10/2024	OR1	37	10	1003200	PRTR1836	5	EA	16,000.00	USD
LEARN19	04/13/2024	OR1	52	10	1003246	DXTR1006	5	EA	15,000.00	USD
Learn033	04/05/2024	OR1	24	10	1003134	DXTR2000	5	EA	15,000.00	USD
Learn-143	04/12/2024	OR1	48	10	1003193	DXTR1006	5	EA	15,000.00	USD
Learn-143	04/12/2024	OR1	46	10	1003193	DXTR1006	5	EA	15,000.00	USD
Learn-143	04/12/2024	OR1	45	10	1003193	DXTR1006	5	EA	15,000.00	USD
Learn-121	04/16/2024	OR1	70	10	1003342	DXTR1960	5	EA	15,000.00	USD
Learn-112	04/12/2024	OR1	44	10	1003119	DXTR1006	5	EA	15,000.00	USD
Learn-058	04/11/2024	OR1	41	10	1003193	DXTR1006	5	EA	15,000.00	USD
Learn-058	04/10/2024	OR1	40	10	1003193	DXTR1006	5	EA	15,000.00	USD
Learn-054	04/11/2024	OR1	42	10	1003119	DXTR1006	5	EA	15,000.00	USD
Learn-054	04/04/2024	OR1	22	10	1003119	DXTR1006	5	EA	15,000.00	USD
Learn-022	04/10/2024	OR1	39	10	1003119	DXTR1006	5	EA	15,000.00	USD
learn-014	04/01/2024	OR1	9	10	1003097	DXTR1964	5	EA	15,000.00	USD
Learn 147	04/13/2024	OR1	54	10	1003193	DXTR1006	5	EA	15,000.00	USD
199	04/15/2024	OR1	68	10	1003334	DXTR1199	5	EA	15,000.00	USD
198	04/15/2024	OR1	69	10	1003337	DXTR1960	5	EA	15,000.00	USD
196	04/09/2024	OR1	34	10	1003190	DXTR1115	5	EA	15,000.00	USD
191	04/12/2024	OR1	49	10	1003242	DXTR1191	5	EA	15,000.00	USD
190	04/13/2024	OR1	60	10	1003267	DXTR1126	5	EA	15,000.00	USD
157	03/30/2024	OR1	6	10	1003087	DXTR1115	5	EA	15,000.00	USD
145	03/28/2024	OR1	5	10	1003073	DXTR1145	5	EA	15,000.00	USD
139	04/13/2024	OR1	53	10	1003249	DXTR1139	5	EA	15,000.00	USD
126	04/13/2024	OR1	59	10	1003262	DXTR1118	5	EA	15,000.00	USD
126	04/13/2024	OR1	58	10	1003262	DXTR1501	5	EA	15,000.00	USD
119	04/10/2024	OR1	35	10	1003194	DXTR2989	5	EA	15,000.00	USD
115	04/03/2024	OR1	17	10	1003106	DXTR1115	5	EA	15,000.00	USD
114	04/14/2024	OR1	67	10	1003324	DXTR1114	5	EA	15,000.00	USD

SAP S/4HANA Reports

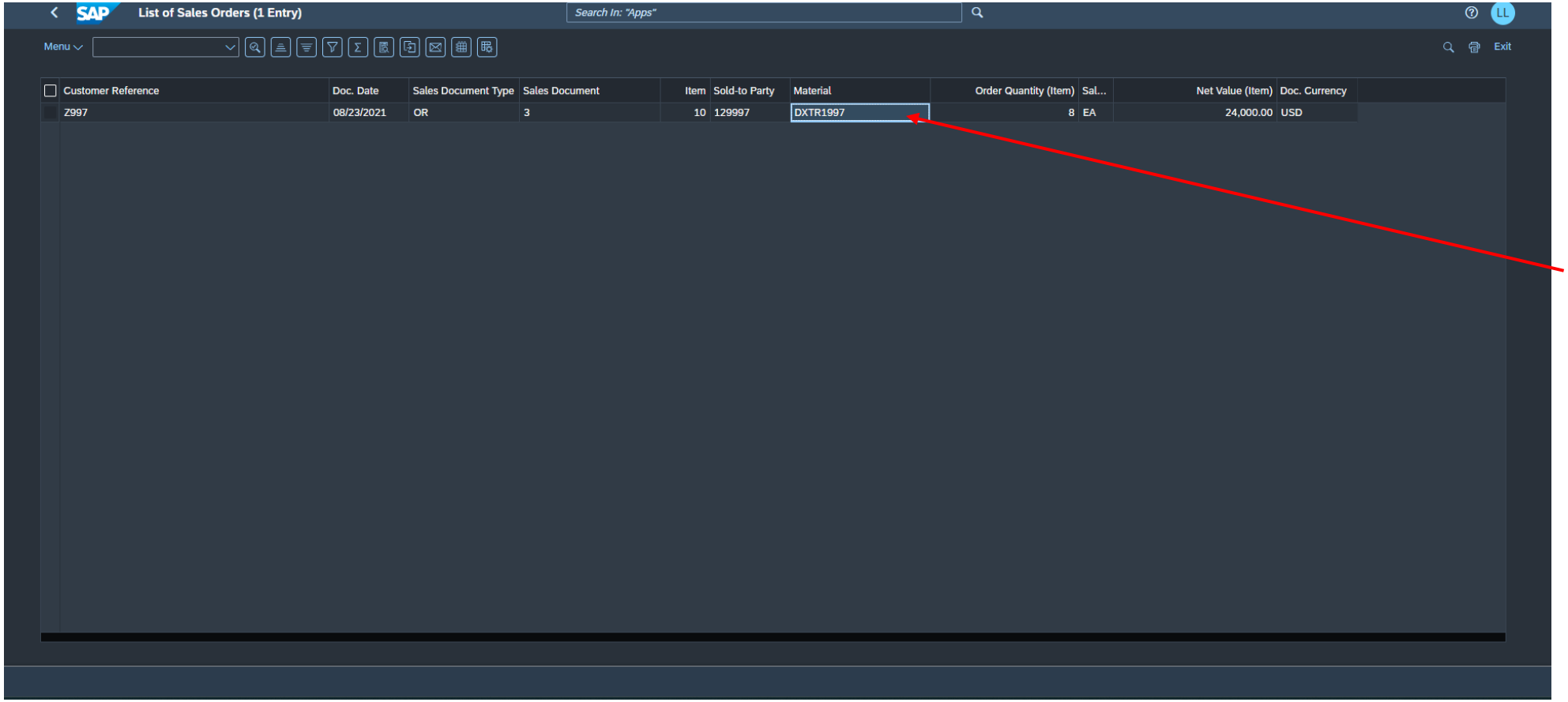
- Drilling Down – Data Analysis
- Determine the weight of materials in a particular order.



Click on the List Sales Order to initiate a new report. Type DXTR1997 in the Material field. Press Execute.

SAP S/4HANA Reports

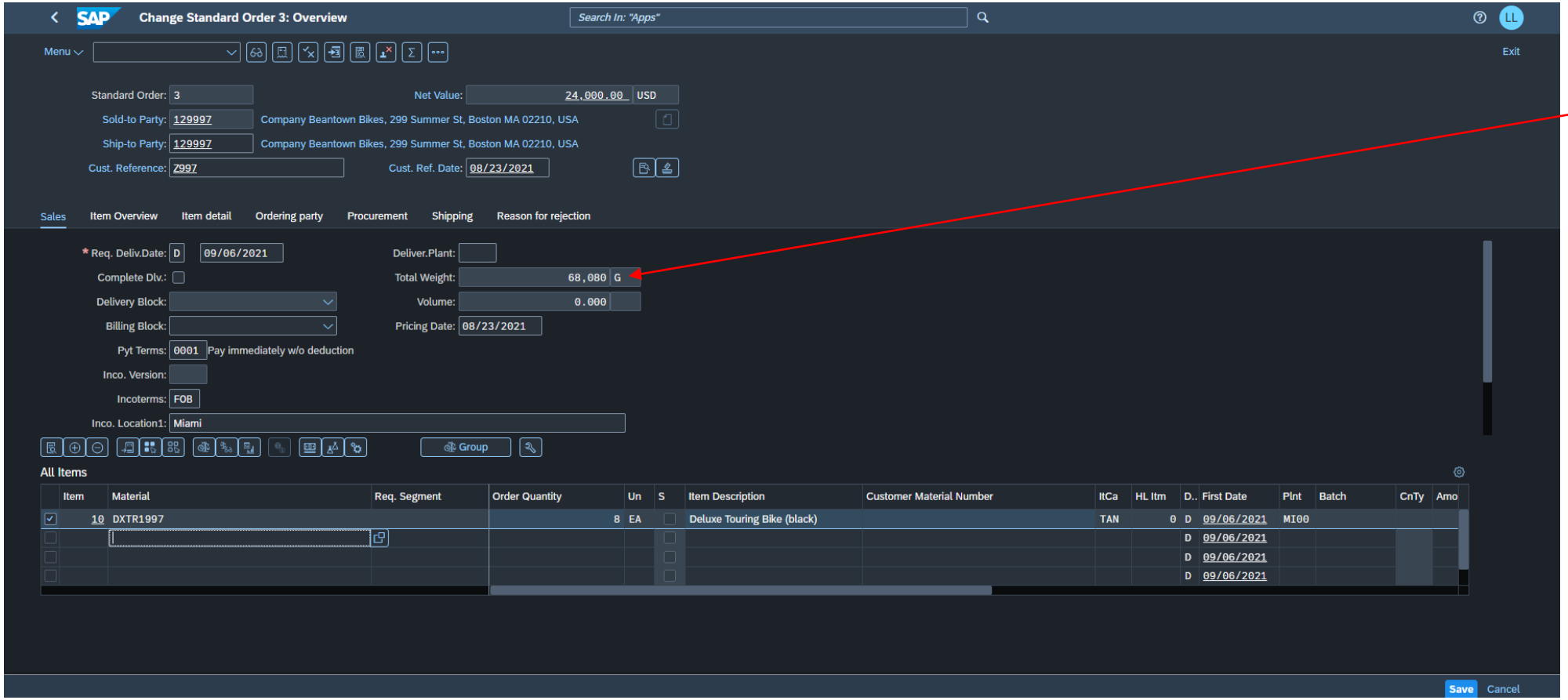
- The Sales Order report is displayed.



To Drill Down for more details, double click on DXTR1997 in the materials field.

SAP S/4HANA Reports

- The Sales Order details report is displayed.



The Net Weight of the Order Items is Displayed.

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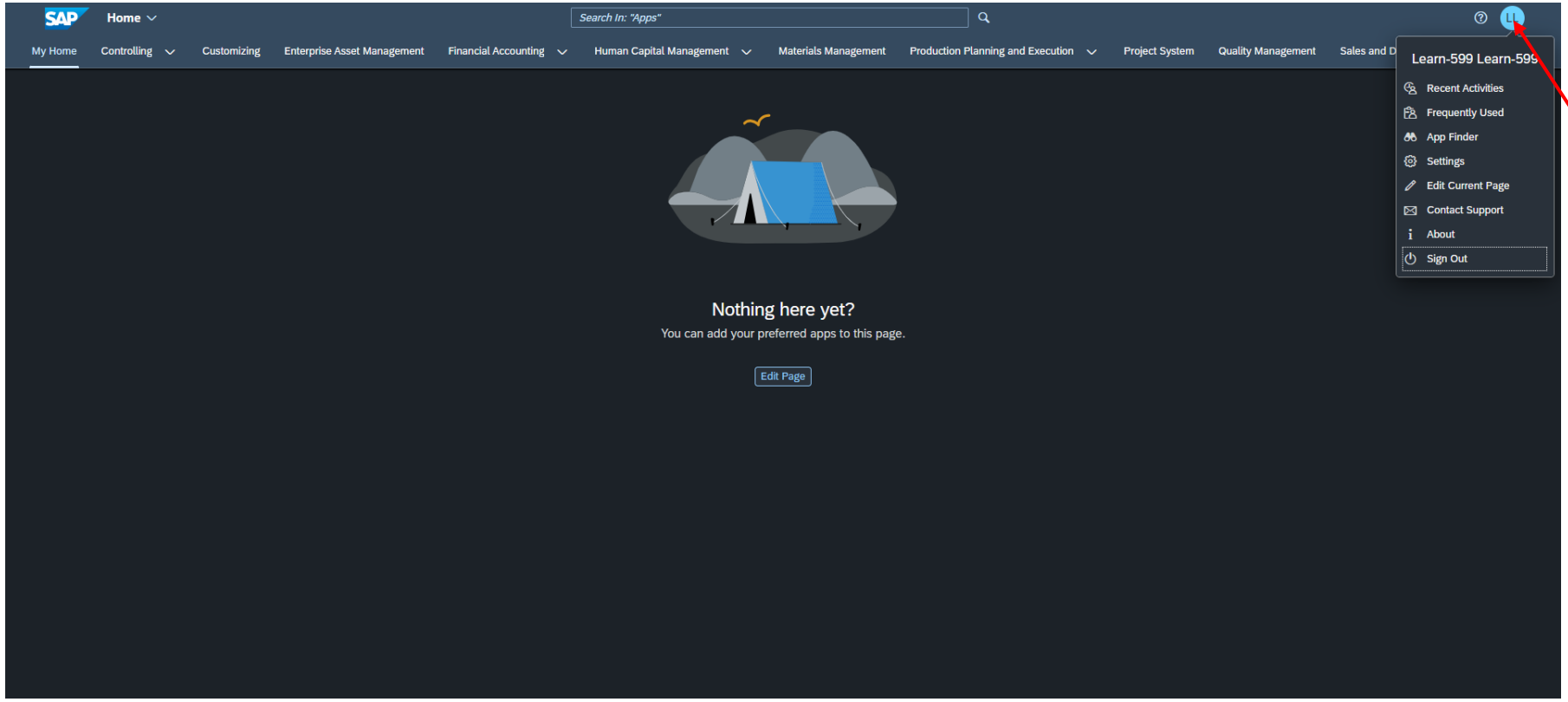
Logging Off

Logging Off

- Always Log off to protect the data and to avoid unauthorised use.



To Log Off, Click on LL Profile and select Sign Out, and press OK.

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End of Workshop 1
Week 2 & 3

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SAP Tutorial

SAP ERP: S/4HANA

Introduction

MOTIVATION

This tutorial is an introduction to the SAP S/4HANA enterprise system.

It can be used in the classroom or for self-study.

On completion of the course, students will be able to understand the basic navigation and functionality concepts of the enterprise systems

The material also serves as a reference for occasional users of SAP systems.

LEARNING METHOD

The learning method used is "guided learning." The benefit of this method is that knowledge is imparted quickly. Students also acquire practical skills and competencies.

Exercises, in the end, enable students to put their knowledge into practice.

Product

SAP S/4HANA

Level

Introductory

Focus

ERP Systems

Author

Professor. Paul Hawking

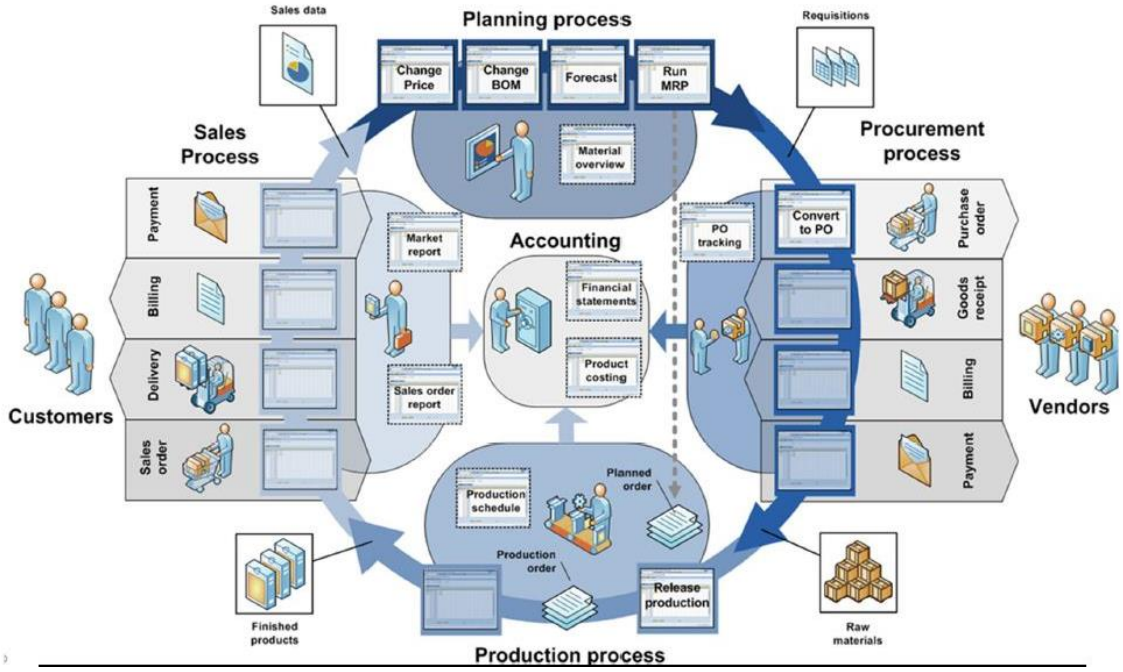
Version 3.2024

SAP Mentors

Introduction to SAP ERP

SAP's Enterprise Resource Planning (ERP) system is designed to assist an organisation in integrating and managing business processes. The system deals with the problems of organising and executing the millions of transactions that are fundamental to many large businesses. SAP is the leader in the ERP market. SAP ERP is a very large system that incorporates over 30,000 tables and 50,000 transactions. This tutorial is an introduction designed to assist you with familiarising yourself with the SAP ERP basics utilising SAP's latest ERP release: S/4HANA.

The exercises will focus on how these Enterprise systems support the key accounting functions in an organisation. Accounting processes are core to the operations of a business. These processes support the other business scenarios within and organisation.



Logging on to the SAP System

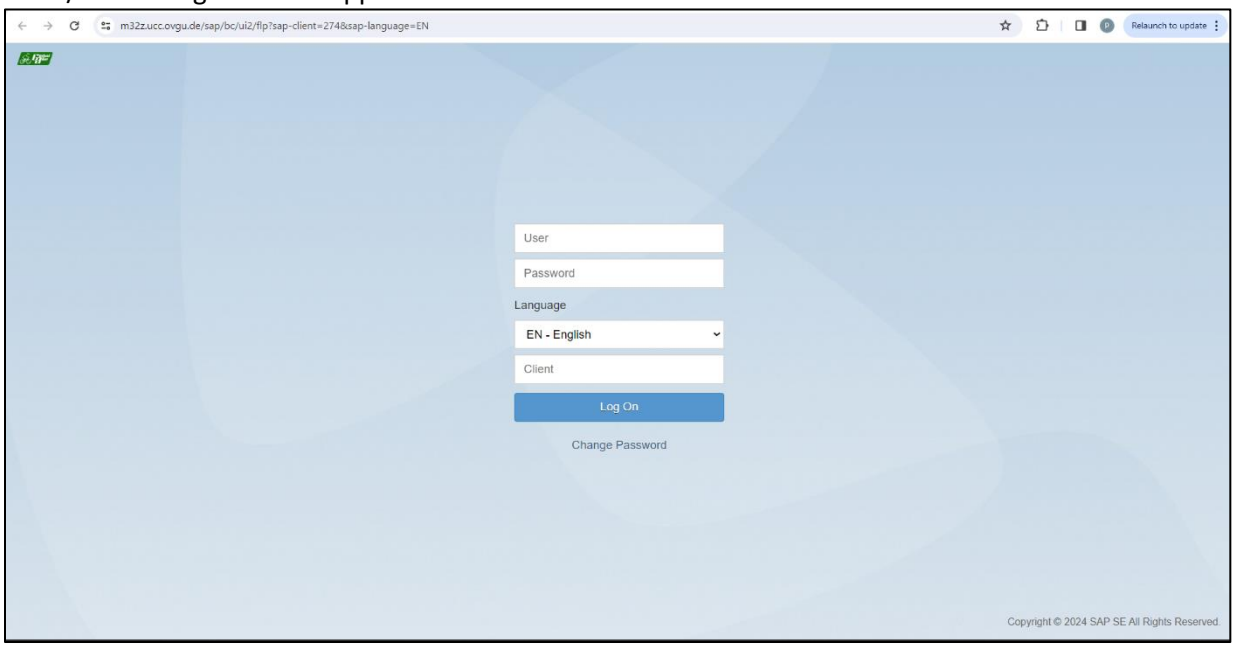
There are various techniques to open **SAP S/4HANA**. For the purpose of these exercises you will access the ERP system via a web browser.

Type

1. Type https://m32z.ucc.ovgu.de/sap/bc/ui2/flp?sap-client=274&sap-language=EN in the in the Address bar.

2. Press **<ENTER>** to display the S/4HANA logon screen.

The S/4HANA logon screen appears similar to the one below:



SAP S/4HANA can operate on a variety of personal computers using different operating systems. You can access S/4HANA either through the traditional interface (SAPGUI) or the new interface (Fiori) built with HTML5 based (web) on the UI5 standard. But no matter which equipment, operating system or interface is used, there are some necessary requirements:

Log On details

Due to the value of the information stored in the ERP system, it is necessary to control the access to the software. The SAP administrator would need to establish a user account for each user who intends to use the ERP system. Each user account is identified by a user name and requires a password for security. Each user account is also allocated a particular type of security profile which determines the data a user is allowed to view and change.

The other log on the detail you require is the **Client** number. A **Client** is a set of self-contained tables required for processing transactions in the SAP system. A Client could be created for separate companies in an organisation. A user in one client cannot change the data in another **Client**. You will need to know your **user name**, **Password** and **client** before you attempt to access the system. These can be obtained from your workshop leader.

Identify your log on details

User name	LEARN-###
Password	
Client	289

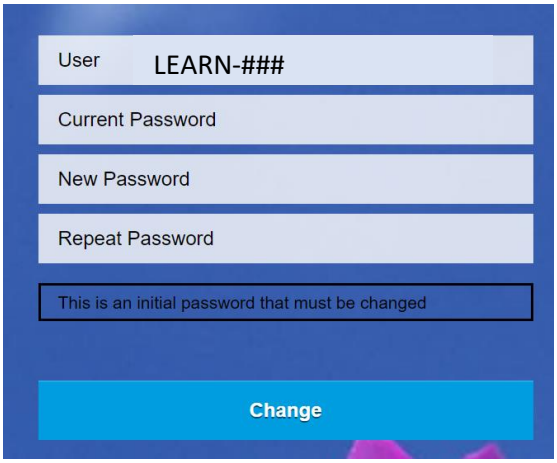
3. Type your User Id **LEARN-###** where ### is the number assigned to you.
4. Press **<TAB>** to move the cursor to the **Password** text box.
5. Type your **Password,** which the workshop leader will supply.

To hide your Password from other people, it is hidden by ●● as you type.

6. Type the **Client** details as provided by the workshop leader.
7. Click

to authorise your details.

A new screen will appear, which allows you to enter a new password to replace the temporary one you were supplied with.



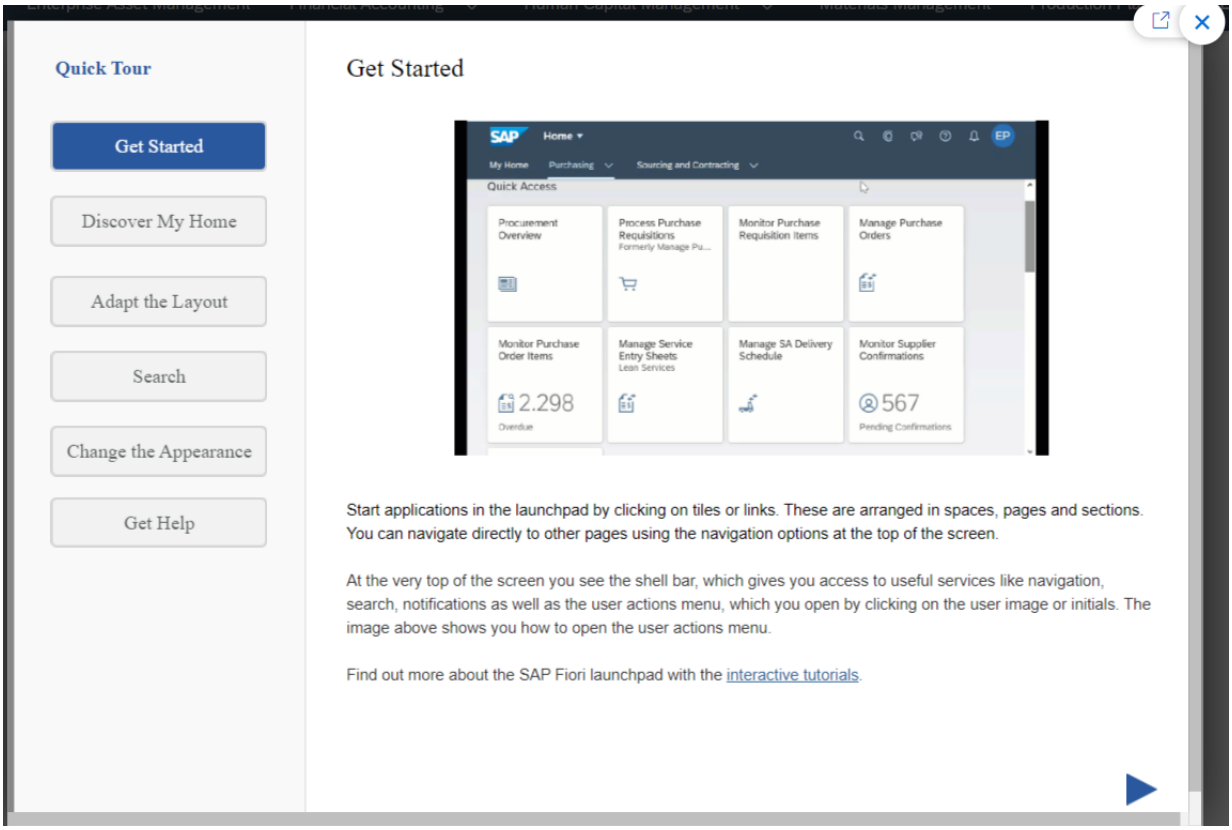
You now need to create a new password. You will be the only person who knows this Password, so it is important to create a password that is easy to remember. However, the ERP system has some rules about what it allows to be a password. The system administrator can change these rules. But in general, the following applies:

Password Rules

Passwords must be at least six characters.
Passwords are case-sensitive.
Passwords cannot start with a blank space, question mark(?). or an exclamation mark (!).
The Password cannot be any of the previous five passwords.

8. Type your **Current Password**.
9. Type your **New Password**.
10. Type your new password aging in the **Repeat Password** field to confirm it.
11. Click Change to change your Password.

After initially logging on to the SAP S/4HANA system, a tutorial screen appears:

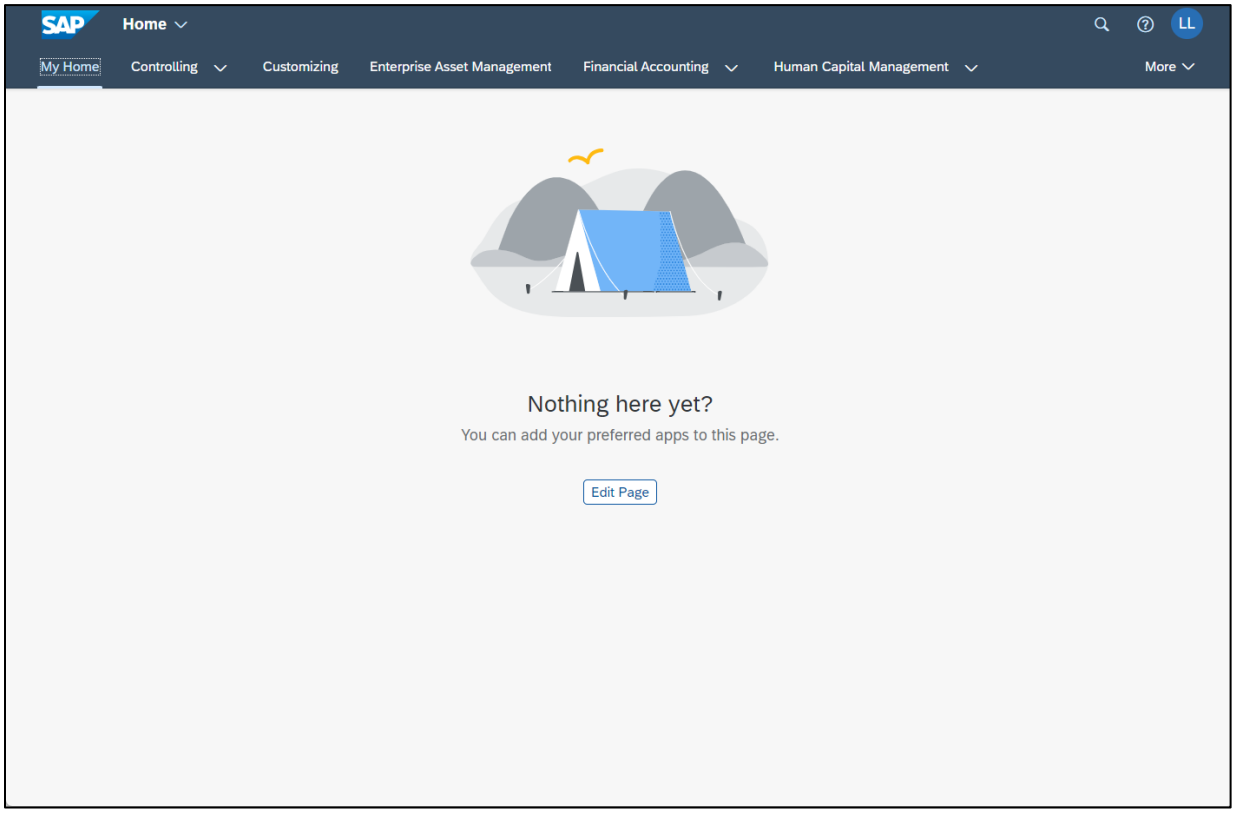


You can undertake the **Quick Tour** tutorial to get a better understanding of the system environment. This Quick Tour is available at anytime by clicking the Help icon .

12. Click to close the **Quick Tour** tutorial screen.

SAP S/4HANA Fiori Launch Pad

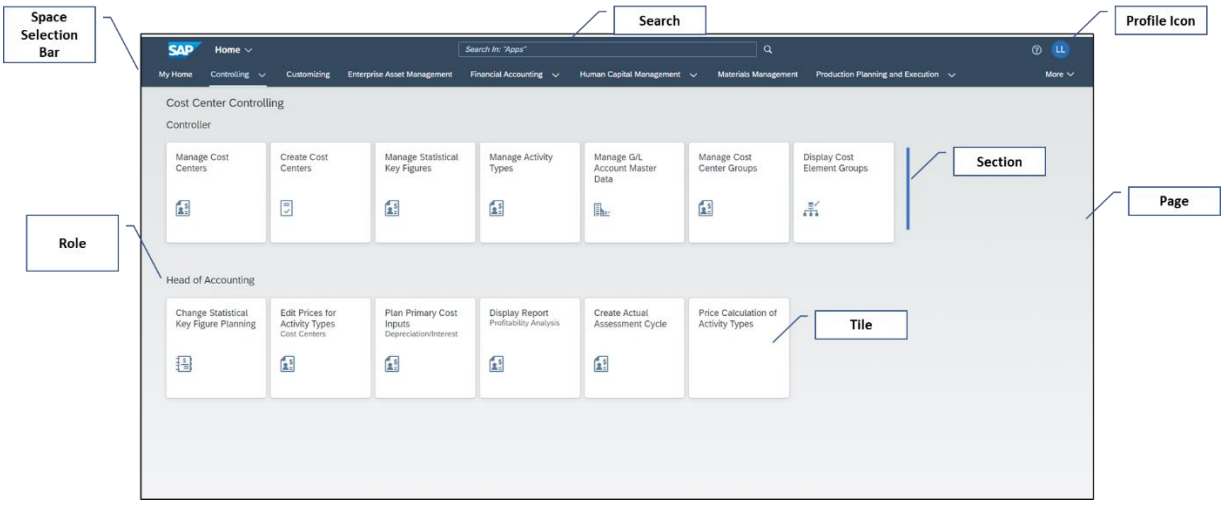
The SAP Fiori launch pad home page is the first page that users see after they have logged on. It is the main entry point to SAP Fiori apps on mobile and desktop devices. The home page is the primary place where a user will look for applications. The page features tiles that allow the user to launch apps and may show additional information. The page can be personalised, and tiles can be added, removed, or bundled in groups.



At the moment your **Launch Pad** contains Fiori Apps. As the Launch Pad screen is the main way users interact with the system there are several screen elements you need to become familiar with. To view a **Launch Pad** screen:

13. Click **Controlling** on the Space Selection Bar.

The following screen appears which includes the following elements:



Space

At the highest level the Launch Pad contains Spaces (**Controlling** etc.). A space serves as an entry point for a business role and shows information and functions that are assigned to that business role. A space consists of one or multiple pages that are used to further structure the content of a space.

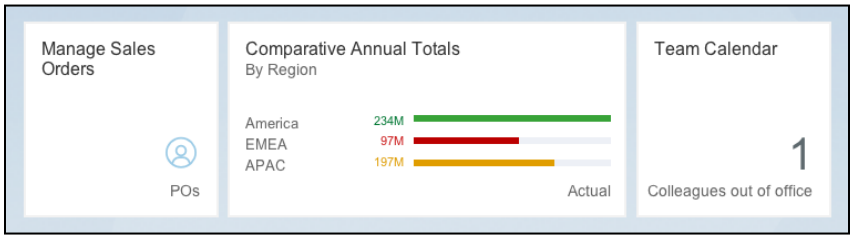
Page

A Page is part of a Space, and a space may have one or multiple pages. Each Page contains a number of Fiori Apps. Business roles with fewer apps may use one Page per Space, whereas business roles with more apps may use multiple Pages per Space. A Page consists of sections that are used to further structure the content.

Tiles

The Tiles provide direct access to Fiori Apps or content. They are similar to large icons and have a rectangular shape. The Launchpad comes with a predefined set of groups and Tiles. However, the user can also personalise the launchpad home page to reflect their individual roles by choosing from the App finder's wide range of ready-to-use tiles.

Tiles differ in the content they display. They can contain an icon, a title, some informative text, numbers, and charts. The information that is shown depends on the function of the tile or app.



Icon Chart Number

Profile Icon

The Profile Icon provides access to the **Me Area**. This area provides a number of options for customising your Home screen. It also lists the most recent tiles or objects you have worked on.

Search Icon

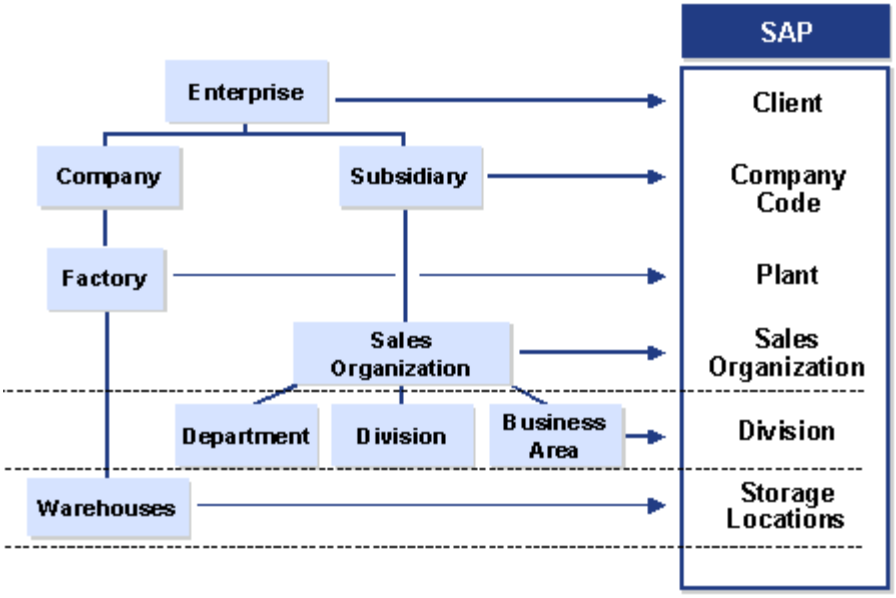
The Search Icon allows users to find business objects such as materials or sales orders and tiles such as Leave Request or Current Accounts Balance.

ERP Terminology

While using the SAP system, you will encounter a number of ERP terms that are important to understand if you understand how these systems operate.

Business Scenario: Grouping of business processes in a specific **organisational unit** that share some similar goals in the enterprise, such as purchasing, services, balance sheet preparation, production, personnel administration, and so on.

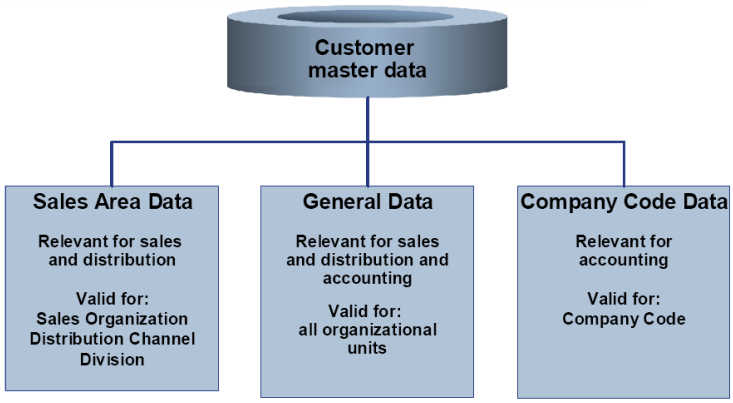
Organisational Units: An organisational unit represents any type of organisational entity found within a company, for example, subsidiaries, divisions, departments, or special project teams. These organisational units need to be mapped in the SAP ERP system as they are the locations where the various **Business Scenarios** occur. Some of the possible organisational units are displayed below



The types of **organisational units** mapped in the SAP system will depend upon which **Business scenarios** will be used. Some units are only relevant to specific SAP modules.

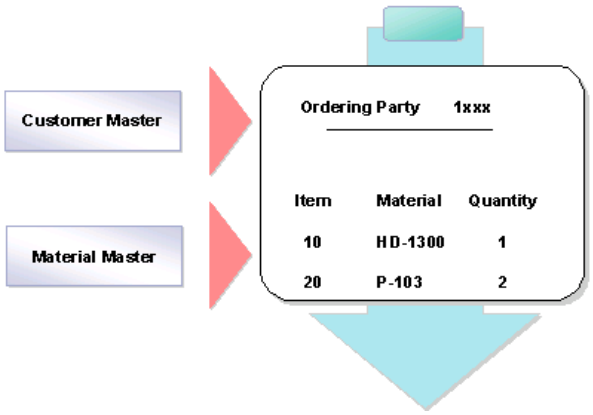
✍ List some of the **Organisational Units** you would find in a university.

Master Data:
Business Scenarios involve various objects such as customers, vendors, products, employees etc. Data that describes these objects are referred to as **Master Data**. This data describes the various objects stored within the SAP system. This data usually remains unchanged over an extended period of time. A **Master Data** object, such as a customer, can be used by more than one module. Each module may only be concerned with certain aspects of the **Master Data**.



✍ List **Master Data** objects in a Student Administration system

Transactions: are application programs that execute business processes in the ERP system. They usually result in the interaction with master data objects such as creating a customer order, posting an incoming payment, or approving a leave request. The majority of processing in the SAP ERP system is related to transactions. For example, the diagram below illustrates a **Transaction,** the interaction between the **Master Data** objects of **Customer** and **Material** in the creation of a sales document.



Document: A data record that is generated when a transaction is carried out and contains all the predefined information such as sales document, order, pay slip etc.

Reports: Program which reads certain data elements and displays them in a list. SAP has extensive reporting facilities which enable users to access and display the data in various formats.

Case Study

Scenario

The SAP system you are working on has been configured to support a fictitious company, Global Bikes Inc (GBI). Global Bikes Inc (GBI) was founded in 2001 following the merger of two bicycle manufacturers, one based in the US and the other in Germany. GBI has three lines of business: deluxe and professional touring bikes, men's and women's off-road bikes, and bike accessories. GBI sells its bikes to a network of specialised dealers throughout the world, and it procures its raw materials from a variety of suppliers globally.

GBI has two manufacturing facilities in the US and one in Germany. It also has three additional warehouses, two in the US and one in Germany. GBI has more than 100 employees globally. The organisation uses SAP ERP to support its processes. The company has a new bicycle for sale- Mongoose Mountain Bike. The SAP systems contain all the necessary data to support GBI's business processes.

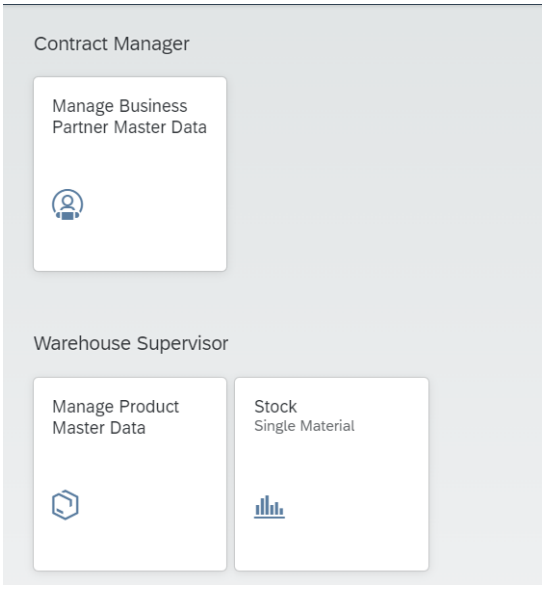
SAP S/4HANA Navigation

Master Data Navigation

An ERP system stores vast amounts of data about the various objects used in different business processes. To display the data, you require from such a large system; there are various navigation techniques you need to become familiar with. SAP S/4HANA includes a number of tools that can facilitate this navigation.

This exercise requires you to find the **Master Data** for a particular product. The product we are interested in is referred to as **Deluxe Touring Bike.** The **Master Data** referring to a product is called a **Material Master**. To display the **Material Master** for a product you will use the Display Material App. You would expect this to be available in the **Material Management** Space.

14. Click Materials Management on the **Space Selection Bar** to display this Space.

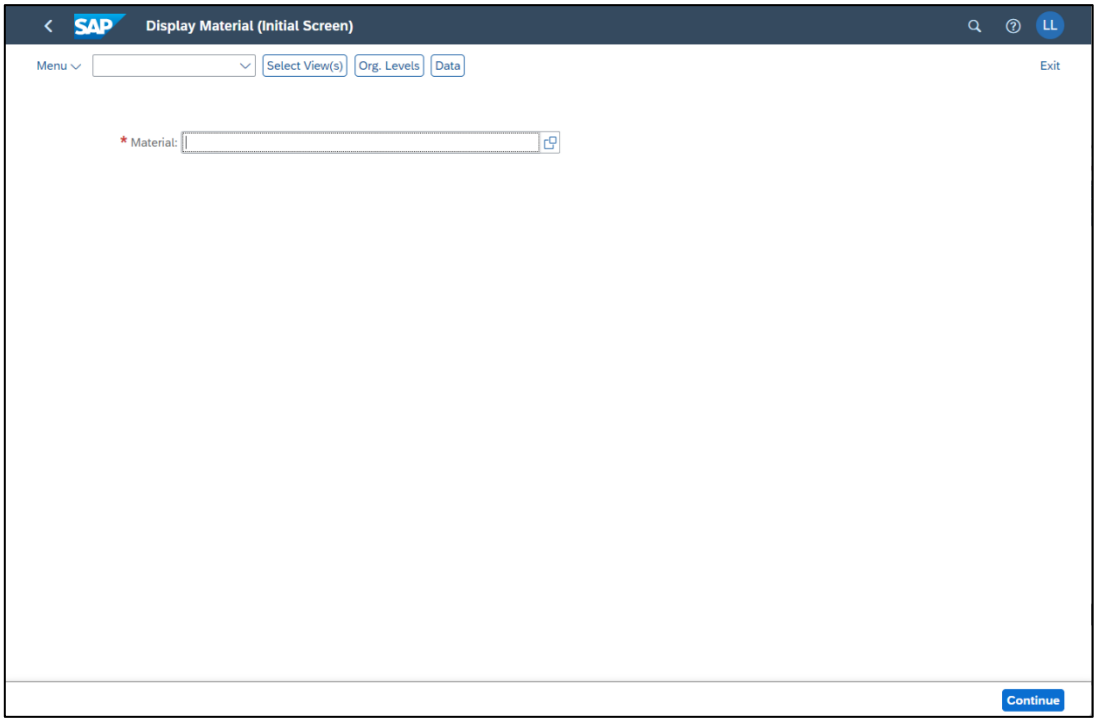


You will notice that the Apps have been customized around the business roles that would perform that activity. This improves the usability of the system.

15. Scroll down to display the **Warehouse Employee** business role.

16. Click Display Material app to start this transaction.

The **Display Material: Initial Screen** appears:

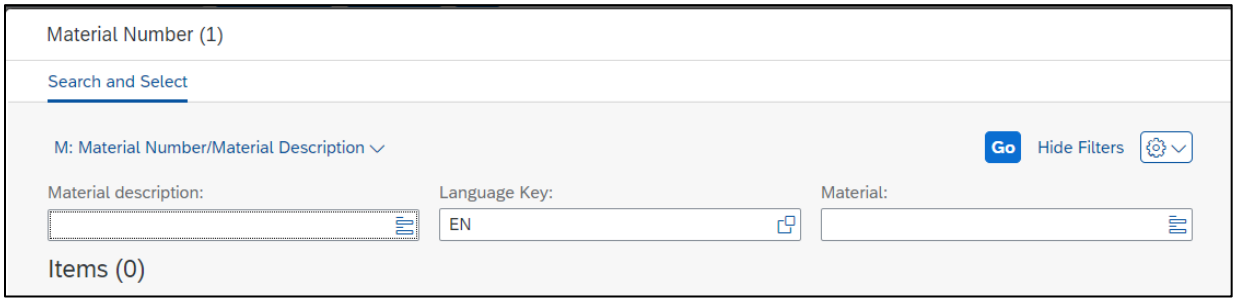


The screen requires the details of the **Material** you want to display. If you can remember the details of the **Material**, you can type them directly into the Material field. Notice that the Material field has an ***** which indicates that it is required information for this transaction to occur. Often it is difficult to remember the Material's details, so you would need to search for it. In this exercise, you want to search for a material (product) called "*Deluxe Touring Bike*".

There are usually thousands of different Materials (products) in the ERP system, and a facility called a match code can make the searching for a Material a lot easier. A match code is a method of finding a certain piece of data when you do not know the specific details of that record.

To access the match code tool for a particular field, you click the icon of the relevant field

17. Click to display a **Search** dialogue box.



There are numerous ways to search for a Material. We want to search by **Material description**.

Match Codes

You are able to replace letters and numbers by using **wildcards**. A summary of the different types of wildcards can be seen below:

Wildcard	Represents
***** and **+**	Characters you do not know
*	Multiple characters
+	Exactly one character

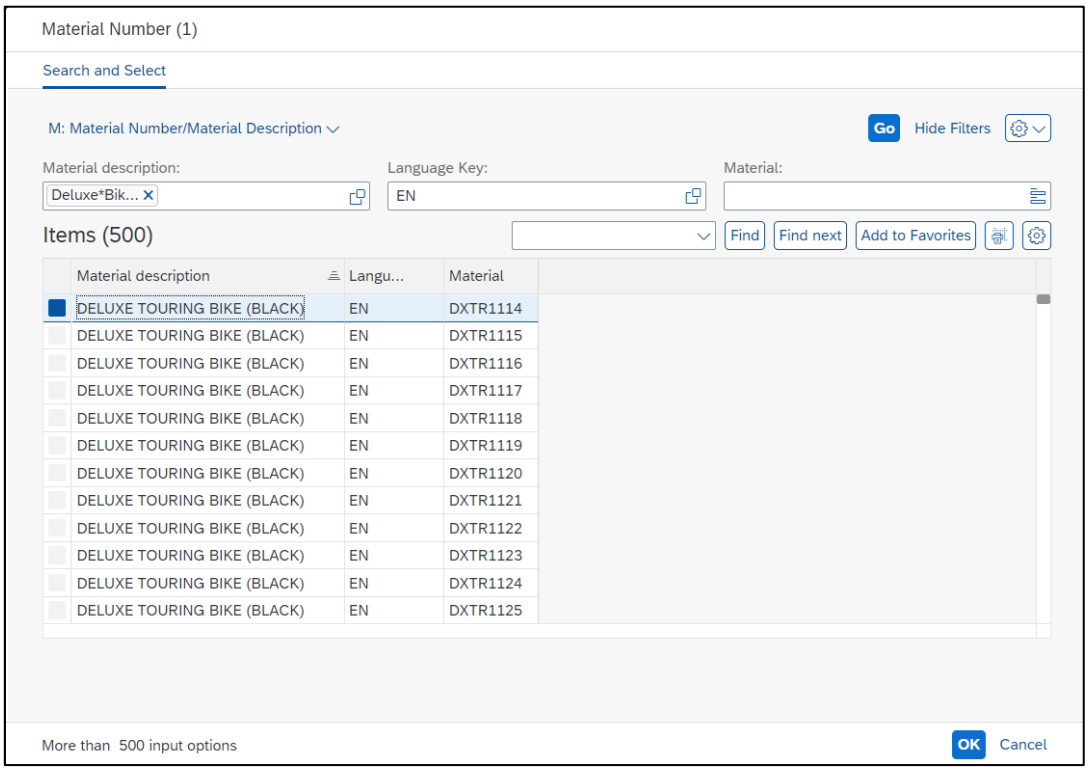
For example:

Character	Searches for everything
z*	Starting with **z**
sale	Containing the character string **sale,** such as rv**sale**07
*f+	Containing an **f** as the second-to-last character, such as rmlogi**f**a
rp+++sch	Starting with **rp**, ending in **sch**, and containing any three characters in between, such as **rp**012**sch** or **rp**inv**sch**

18. Type ***Deluxe*Bike**** in the **Material description:** field to display all **materials** with a **Material Description** that includes the words **Deluxe** and **Bike**.

19. Click in the dialogue box to accept this option and display the search results.

There are a number of products that satisfies the Matchcode.



20. Click **Deluxe Touring Bike (Black)** (any one) to select it.
21. Click OK in the dialog box to accept this option and to move to the next screen.

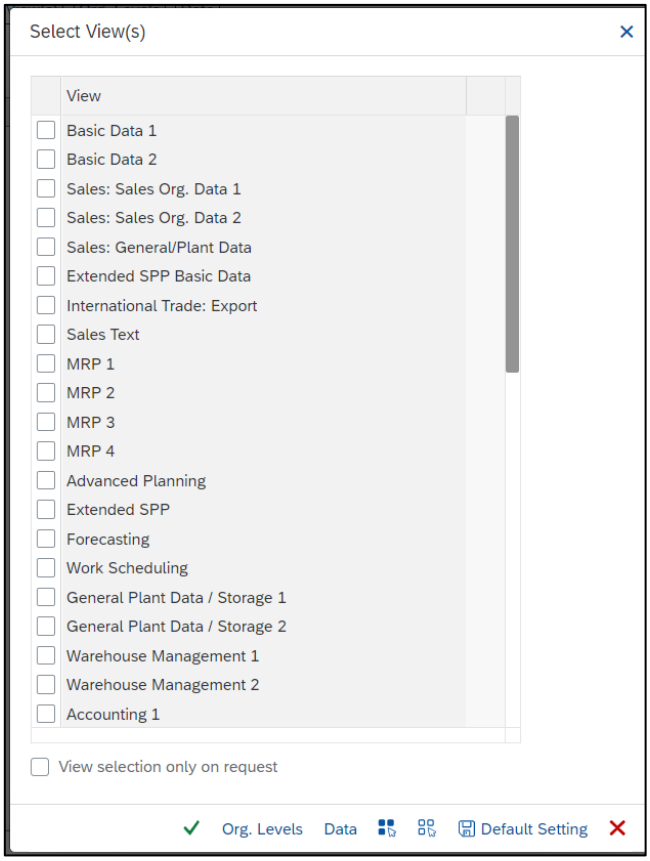
Notice that the ERP system has automatically places the **material number** in the **Material** field.

✍ *What is the **Material Number** for the **Deluxe Touring Bike (Black)**?*

Now that the relevant **Material Number** has been found, you can display the **Master Data** for the product.

22. Click Continue or press **<ENTER>**

The **Select Views** dialog box appears on screen. The **Material Master** stores a large amount of data about a Material depending upon which Business Scenarios it is involved in within the organisation. The costing data about a material would be of little interest to someone responsible for its storage in the warehouse. The **Select View** dialog box allows the user to select which data from the **Material Master** which will be displayed.

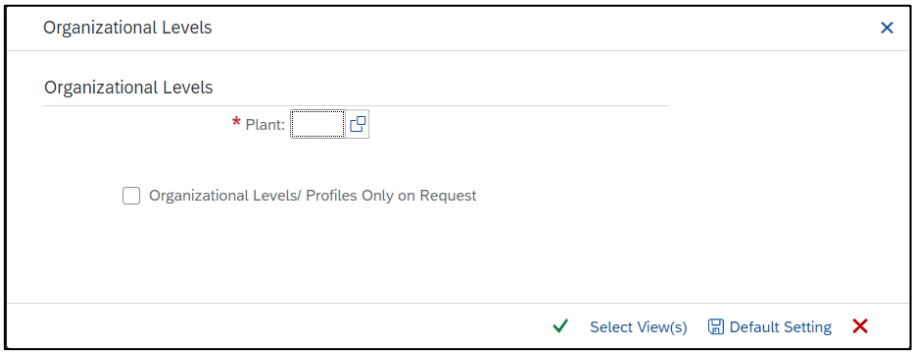


From this dialog box, it is evident that a large amount of information is available about a Material. We are going to assume that you are assigned to the Purchasing Department and therefore only require details relevant to this area.

23. Click ☐ next to **Plant Stock** to select this view of the data. You will need to use the scroll bar to display the other possible views.

24. Click ✓ or press **<ENTER>**

Often a Material may be used at more than one organisation levels in a large corporation or produced at different plants within a country or around the world. To display the material details which are relevant to you, an organisation level will need to be indicated.



25. Click ***Plant** field to insert the cursor.

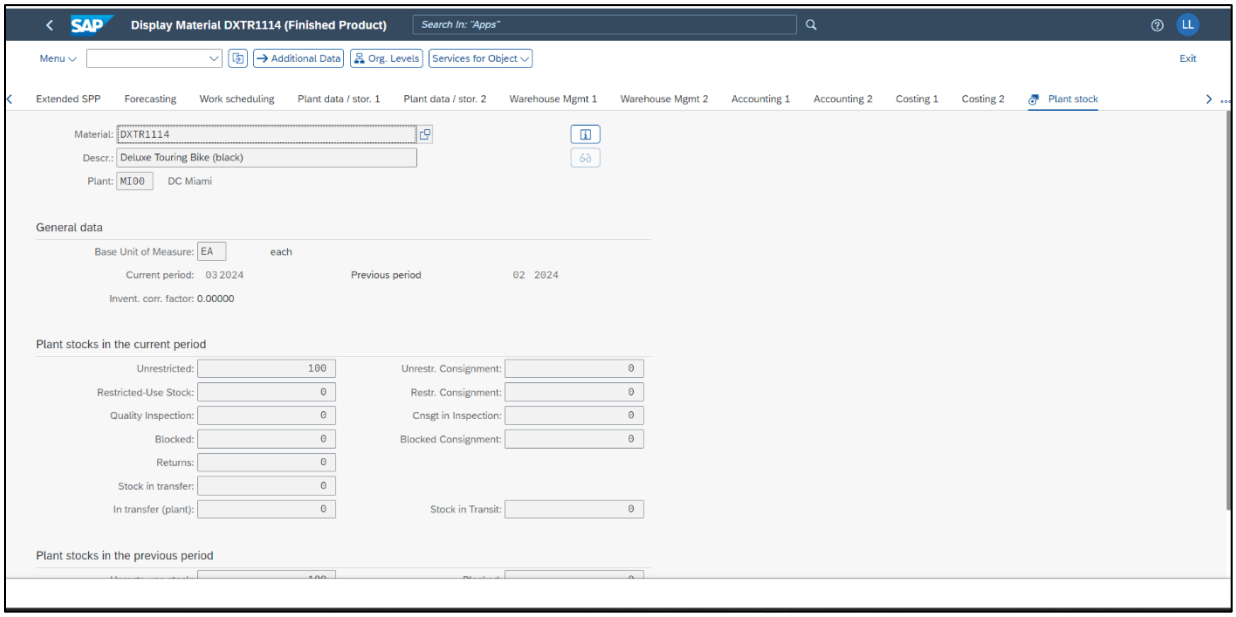
26. Click to display a list of possible entries.

This displays the **Plants** that are responsible for the **Deluxe Touring Bike (Black)**.

27. Click **DC Miami** to select it. (MI00)

28. Click Choose to insert automatically insert the **Plant** number in the **Plant** field.

29. Click or press **<ENTER>** to display the **Material** details.



You can see from this screen the stock available for this **Material**. However, you would like to know the price which this bike sells for and its weight. This data is stored in the ***Accounting 1*** and ***Basic Data 1*** views.

You will notice that the required **Views** do not appear on the **View** toolbar. You can display the **Views** available by clicking on the toolbar

✍ What is the price and weight of the bike?

Price: ……..

Weight:……..

30. Click to close this transaction and return to the Home screen.

SAP S/4HANA Reports

One of the major reasons a company implements an ERP system, like SAP, is to get up to date information about what is happening in the company. SAP S/4HANA includes a broad range of reporting functionality. The next exercise will look at an example of common reporting functionality.

Your manager has asked for details of sales since 2016 for East United States (UE00) sales organisation. The report is to include sale order details and total revenue. You are going to use an existing Fiori app in the Sales and Distribution Space to display this report. You will notice that Sales and Distribution does not appear on the Space Selection bar. To view all the available Spaces:

31. Click to display Spaces.

32. Choose **Sales and Distribution** to display the associated tiles.

The List Sales Orders app is not included in the Sales and Distribution Space. To customise the Space to add this app:

33. Click the **Profile** icon to display the menu

34. Click to change the Space to edit mode

The List Sales Orders app needs to be added to the Sales Person Section.

35. Click in the **Sales Person Section.**

The App Finder screen appears.

36. Click **GB SD** in the left pane to display apps related to Sales and Distribution.

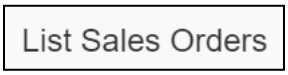
37. Click in the List Sales Orders tile to add this app to the Sales and Distribution Space.

Notice the changes to .

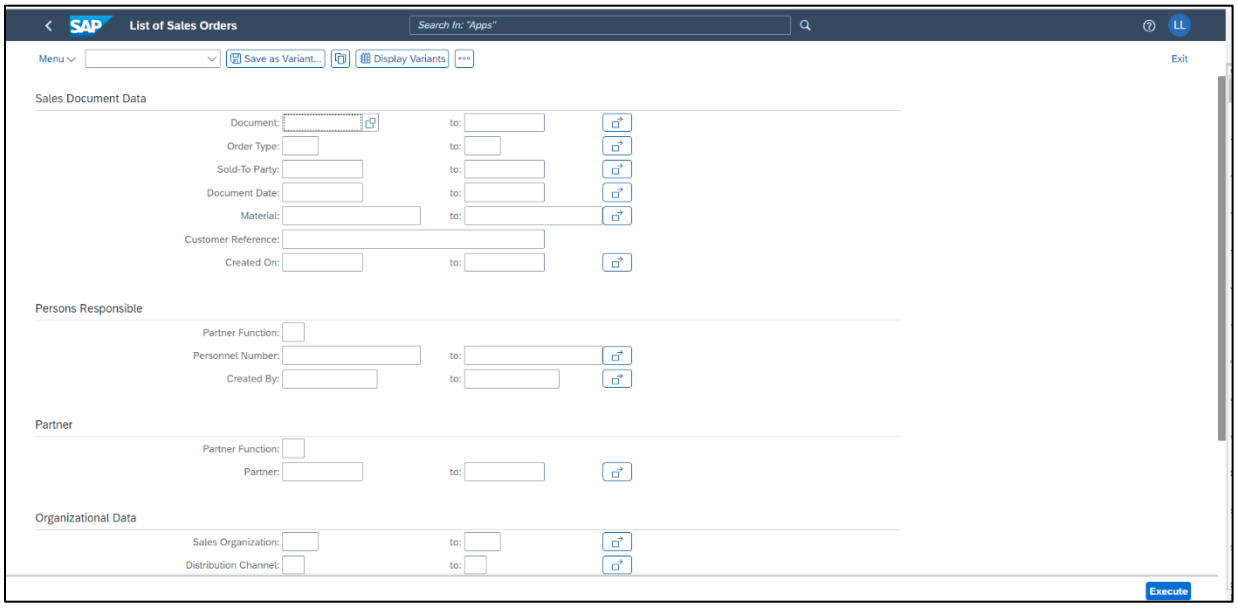
38. Click until you return to the revised Sales and Distribution Space edit mode.

39. Click

The Sales and Distribution Space now includes the List Sales Orders app under the Sales Person Role.

40. Choose  to display this report.

A screen appears which enables you to enter variables as **selection criteria** to help narrow the scope of the information required. As mentioned earlier, the information required pertains to sales orders since 01/01/2023.



To satisfy the report's requirements, you need to specify the date range.

41. Click the **Document Date** field to select it.

42. Type ***01/01/2023*** as the **date from**

43. Press **<TAB>** to move to the **date to** the field.

44. Type today's date.

You now need to limit the data to the sales for East United States (UE00).

45. Click Sales Organisation field to select.

Notice that the icon appears in the field, enabling you to search for the required variable.

46. Click to display a list of available Sales Organisations.

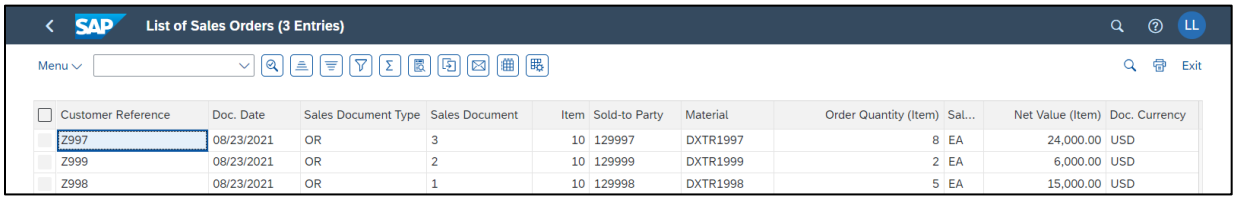
47. Click ***UE00*** to select it.

48. Click to transfer the variable to the report selection screen.

You have now entered the required variables to filter the report data.

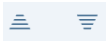
49. Click to run the report.

The report appears similar to the one below. Your report may have more data depending on more recent sales orders.

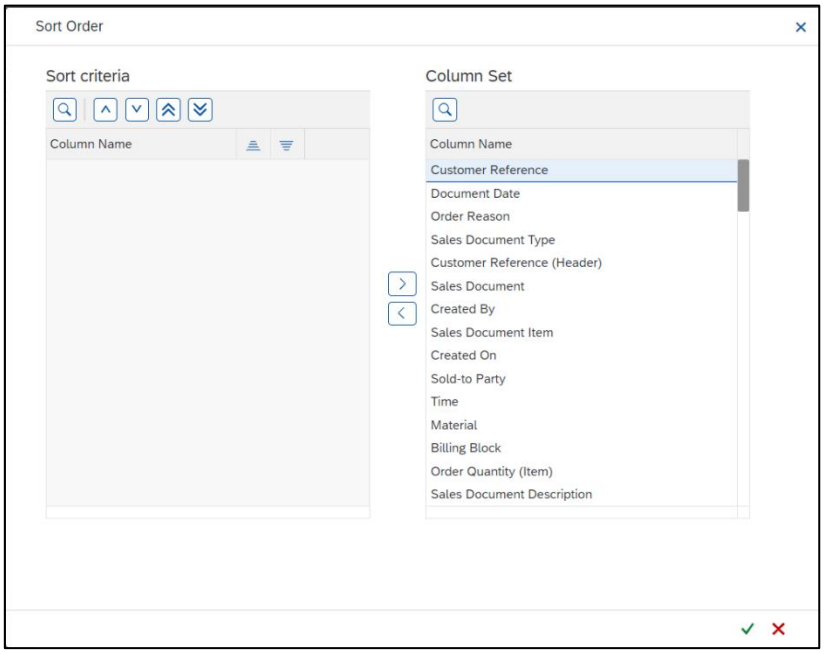


Customer Reference	Doc. Date	Sales Document Type	Sales Document	Item	Sold-to Party	Material	Order Quantity (Item)	Sal...	Net Value (Item)	Doc. Currency
Z997	08/23/2021	OR	3	10	129997	DXTR1997	8	EA	24,000.00	USD
Z999	08/23/2021	OR	2	10	129999	DXTR1999	2	EA	6,000.00	USD
Z998	08/23/2021	OR	1	10	129998	DXTR1998	5	EA	15,000.00	USD

Sorting

To make the report more meaningful for your manager, you need to sort the Net Value of the orders from highest to lowest. This can be done by selecting the appropriate **Sort** icon  from the **Application Toolbar**. The first icon is for ascending, while the other is order descending.

50. Click to display the **Sort** dialog box.



You want to sort by **Net Value (Item),** so it needs to be transferred to the Sort criteria pane.

51. Click **Net Value (Item)** to select this field (You may have to scroll down).
52. Click to transfer this field to the search criteria.

Notice that radio buttons appear to give the option to sort either ascending or descending .

53. Select as the sort criteria.
54. Click to apply the sort criteria to the report.

The report is now sorted by **Net Value (Item)**. Notice a small triangle appears in the column heading to indicate that it is part of the sort criteria. An alternate technique for performing a sort is by clicking the column heading of the field you want to sort and then clicking the appropriate **Sort** icon.

Totals

You can perform a number of calculations on your reports to make them more meaningful. This can be done by clicking the **Total** button on the **Application Toolbar**. For example, to determine total Net Value (Item) for all orders.

55. Click

to select this column.

56. Click Σ to perform the calculation.

Notice a new row appears with the total of this column.

Net Value (Item)	Currency
24,000.00	USD
15,000.00	USD
6,000.00	USD
45,000.00	**USD**

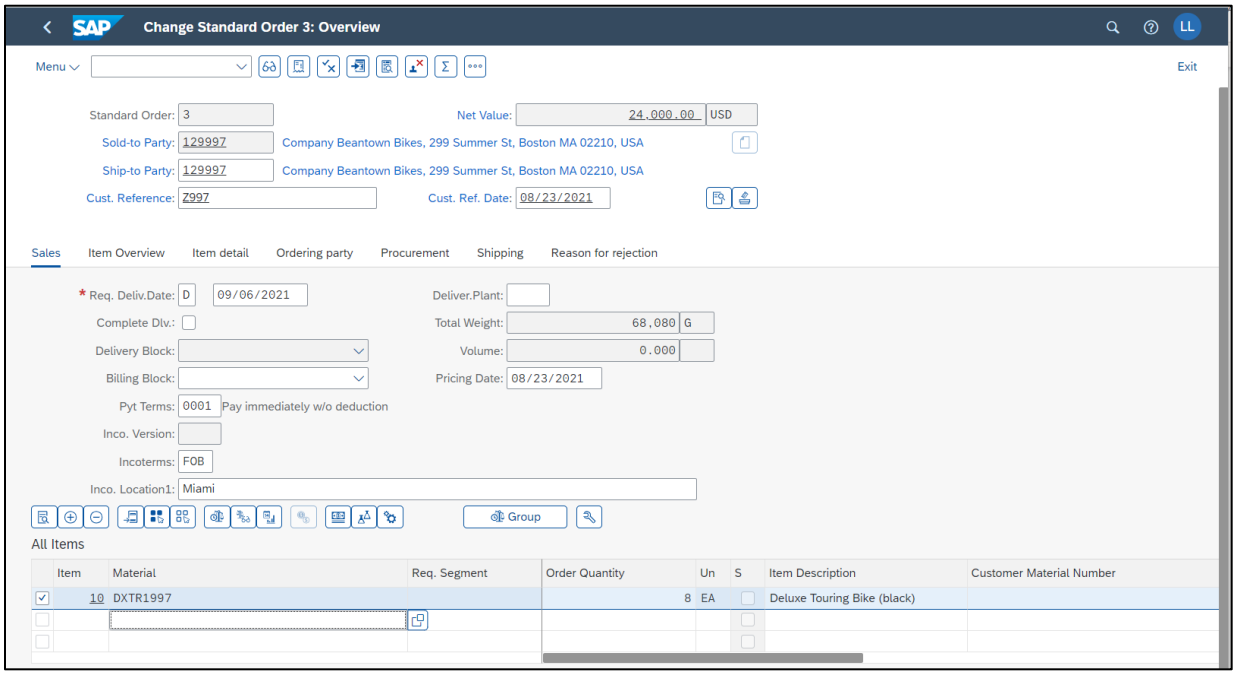
Drilling Down

SAP S/4HANA provides the facility to **drill down** to get further details about any item on a screen. This is done by double clicking the item you to get more details about. For example, for shipping purposes, you would like to determine the weight of the materials in Sales Document 3.

Once you have viewed the further details, you can click the back button to return to the previous screen. At the moment, we have created a report for a specific time period. But the report only indicates a match code for the vendor rather than the vendor's details.

57. Double Click **Material** *DXTR1997* to view more details about this order's materials.

If an Information window appears, click "Continue". The order's details appear on the screen.



The weight (68,080g) of the combined materials is displayed (you may need to use the scroll bar to make this field visible). Drilling down is a very powerful feature which you should familiarise yourself with.

58. Click to return to the report.

Logging Off

It is important that when you have finished working with SAP S/4HANA that you log off correctly. This will protect data, but more importantly, it will prevent others from unlawfully using the system under your name.

59. Click **Profile** icon on the **Title bar** to exit SAP ERP.

60. Click

A dialog box appears asking to confirm your actions:

61. Click

to exit the system.

You have now completed the introductory tutorial for SAP ERP: S/4HANA. As you become more familiar with the system, you will find alternative ways of doing things. We have only covered the basics, and there is a lot more to learn.

Summary

✍ There were a number of new ERP terms you were introduced to throughout this exercise. These are important to understand.

- Master data
- Material Master
- Transaction
- Drill down
- Match code
- Vendor
- Wildcard
- Client
- Organisational Unit