



**Experiment No.7**

**Title: Data Warehouse simulation**

Batch: B-4

Roll No.: 16010422234

Name: Chandana Ramesh Galgali

**Experiment No.:7****Aim:** To run Data Warehouse simulation**Resources needed:** Different RDBMS such as MySQL, Postgres**Theory****Data Warehouse :**

A data warehouse is a type of data management system that is designed to enable and support business intelligence (BI) activities, especially analytics. Data warehouses are solely intended to perform queries and analysis and often contain large amounts of historical data. The data within a data warehouse is usually derived from a wide range of sources such as application log files and transaction applications.

A data warehouse centralizes and consolidates large amounts of data from multiple sources. Its analytical capabilities allow organizations to derive valuable business insights from their data to improve decision-making. Over time, it builds a historical record that can be invaluable to data scientists and business analysts. Because of these capabilities, a data warehouse can be considered an organization's "single source of truth."

**ETL :**

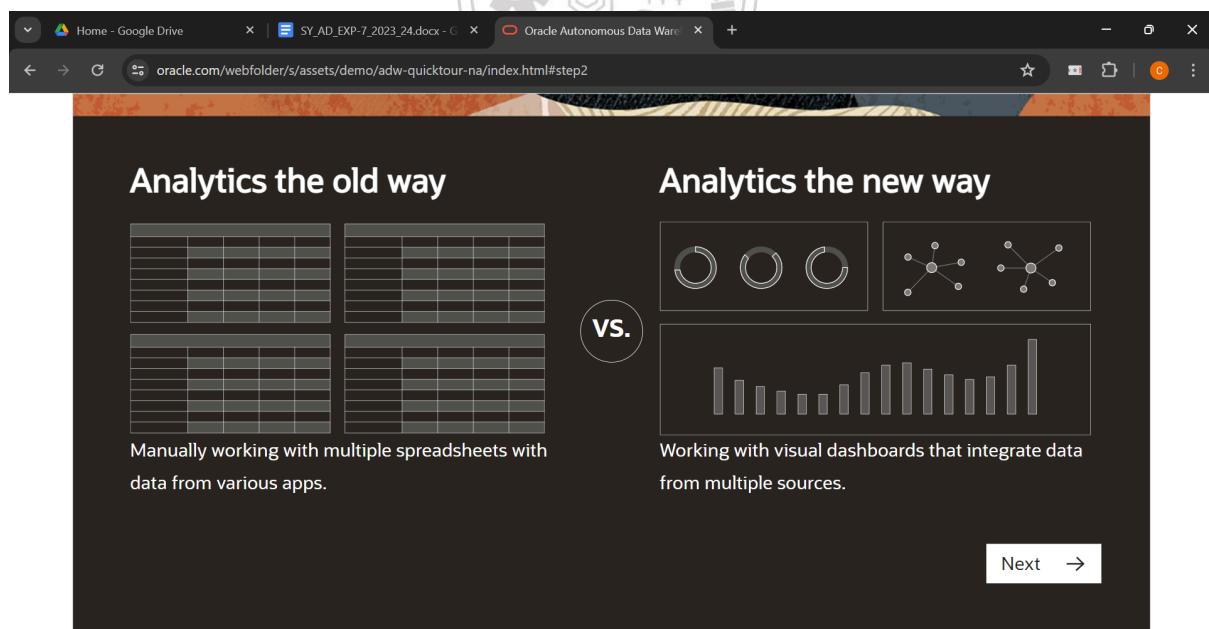
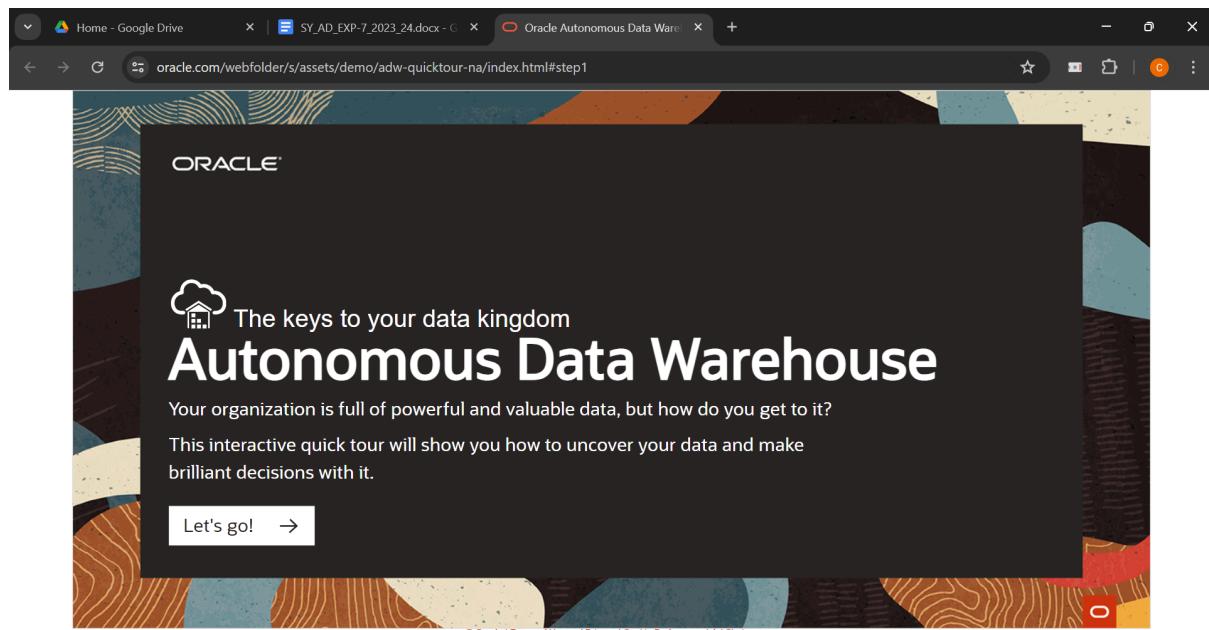
Extract, Transform, Load (ETL) refers to a process in database usage and especially in data warehousing. Data extraction is where data is extracted from homogeneous or heterogeneous data sources; data transformation where the data is transformed for storing in the proper format or structure for the purposes of querying and analysis; data loading where the data is loaded into the final target database, more specifically, an operational data store, data mart, or data warehouse.

By using an established ETL framework, one may increase one's chances of ending up with better connectivity and scalability. A good ETL tool must be able to communicate with the many different relational databases and read the various file formats used throughout an organization. ETL tools have started to migrate into Enterprise Application Integration, or even Enterprise Service Bus, systems that now cover much more than just the extraction, transformation, and loading of data. A common use case for ETL tools include converting CSV files to formats readable by relational databases. A typical translation of millions of records is facilitated by ETL tools that enable users to input csv-like data feeds/files and import it into a database with as little code as possible. ETL tools in most cases contain a GUI that helps users conveniently transform data, using a visual data mapper, as opposed to writing large programs to parse files and modify data types.

**Activities:****For Data Warehouse:**

1. Visit  
<https://www.oracle.com/webfolder/s/assets/demo/adw-quicktour-na/index.html#step1>
  2. Go through the demo of Autonomous Data Warehouse for different businesses
  3. Prepare a report with following points
    - a. The nature of analytics for different businesses given
    - b. Comparison between traditional analysis and analysis with Data Warehouse
    - c. For any two business type given, specify at least two different scenarios where the tool can be useful
- 

## Results:



Your tool today is  
**Oracle Autonomous Data Warehouse**

Select the line of business that best describes your role

Finance HR IT Marketing Sales

<https://www.oracle.com/webfolder/s/assets/demo/adw-quicktour-na/lobs/it/index.html> © Oracle | Terms of Use and Privacy | Cookie Preferences | Ad Choices

Welcome IT pro!

Here's the scenario: as an IT professional, your goal is to support your business colleagues and the objectives of the enterprise from all technical aspects. Let's explore a few examples of how Oracle can make your job easier.

Start Quick Tour →

<https://www.oracle.com/webfolder/s/assets/demo/adw-quicktour-na/lobs/it/index.html> © Oracle | Terms of Use and Privacy | Cookie Preferences | Ad Choices

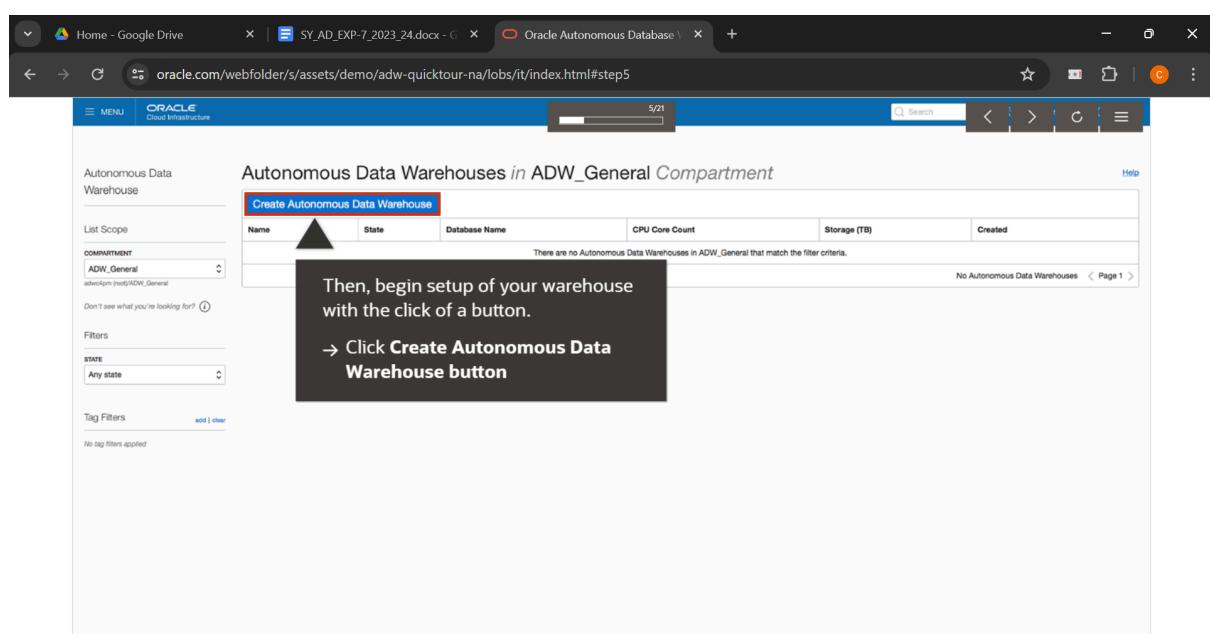
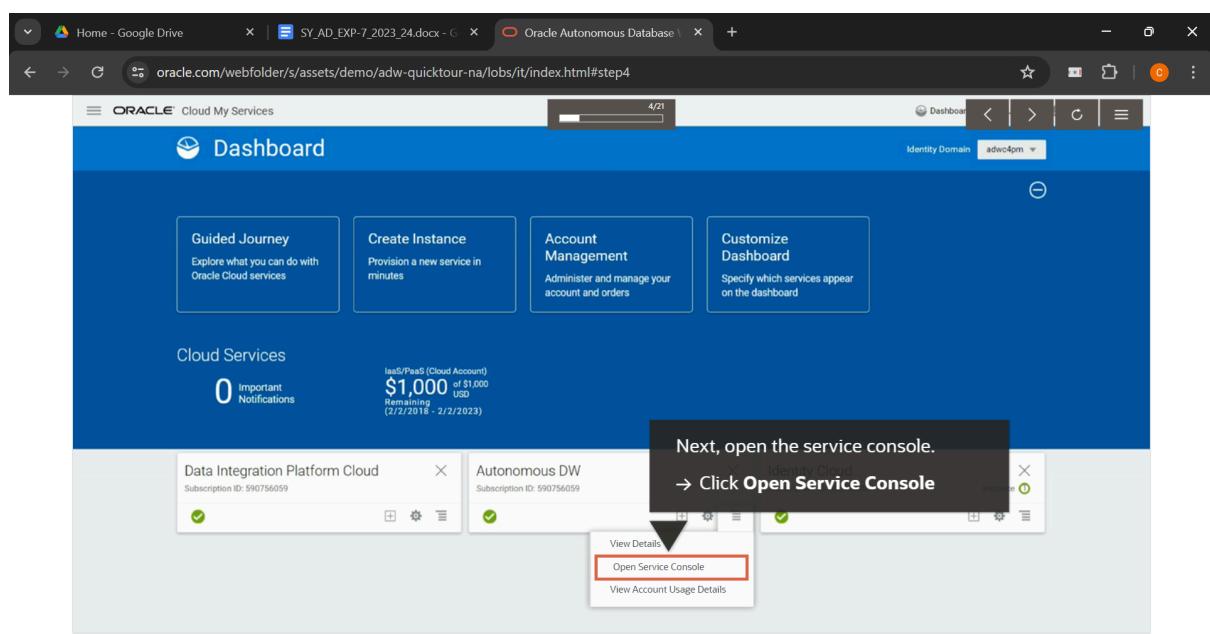
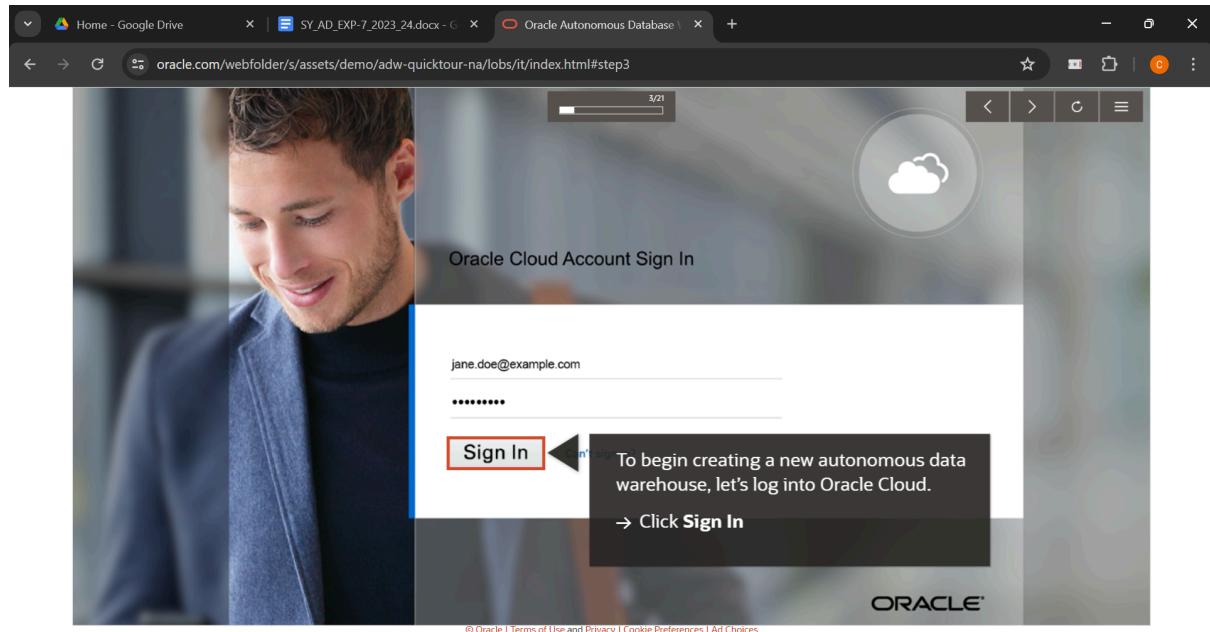
Using Oracle Autonomous Data Warehouse and Oracle Analytics you will complete 3 objectives:

1 Set up an Autonomous Data Warehouse  
2 Scale your warehouse up and down as needed  
3 Build visualizations for the sales manager

You are now *autonomous*. Let's go!

Start Objective 1 →

<https://www.oracle.com/webfolder/s/assets/demo/adw-quicktour-na/lobs/it/index.html> © Oracle | Terms of Use and Privacy | Cookie Preferences | Ad Choices





Nice work! Oracle auto-configures your new database with optimal settings, provisioning a high-performance database based on Oracle's Exadata architecture—meaning the system is fully encrypted and secure, with high availability and automatic backups. All in a matter of seconds.

Now let's see how easy it is to scale your new warehouse at will.

**Start Objective 2 →**

Profit by Product Brand & Regions

	UNITED STD	UNITED ST1	UNITED ST2	UNITED STD3	UNITED STA	UNITED STD5	UNITED ST6	UNITED ST7	UNITED ST8	UNITED STD
MFGRP141	3.925B	4.465B	4.295B	4.130B	4.464B	4.107B	4.129B	4.152B	4.024B	4.070B
MFGRP149	4.048B	4.208B	3.908B	3.954B	4.070B	3.821B	3.962B	4.515B	4.204B	4.297B
MFGRP1411	3.885B	4.195B	4.074B	4.293B	4.001B	4.031B	4.210B	4.055B	4.134B	4.119B
MFGRP142	4.138B	4.054B	4.134B	4.143B	4.107B	4.023B	4.157B	4.191B	3.873B	4.026B
MFGRP143	3.789B	4.050B	4.198B	4.253B	4.313B	4.104B	4.231B	4.207B	4.102B	4.207B
MFGRP144	4.500B	4.257B	4.047B	4.420B	4.133B	4.001B	4.152B	4.191B	4.024B	4.297B
MFGRP145	3.947B	4.199B	4.002B	3.838B	3.864B	4.198B	4.132B	4.157B	4.010B	4.207B
MFGRP146	3.800B	4.134B	3.784B	4.198B	4.132B	4.257B	3.803B	4.157B	4.010B	4.207B
MFGRP147	4.191B	4.176B	3.948B	4.257B	4.107B	4.023B	4.157B	4.191B	3.873B	4.026B
MFGRP148	3.898B	3.869B	4.186B	3.976B	3.881B	4.269B	4.207B	4.207B	4.102B	4.207B
MFGRP149	4.411B	4.175B	4.269B	4.207B	4.102B	4.207B	4.102B	4.207B	4.102B	4.207B
MFGRP142	3.875B	3.898B	4.517B	4.104B	4.231B	4.252B	4.516B	4.104B	3.949B	4.145B
MFGRP140	3.846B	4.110B	3.925B	3.830B	4.027B	4.116B	3.865B	3.915B	3.962B	4.116B
MFGRP141	4.012B	4.016B	4.217B	3.962B	4.091B	4.023B	4.157B	4.227B	4.181B	4.330B
MFGRP142	3.858B	4.047B	3.864B	4.158B	3.712B	4.110B	3.996B	4.216B	4.110B	4.330B
MFGRP145	4.111B	4.337B	4.059B	4.177B	4.214B	4.110B	4.337B	4.110B	4.110B	4.337B

Running against 6 billion records, a typical business analyst report (Profit by Brand and Regions) could take 100 seconds with a 4 CPU data warehouse.

But what if that just isn't fast enough for your business? Let's simply and quickly adjust the number of CPUs via a custom call to a REST interface.

**Next →**

Profit by Product Brand & Regions

	UNITED STD	UNITED ST1	UNITED ST2	UNITED STD3	UNITED STA	UNITED STD5	UNITED ST6	UNITED ST7	UNITED ST8	UNITED STD
MFGRP141	3.925B	4.465B	4.295B	4.130B	4.464B	4.107B	4.129B	4.152B	4.024B	4.070B
MFGRP149	4.048B	4.208B	3.908B	3.954B	4.070B	3.821B	3.962B	4.515B	4.204B	4.297B
MFGRP1411	3.885B	4.195B	4.074B	4.293B	4.001B	4.031B	4.210B	4.055B	4.134B	4.119B
MFGRP142	4.138B	4.054B	4.134B	4.143B	4.107B	4.023B	4.157B	4.191B	3.873B	4.026B
MFGRP143	3.789B	4.050B	4.198B	4.253B	4.313B	4.121B	4.210B	4.058B	3.949B	4.145B
MFGRP144	4.500B	4.257B	4.047B	4.420B	4.133B	4.252B	4.655B	4.005B	4.172B	4.196B
MFGRP145	3.947B	4.199B	4.002B	3.838B	3.864B	3.751B	4.154B	3.865B	3.915B	3.962B
MFGRP146	3.800B	4.134B	3.784B	4.198B	4.132B	3.964B	3.964B	4.022B	4.181B	3.936B
MFGRP147	4.191B	4.176B	3.948B	4.257B	4.107B	4.023B	3.913B	4.270B	3.705B	4.133B
MFGRP148	3.898B	3.869B	4.186B	3.976B	3.881B	4.027B	3.998B	4.066B	4.066B	4.066B
MFGRP149	4.411B	4.175B	4.269B	4.207B	4.102B	4.604B	4.159B	4.227B	4.227B	4.227B
MFGRP142	3.875B	3.898B	4.517B	4.104B	4.231B	3.988B	4.066B	4.066B	4.066B	4.066B
MFGRP140	3.846B	4.110B	3.925B	3.830B	4.027B	4.116B	3.865B	3.915B	3.962B	4.116B
MFGRP141	4.012B	4.016B	4.217B	3.962B	4.091B	4.023B	4.157B	4.227B	4.227B	4.227B
MFGRP142	3.858B	4.047B	3.864B	4.158B	3.712B	4.110B	3.996B	4.216B	4.110B	4.330B
MFGRP145	4.111B	4.337B	4.059B	4.177B	4.214B	4.110B	4.337B	4.110B	4.110B	4.337B

Drag the CPU scaler up to 16 for instant, additional computing power.

→ Drag Slider to 16

Scale ADWC CPUs to 16

Query Time: 100 seconds  
Current ADWC CPUs: 4

ORACLE Data Visualization

SSB\_Analysis - Project

Click here or drag data to add a filter

### Profit by Product Brand & Regions

	UNITED STD	UNITED ST1	UNITED ST2	UNITED ST3	UNITED ST4	UNITED ST5	UNITED ST6	UNITED ST7	UNITED ST8	UNITED STD
MFGR#141	3.925B	4.495B	4.295B	4.130B	4.446B	4.197B	4.129B	4.152B	4.024B	4.070B
MFGR#149	4.048B	4.208B	3.908B	3.954B	4.070B	3.821B	3.962B	3.915B	4.104B	4.297B
MFGR#1411	3.865B	4.195B	4.074B	4.203B	4.001B	4.031B	4.210B	4.055B	4.134B	4.119B
MFGR#1412	4.138B	4.054B	4.134B	4.143B	4.107B	4.023B	4.157B	4.191B	3.871B	4.050B
MFGR#1413	3.798B	4.050B	4.198B	4.255B	4.047B	3.838B	4.130B	4.160B	4.110B	3.58
MFGR#1414	4.020B	4.257B	4.047B	4.420B	4.002B	3.898B	4.130B	4.170B	4.110B	4.6B
MFGR#1415	3.947B	4.199B	4.052B	3.838B	4.018B	3.878B	4.130B	4.190B	4.110B	3.58
MFGR#1417	4.191B	4.176B	3.948B	4.257B	4.018B	3.988B	4.130B	4.170B	4.110B	3.58
MFGR#1418	3.898B	3.869B	4.186B	3.978B	4.018B	3.905B	4.227B	4.178B	4.453B	4.124B
MFGR#1419	4.411B	4.175B	4.265B	4.207B	4.104B	4.219B	3.968B	4.068B	4.275B	3.936B
MFGR#1420	3.875B	3.898B	4.517B	4.110B	3.925B	4.027B	4.167B	3.773B	3.926B	3.986B
MFGR#1421	4.012B	4.016B	4.217B	3.962B	4.091B	3.905B	4.227B	4.178B	4.453B	4.124B
MFGR#1422	3.868B	4.047B	3.864B	4.158B	3.712B	4.110B	4.008B	3.968B	3.668B	3.58
MFGR#1425	4.111B	4.337B	4.059B	4.177B	4.214B	3.998B	4.216B	4.292B	4.339B	4.264B

Now refresh the report to get the updated performance stats.  
→ Click Refresh Data

Query Time: 100 seconds  
Current ADWC CPUs: 15

Scale ADWC CPUs to:

0 4 16 32 48 64 96 128

Project Properties  
Canvas Properties  
Data Actions  
✓ Synchronize Visualizations  
Refresh Data  
Refresh Data Sets  
Reset Colors  
Clear Canvas  
Create New Project  
Revert to Saved  
Debug

ORACLE Data Visualization

SSB\_Analysis - Project

Click here or drag data to add a filter

### Profit by Product Brand & Regions

	UNITED STD	UNITED ST1	UNITED ST2	UNITED ST3	UNITED ST4	UNITED ST5	UNITED ST6	UNITED ST7	UNITED ST8	UNITED STD
MFGR#141	3.925B	4.495B	4.295B	4.130B	4.446B	4.197B	4.129B	4.152B	4.024B	4.070B
MFGR#149	4.048B	4.208B	3.908B	3.954B	4.070B	3.821B	3.962B	3.915B	4.104B	4.297B
MFGR#1411	3.865B	4.195B	4.074B	4.203B	4.001B	4.031B	4.210B	4.055B	4.134B	4.119B
MFGR#1412	4.138B	4.054B	4.134B	4.143B	4.107B	4.023B	4.157B	4.191B	3.873B	4.060B
MFGR#1413	3.798B	4.050B	4.198B	4.255B	4.047B	3.838B	4.130B	4.160B	4.110B	3.58
MFGR#1414	4.020B	4.257B	4.047B	4.420B	4.002B	3.838B	4.130B	4.170B	4.110B	4.6B
MFGR#1415	3.947B	4.199B	4.052B	3.838B	4.018B	3.878B	4.130B	4.190B	4.110B	3.58
MFGR#1417	4.191B	4.176B	3.948B	4.257B	4.018B	3.988B	4.130B	4.170B	4.110B	3.58
MFGR#1418	3.898B	3.869B	4.186B	3.978B	4.018B	3.905B	4.227B	4.178B	4.453B	4.124B
MFGR#1419	4.411B	4.175B	4.265B	4.207B	4.104B	4.219B	3.968B	4.068B	4.275B	3.936B
MFGR#1420	3.846B	3.875B	4.517B	4.110B	3.925B	4.027B	4.167B	3.773B	3.926B	3.986B
MFGR#1421	4.012B	4.016B	4.217B	3.962B	4.091B	3.905B	4.227B	4.178B	4.453B	4.124B
MFGR#1422	3.868B	4.047B	3.864B	4.158B	3.712B	4.110B	4.008B	3.968B	3.668B	3.58
MFGR#1425	4.111B	4.337B	4.059B	4.177B	4.214B	3.998B	4.216B	4.292B	4.339B	4.264B

Process time dropped from 100 to just 13 seconds—now that's more like it.

Next →

Query Time: 13 seconds  
Current ADWC CPUs: 15

Scale ADWC CPUs to:

0 4 16 32 48 64 96 128

Project Properties  
Canvas Properties  
Data Actions  
✓ Synchronize Visualizations  
Refresh Data  
Refresh Data Sets  
Reset Colors  
Clear Canvas  
Create New Project  
Revert to Saved  
Debug

ORACLE Data Visualization      1/21      Prepare Visualize Narrate Save

### SSB\_Analysis - Project

Data Elements    Click here or drag data to add a filter

**Profit by Product Brand & Regions**

	UNITED ST0	UNITED ST1	UNITED ST2	UNITED ST3	UNITED ST4	UNITED ST5	UNITED ST6	UNITED ST7	UNITED ST8	UNITED ST9
MFGR#1411	3.92E8	4.46E8	4.29E8	4.13E8	4.46E8	4.167B	4.129B	4.162B	4.024B	4.070B
MFGR#1411	4.04E8	4.20E8	3.90E8	3.954B	4.070B	3.821B	3.962B	4.516B	4.104B	4.297B
MFGR#1411	3.86E8	4.19E8	4.074B	4.293B	4.001B	4.021B	4.210B	4.055B	4.134B	4.119B
MFGR#1412	4.13E8	4.054B	4.134B	4.143B	4.107B	4.023B	4.157B	4.191B	3.873B	4.062B
MFGR#1413	3.79E8	4.050B	4.196B	4.253B	4.131B	4.121B	3.821B	4.058B	3.949B	4.165B
MFGR#1414	4.02E8	4.257B	4.047B	4.420B	4.133B	4.262B	4.659B	4.000B	4.172B	4.196B
MFGR#1415	3.947B	4.199B	4.002B	3.838B	3.864B	3.751B	4.154B	3.865B	3.915B	3.902B
MFGR#1416	3.860B	4.134B	3.784B	4.198B	4.132B	3.964B	3.964B	4.022B	3.916B	3.902B
MFGR#1417	4.191B	4.176B	3.948B	4.257B	3.863B	4.276B	4.116B	4.270B	3.913B	4.366B
MFGR#1418	3.898B	3.869B	4.186B	3.978B	3.861B	4.027B	3.910B	4.106B	4.275B	4.227B
MFGR#1419	4.411B	4.175B	4.269B	4.207B	4.102B	4.594B	4.159B	4.025B	4.172B	4.196B
MFGR#1420	3.875B	3.898B	4.557B	4.104B	4.231B	3.969B	4.066B	4.275B	3.878B	3.772B
MFGR#1420	3.846B	4.112B	3.925B	3.930B	4.027B	4.167B	4.659B	4.000B	4.172B	4.196B
MFGR#1421	4.012B	4.016B	4.217B	3.962B	4.091B	3.905B	4.227B	4.178B	3.915B	4.000B
MFGR#1422	3.888B	4.047B	3.864B	4.158B	3.712B	3.729B	4.110B	4.000B	4.172B	4.196B
MFGR#1425	4.111B	4.337B	4.059B	4.177B	4.214B	3.998B	4.216B	4.292B	3.998B	4.264B

You can even scale capacity down just as easily to "shut off" CPUs when your data warehouse is not in use.  
→ Drag Slider to 0

Query Time: 13 seconds    Current ADWC CPUs: 16

Scale ADWC CPUs to:

0 4 16 32 48 64 96 128

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ORACLE Data Visualization      1/21      Prepare Visualize Narrate Save

### SSB\_Analysis - Project

Data Elements    Click here or drag data to add a filter

**Profit by Product Brand & Regions**

	UNITED ST0	UNITED ST1	UNITED ST2	UNITED ST3	UNITED ST4	UNITED ST5	UNITED ST6	UNITED ST7	UNITED ST8	UNITED ST9
MFGR#1411	3.92E8	4.46E8	4.29E8	4.13E8	4.46E8	4.167B	4.129B	4.162B	4.024B	4.070B
MFGR#1411	4.04E8	4.20E8	3.90E8	3.954B	4.070B	3.821B	3.962B	4.516B	4.104B	4.297B
MFGR#1411	3.86E8	4.19E8	4.074B	4.293B	4.001B	4.021B	4.210B	4.055B	4.134B	4.119B
MFGR#1412	4.13E8	4.054B	4.134B	4.143B	4.107B	4.023B	4.157B	4.191B	3.873B	4.062B
MFGR#1413	3.79E8	4.050B	4.196B	4.253B	4.131B	4.121B	3.821B	4.058B	3.949B	4.165B
MFGR#1414	4.050B	4.257B	4.047B	4.420B	4.133B	4.262B	4.659B	4.000B	4.172B	4.196B
MFGR#1415	3.947B	4.199B	4.002B	3.838B	3.864B	3.751B	4.154B	3.865B	3.915B	3.926B
MFGR#1416	3.860B	4.134B	3.784B	4.198B	4.132B	3.964B	4.022B	4.181B	3.936B	3.926B
MFGR#1417	4.191B	4.176B	3.948B	4.257B	3.863B	4.276B	4.116B	4.270B	3.907B	4.133B
MFGR#1418	3.898B	3.869B	4.186B	3.978B	3.861B	4.027B	3.930B	4.222B	3.905B	3.980B
MFGR#1419	4.411B	4.175B	4.269B	4.207B	4.102B	4.594B	4.159B	4.025B	4.172B	4.196B
MFGR#1420	3.875B	3.846B	4.112B	3.925B	3.930B	4.231B	3.779B	4.227B	3.905B	4.000B
MFGR#1421	4.012B	4.016B	4.217B	3.962B	4.091B	3.905B	4.453B	4.124B	3.698B	4.264B
MFGR#1422	3.888B	4.047B	3.864B	4.158B	3.712B	3.729B	4.110B	4.000B	4.172B	4.196B
MFGR#1425	4.111B	4.337B	4.059B	4.177B	4.214B	3.998B	4.216B	4.292B	3.998B	4.264B

Now you're only paying for what you use, and only when you need.

Next →

Query Time: 13 seconds    Current ADWC CPUs: 0

Scale ADWC CPUs to:

0 4 16 32 48 64 96 128

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ORACLE Data Visualization      12/21      Prepare Visualize Narrate Save

### Objective 2 Complete



IT

Nice work! Just as you're exploring easy scaling, a request for data visualizations comes in from the sales manager. Let's explore how quick and easy it is to build effective visualizations to gather key insights.

Start Objective 3 →

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The screenshot shows the Oracle Data Visualization home screen. At the top, there's a search bar with the placeholder "What are you interested in?". Below it, a callout box says: "The sales manager needs key information about sales by product, profit, and customer segment. From the Data Visualization home screen, quickly type the queries you're interested in to see visual results." It also says "→ Type in ‘sales’". To the right, there are several cards: "Visualize data ‘Revenue by Product’", "Find sources of data ‘Financial Data’", "Color by Attribute example Project", "Mobile Viz Project", "Download Samples", "Connect to Your Data", and "Explore Your Data". A tip at the bottom left says: "Tip: Create a new Data Set by simply dropping your file anywhere on this page".

This screenshot is similar to the previous one, but the search bar now contains the word "sales". The search results below show "Q. “Sales”" and "Visualize data using Sales". Under "Sales", there are three items: "Sample Orders R Examples", "Campaign", and "Sample Order Lines". The "Sample Order Lines" item is highlighted with a red border. A callout box says: "The smart search panel automatically suggests query results. → Click Sales".

This screenshot shows the results of the search for "Sales". On the left, there's a large visualization card with the value "8,500,000.00" prominently displayed. To the right, a callout box says: "Visual results are instantly displayed. Let's add a product filter to keep building our picture of all the information the sales manager needs." A "Next →" button is at the bottom of the callout.

Home - Google Drive | SY\_AD\_EXP-7\_2023\_24.docx - Oracle Autonomous Database | oracle.com/webfolder/s/assets/demo/adw-quicktour-na/lobs/it/index.html#step15

**ORACLE Data Visualization**

**Home**

Sales

Product Name  
Sample Order Lines

Product Container  
Sample Order Lines

Product Category  
Sample Order Lines

**Product Sub Category**  
Sample Order Lines

**8,500,000**  
Let's add "Product Sub Category" to the mix.  
→ Click **Product Sub Category**

Sales

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**ORACLE Data Visualization**

**Home**

Sales Product Sub Category

**Visualization**

Notice how the visualization starts to build based on all search parameters we choose, painting a clearer picture. Let's keep going.

Next →

Sales by Product Sub Category

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**ORACLE Data Visualization**

**Home**

Sales Product Sub Category profit

Profit  
Sample Order Lines

**Visualization**

Click the selection to add to our visuals.  
→ Click #Profit

Sales by Product Sub Category

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ORACLE Data Visualization 18/21

**Home**

Sales Product Sub Category Profit

**Visualization**

Sales, Profit by Product Sub Category

Product Sub Category

Profit by Product Sub Category

Sales by Product Sub Category

Now we're getting some really good stuff.  
One last query—let's add customer data.

Next →

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ORACLE Data Visualization 19/21

**Home**

Sales # of Customers Sample Order Lines

Customer Segment Sample Order Lines

Customer Name Sample Order Lines

Customer ID Sample Order Lines

Sales

Select "Customer Segment" add it to the mix.

8,500,000.00 → Select Customer Segment

Sales

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ORACLE Data Visualization 20/21

**Home**

Sales Product Sub Category Profit Customer Segment

**Visualization**

Sales, Profit by Product Sub Category, Customer Segment

Customer Segment

Sales by Product Sub Category

Sales by Product Sub Category, Customer Segment

Sales by Product Sub Category

Looks great!

Now you have a complete view to send over to the sales manager—which can even be sent to any mobile device, perfect for a business traveling scenario.

Finish! →

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The screenshot shows a web browser window with three tabs open. The active tab is titled 'SY\_AD\_EXP-7\_2023\_24.docx - Oracle Autonomous Database'. The page content is a success message: 'Mission accomplished!'. It features a small icon of a lightbulb inside a circle with the word 'IT' below it. A text message says: 'Thanks to the ease of use and power of Oracle Autonomous Data Warehouse you've successfully embraced the power of autonomous with Oracle.' Below this is a section titled 'Next step:' with a button labeled 'Access the free trial'.

## Report for Data Warehouse

### a. The nature of analytics for different businesses given

- Finance: In finance, analytics often involve financial forecasting, risk management, and fraud detection. With Autonomous Data Warehouse (ADW), finance teams can analyze large volumes of historical and real-time financial data to identify trends, anomalies, and potential risks.
- HR: HR analytics encompass employee performance analysis, talent acquisition, and workforce planning. ADW enables HR departments to analyze employee data, such as performance ratings, turnover rates, and demographic information, to optimize recruitment strategies and improve employee retention.
- IT: IT analytics focus on infrastructure performance monitoring, cybersecurity threat detection, and IT service management. ADW provides IT teams with the capability to consolidate and analyze vast amounts of log data, network traffic, and security events to identify potential vulnerabilities and enhance system performance.
- Marketing: Marketing analytics involve customer segmentation, campaign performance analysis, and customer churn prediction. With ADW, marketing teams can analyze customer behavior, purchase history, and demographic data to personalize marketing campaigns, optimize marketing spend, and improve customer engagement.
- Sales: Sales analytics include sales forecasting, customer relationship management, and sales pipeline analysis. ADW empowers sales teams to analyze sales data, such as sales transactions, customer interactions, and sales funnel metrics, to identify cross-selling opportunities, forecast sales revenue, and improve sales performance.

### b. Comparison between traditional analysis and analysis with Data Warehouse

- Scalability: Traditional analysis often relies on relational databases or spreadsheets, which may struggle to handle large volumes of data. In contrast, ADW offers scalability to process and analyze petabytes of data efficiently.
- Performance: Traditional analysis may suffer from slow query performance and limited processing power, especially when dealing with complex analytical queries.

ADW leverages parallel processing and optimization techniques to deliver high-performance analytics, enabling faster decision-making.

- Accessibility: Traditional analysis typically requires manual data extraction, transformation, and loading (ETL) processes, which can be time-consuming and error-prone. ADW automates data ingestion and integration tasks, providing users with real-time access to integrated and cleansed data for analysis.

**c. For any two business type given, specify at least two different scenarios where the tool can be useful**

Finance:

- Scenario 1: Risk Management ADW can analyze historical financial data and market trends to identify potential risks and predict financial market fluctuations, enabling finance professionals to make informed investment decisions.
- Scenario 2: Fraud Detection ADW can analyze transactional data and detect patterns indicative of fraudulent activities, helping finance teams to prevent financial losses and maintain regulatory compliance.

Marketing:

- Scenario 1: Customer Segmentation ADW can analyze customer demographic data, purchase behavior, and interaction history to segment customers based on their preferences and behavior, enabling marketers to tailor marketing campaigns for specific customer segments.
- Scenario 2: Campaign Performance Analysis ADW can analyze campaign engagement metrics, such as click-through rates, conversion rates, and return on investment (ROI), to evaluate the effectiveness of marketing campaigns and optimize marketing spend for maximum impact.

### **Outcomes: Understanding of data warehouse and its multi-dimensional modeling**

#### **Conclusion: (Conclusion to be based on the outcomes achieved)**

Autonomous Data Warehouse revolutionizes data analytics across diverse industries by offering scalability, speed, cost-effectiveness, and ease of use compared to traditional analysis methods. By leveraging ADW, businesses can unlock valuable insights from their data, drive innovation, and gain a competitive edge in today's data-driven world.

#### **Grade: AA / AB / BB / BC / CC / CD /DD**

#### **Signature of faculty in-charge with date**

#### **References:**

- <https://www.oracle.com/in/database/what-is-a-data-warehouse>
- Paulraj Ponniah, "Data Warehousing: Fundamentals for IT Professionals", Wiley India