



Innovación con datos en la nube

Usando Machine Learning con la
base de datos autónoma de Oracle

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Junio 2021



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Oracle Machine Learning Workshop

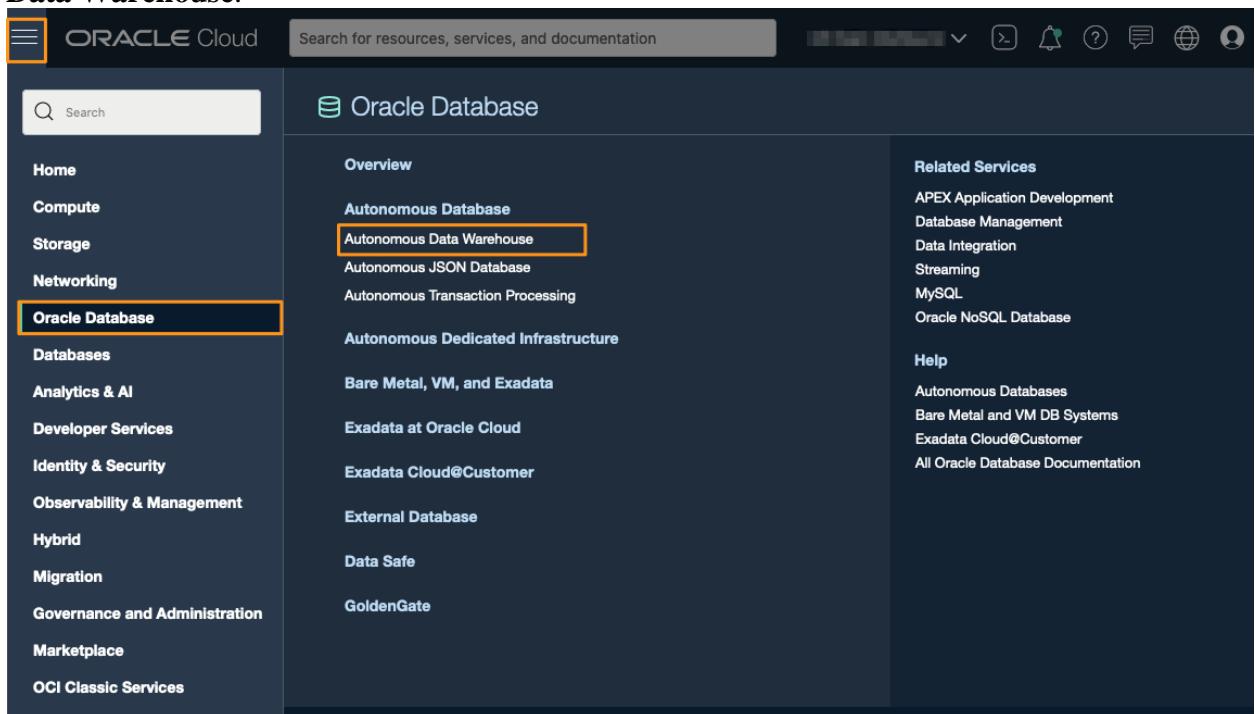
El siguiente workshop esta basado en de Oracle LiveLabs

https://apexapps.oracle.com/pls/apex/dbpm/r/livelabs/workshop-attendee-2?p210_workshop_id=560&p210_type=2&session=104380020147405

Oracle Machine Learning es una técnica poderosa para analizar datos, y en esta secuencia de workshop, le mostraremos cómo aplicarlo a los datos más valiosos de su organización. Si es un profesional de datos de Oracle pero no un científico de datos, este taller lo llevará a través de su primer proyecto de aprendizaje automático desde la preparación de datos hasta una implementación exitosa de un modelo integrado en una aplicación APEX.

Paso 1: Crear una instancia ADW

- 1) Ir al **Menu** arriba la izquierda, Seleccionar **Oracle Database** y después **Autonomouse Data Warehouse**.



2) Seleccionar **Create Autonomous Database**

The screenshot shows the Oracle Cloud interface for Autonomous Databases. On the left, there's a sidebar with 'Autonomous Database' selected. The main area is titled 'Autonomous Databases in DEMO Compartment'. A blue box highlights the 'Create Autonomous Database' button. Below it is a table with columns: Display Name, State, Dedicated, OCPUs, Storage (TB), Workload Type, Autonomous Data Guard, and Created. The table shows 'No items'. At the bottom right, it says 'Displaying 0 Autonomous Databases 1 of 1'.

- 3) Selecionen el **Compartment** donde quieren la instancia (*pueden usar el que tienen por default si es su primera vez en OCI*). Para **Display Name** puede poner el nombre de **ADWLab** y para **Database name** pueden poner el nombre **OCRL**.

Create Autonomous Database

The screenshot shows the 'Create Autonomous Database' configuration page. It has a title 'Provide basic information for the Autonomous Database'. There are three input fields: 'Compartment' (with a red box around it), 'Display name' (with a red box around it and containing 'ADWLab'), and 'Database name' (with a red box around it and containing 'OCRL'). Below the 'Database name' field is a note: 'The name must contain only letters and numbers, starting with a letter. Maximum of 14 characters.'

- 4) En **Choose workload type** selecciona *Data Warehouse*. En **Choose a deployment type** seleccionen *Shared Infrastructure*.

The screenshot shows the configuration interface for choosing a workload type and deployment type. The 'Data Warehouse' option under 'Choose a workload type' is selected and highlighted with a red border. The 'Shared Infrastructure' option under 'Choose a deployment type' is also selected and highlighted with a red border. Both options have a blue checkmark icon at the bottom right.

Choose a workload type	Choose a deployment type
Data Warehouse Built for decision support and data warehouse workloads. Fast queries over large volumes of data. <input checked="" type="checkbox"/>	Transaction Processing Built for transactional workloads. High concurrency for short-running queries and transactions. <input checked="" type="checkbox"/>
JSON Built for JSON-centric application development. Developer-friendly document APIs and native JSON storage. <input checked="" type="checkbox"/>	APEX Built for Oracle APEX application development. Creation and deployment of low-code applications, with database included. <input checked="" type="checkbox"/>
Shared Infrastructure Run Autonomous Database on shared Exadata infrastructure. <input checked="" type="checkbox"/>	Dedicated Infrastructure Run Autonomous Database on dedicated Exadata infrastructure. <input checked="" type="checkbox"/>

- 5) En **Configure the database**, **Choose database version**, **Storage (TB)** y **OCPU Count** déjenlo como se encuentra.

The screenshot shows the 'Configure the database' section. The 'Always Free' toggle switch is off. The 'Choose database version' dropdown is set to '19c'. The 'OCPUs Count' input field is set to '1'. The 'Storage (TB)' input field is set to '1'. The 'Auto scaling' checkbox is checked. The entire 'Choose database version' dropdown, the 'OCPUs Count' field, and the 'Storage (TB)' field are circled with red circles.

- 6) Pongan una contraseña. Esta contraseña es sumamente importante así que escríbanlo en algún lugar.

The screenshot shows the 'Create administrator credentials' section. The 'Username' field is set to 'ADMIN'. The 'Password' field contains a redacted password. The 'Confirm password' field also contains a redacted password. The 'Password' and 'Confirm password' fields are circled with red circles.

- 7) En la sección **Choose network Access**, para **Access Type** selecciona *Allow secure Access from everywhere*, y **Choose a license type** selecciona *License Included*. Después

as click en el botón **Create Autonomous Database**.

The screenshot shows the 'Choose network access' step of the 'Create Autonomous Database' wizard. It has two main sections: 'Access Type' and 'Choose a license type'.

Access Type:

- Allow secure access from everywhere** (selected): You can restrict access to specific IP addresses and VCNs.
- Virtual cloud network**: Private access only, using a VCN.

Choose a license type:

- Bring Your Own License (BYOL)**: Bring my organization's Oracle Database software licenses to the Database service. [Learn more](#).
- License Included** (selected): Subscribe to new Oracle Database software licenses and the Database service.

At the bottom are two buttons: **Create Autonomous Database** (highlighted with a red box) and **Cancel**.

8) La base de datos se provisionará.



ADWLab

Search for resources, services, and documentation

US East (Ashburn) ▾

Overview > Autonomous Database > Autonomous Database Details

Autonomous Database Information

General Information

- Database Name: ORCL
- Workload Type: Data Warehouse
- Compartment: [REDACTED] /DEMO
- OCID: ...kc767q [Show](#) [Copy](#)
- Created: Thu, Mar 4, 2021, 15:06:38 UTC
- OCPU Count: 1
- Storage: 1 TB
- License Type: License included
- Database Version: 19c
- Auto Scaling: Enabled ⓘ
- Lifecycle State: Provisioning
- Instance Type: Paid
- Mode: Read/Write [Edit](#)

Infrastructure

- Dedicated Infrastructure: No
- Autonomous Data Guard ⓘ
- Status: Disabled [Enable](#)

Backup

- Last Automatic Backup: No active backups exist for this database.
- Manual Backup Store: Not Configured

Network

- Access Type: Allow secure access from everywhere
- Access Control List: Disabled [Edit](#)



ADWLab

Search for resources, services, and documentation

US East (Ashburn) ▾

Overview > Autonomous Database > Autonomous Database Details

Autonomous Database Information

General Information

- Database Name: ORCL
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- OCID: ...kc767q [Show](#) [Copy](#)
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- OCPU Count: 1
- Storage: 1 TB
- License Type: License included
- Database Version: 19c
- Auto Scaling: Enabled ⓘ
- Lifecycle State: Available
- Instance Type: Paid
- Mode: Read/Write [Edit](#)

Operations Insights ⓘ

- Status: Not Enabled [Enable](#)

Infrastructure

- Dedicated Infrastructure: No
- Autonomous Data Guard ⓘ
- Status: Disabled [Enable](#)

Backup

- Last Automatic Backup: No active backups exist for this database.
- Manual Backup Store: Not Configured

Network

- Access Type: Allow secure access from everywhere
- Access Control List: Disabled [Edit](#)

Maintenance ⓘ

- Next Maintenance: Sun, Mar 7, 2021, 16:00:00 UTC - 20:00:00 UTC

Paso 2: Crear un usuario para ML en ADW

- 1) Ir al **Menu** arriba la izquierda, Seleccionar **Oracle Database** y después **Autonomouse Data Warehouse**.

The screenshot shows the Oracle Cloud interface. The left sidebar has a search bar and navigation links including Home, Compute, Storage, Networking, Oracle Database (which is selected and highlighted with an orange border), Databases, Analytics & AI, Developer Services, Identity & Security, Observability & Management, Hybrid, Migration, Governance and Administration, Marketplace, and OCI Classic Services. The main content area is titled "Oracle Database" and has a sub-section "Overview". Under "Autonomous Database", "Autonomous Data Warehouse" is selected and highlighted with an orange border. Other options include Autonomous JSON Database and Autonomous Transaction Processing. Under "Autonomous Dedicated Infrastructure", options like Bare Metal, VM, and Exadata, Exadata at Oracle Cloud, Exadata Cloud@Customer, External Database, Data Safe, and GoldenGate are listed. A "Related Services" sidebar on the right lists APEX Application Development, Database Management, Data Integration, Streaming, MySQL, and Oracle NoSQL Database. A "Help" sidebar lists Autonomous Databases, Bare Metal and VM DB Systems, Exadata Cloud@Customer, and All Oracle Database Documentation. The top right corner shows a dropdown for location (US East (Ashburn)), a search bar, and various status icons.

The screenshot shows the "Autonomous Databases in DEMO Compartiment" page. It features a table with one row of data. The table columns are: Display Name, State, Dedicated, OCPUs, Storage (TB), Workload Type, Autonomous Data Guard, and Created. The data row is: ADWLab, Available, No, 1, 1, Data Warehouse, Disabled, Thu, Mar 4, 2021, 15:06:38 UTC. Below the table, a message says "Displaying 1 Autonomous Database < 1 of 1 >". On the left, there are filters for List Scope (set to DEMO), Compartment (set to DEMO), and Workload Type (set to Data Warehouse). There are also filters for State (set to Any state).

Create Autonomous Database							
Display Name	State	Dedicated	OCPUs	Storage (TB)	Workload Type	Autonomous Data Guard	Created
ADWLab	Available	No	1	1	Data Warehouse	Disabled	Thu, Mar 4, 2021, 15:06:38 UTC

2) Seleccionar Tools

The screenshot shows the Oracle Cloud interface for an Autonomous Database named ORCL. The top navigation bar includes the Oracle Cloud logo, a search bar, and a dropdown for 'US East (Ashburn)'. The main content area is titled 'ADWLab' and displays 'Autonomous Database Information'. A navigation bar at the top of this section includes 'DB Connection', 'Performance Hub', 'Service Console', 'Scale Up/Down', and 'More Actions'. The 'Tools' tab is highlighted with a red box. Below this, there are sections for 'General Information' and 'Operations Insights'. To the right, there are sections for 'Infrastructure', 'Autonomous Data Guard', 'Backup', 'Network', and 'Maintenance'. Each section contains various status and configuration details.

3) Seleccionar Open Oracle ML User Administration

The screenshot shows the 'Tools' section of the ADWLab interface. The top navigation bar includes the Oracle Cloud logo, a search bar, and various icons for notifications and help. The main content area is titled 'ADWLab' and displays 'Database administration and developer tools for Autonomous Database'. A navigation bar at the top of this section includes 'DB Connection', 'Performance Hub', 'Service Console', 'Scale Up/Down', and 'More Actions'. The 'Tools' tab is highlighted with a red box. Below this, there are four main sections: 'Database Actions', 'Oracle Application Express', 'Oracle ML User Administration', and 'SODA Drivers'. The 'Oracle ML User Administration' section is highlighted with a red box around its title and 'Open Oracle ML User Administration' button. Each section contains descriptive text and a corresponding 'Open' or 'Download' button.

- 4) Les abrió una pantalla para sign in. Tienen que poner de Username **ADMIN** y de Password, la que escribieron cuando configuramos la instancia de ADW.

- 5) Da click en **Create**

User Name	Full Name	Role	Email	Created On	Status
ADMIN		System Administrator		27/01/2020 23:34	Open

- 6) Para llenar la forma pongan como **Username ML_USER**, en **Email Address** pueden usar admin@oracle.com. **Deselecciónen el checkbox Generate Password**. Introduzcan en **Password** una contraseña que se acuerden de ella. Por ultimo le dan click en **Create**.

- 7) Se darán cuenta que se creo un usuario llamado ***ML_USER***.

The screenshot shows the Oracle Machine Learning User Administration interface. At the top, there's a header bar with the ORACLE logo and the text "Machine Learning User Administration". Below the header, a blue banner says "User Created". The main area is titled "Users". There's a toolbar with buttons for "+ Create", "Delete", and "Show All Users". On the right, there's a search bar with a magnifying glass icon. The main table has columns: "User Name", "Full Name", "Role", "Email", "Created On", and "Status". Two rows are visible: one for "ADMIN" (System Administrator, created on 27/01/2020 23:34, Open) and one for "ML_USER" (Developer, created on 04/03/2021 16:35, Open). A red arrow points to the "ML_USER" row.

User Name	Full Name	Role	Email	Created On	Status
ADMIN		System Administrator		27/01/2020 23:34	Open
ML_USER		Developer	admin@oracle.com	04/03/2021 16:35	Open

Paso 3: Otorgar privilegios al usuario ***ML_USER***

- 1) Ir al **Menu** arriba la izquierda, Seleccionar **Oracle Database** y después **Autonomouse Data Warehouse**.

The screenshot shows the Oracle Cloud interface with the Oracle Database service selected. The left sidebar has a search bar and links to various services: Home, Compute, Storage, Networking, Oracle Database (selected), Databases, Analytics & AI, Developer Services, Identity & Security, Observability & Management, Hybrid, Migration, Governance and Administration, Marketplace, and OCI Classic Services. The main content area is titled "Oracle Database" and "Overview". It lists "Autonomous Database" sub-options: Autonomous Data Warehouse (selected), Autonomous JSON Database, and Autonomous Transaction Processing. Below that is "Autonomous Dedicated Infrastructure" with options: Bare Metal, VM, and Exadata (Exadata at Oracle Cloud, Exadata Cloud@Customer), External Database, Data Safe, and GoldenGate. To the right, there's a "Related Services" section with links to APEX Application Development, Database Management, Data Integration, Streaming, MySQL, and Oracle NoSQL Database. A "Help" section links to Autonomous Databases, Bare Metal and VM DB Systems, Exadata Cloud@Customer, and All Oracle Database Documentation. The top navigation bar includes a search bar, user profile, and system status.

The screenshot shows the "Autonomous Database" list page. The title is "Autonomous Databases in DEMO Compartment". A "Create Autonomous Database" button is at the top. The table lists one database entry:

Display Name	State	Dedicated	OCPUs	Storage (TB)	Workload Type	Autonomous Data Guard	Created	Actions
ADWLab	Available	No	1	1	Data Warehouse	Disabled	Thu, Mar 4, 2021, 15:06:38 UTC	⋮

Below the table, it says "Displaying 1 Autonomous Database < 1 of 1 >". On the left, there are filters for "List Scope" (Compartment: DEMO), "Filters" (Workload Type: Data Warehouse, State: Any state), and other search fields like "Autonomous Database", "Dedicated Infrastructure", "Autonomous Container Database", and "Autonomous Exadata Infrastructure". The top navigation bar is identical to the previous screenshot.

2) Seleccionar Tools

The screenshot shows the Oracle Cloud interface for an Autonomous Database named 'ADWLab'. The 'Tools' tab is highlighted with a red box. The page displays various database details such as General Information, Infrastructure, Autonomous Data Guard, Backup, Network, and Maintenance.

General Information

- Database Name: ORCL
- Workload Type: Data Warehouse
- Compartment: [REDACTED]/DEMO
- OCID: .k0767q [Show](#) [Copy](#)
- Created: Thu, Mar 4, 2021, 15:06:38 UTC
- OCPU Count: 1
- Storage: 1 TB
- License Type: License included
- Database Version: 19c
- Auto Scaling: Enabled [\(i\)](#)
- Lifecycle State: Available
- Instance Type: Paid
- Mode: Read/Write [Edit](#)

Operations Insights [\(i\)](#)

Status: Not Enabled [Enable](#)

Infrastructure

Dedicated Infrastructure: No

Autonomous Data Guard [\(i\)](#)

Status: Disabled [Enable](#)

Backup

Last Automatic Backup: No active backups exist for this database.

Manual Backup Store: Not Configured

Network

Access Type: Allow secure access from everywhere

Access Control List: Disabled [Edit](#)

Maintenance [\(i\)](#)

Next Maintenance: Sun, Mar 7, 2021, 16:00:00 UTC - 20:00:00 UTC

3) Seleccionar Open Database Actions

The screenshot shows the Oracle Cloud interface for the same Autonomous Database 'ADWLab'. The 'Tools' tab is highlighted with a red box. The 'Database Actions' section is expanded, showing options like 'Open Database Actions' (which is also highlighted with a red box), 'Open APEX', 'Open Oracle ML User Administration', and 'Download SODA Drivers'.

Database Actions

Load, explore, transform, model, and catalog your data. Use an SQL worksheet, build REST interfaces and low-code apps, manage users and connections, build and apply machine learning models. [Learn more](#).

[Open Database Actions](#)

Oracle Application Express

Oracle Application Express (APEX) is a low-code development platform that enables you to build scalable, secure enterprise apps that can be deployed anywhere. [Learn more](#).

[Open APEX](#)

Oracle ML User Administration

Oracle Machine Learning is a development environment that uses a web-based interface to enable you to perform data analytics, data discovery and data visualizations. [Learn more](#).

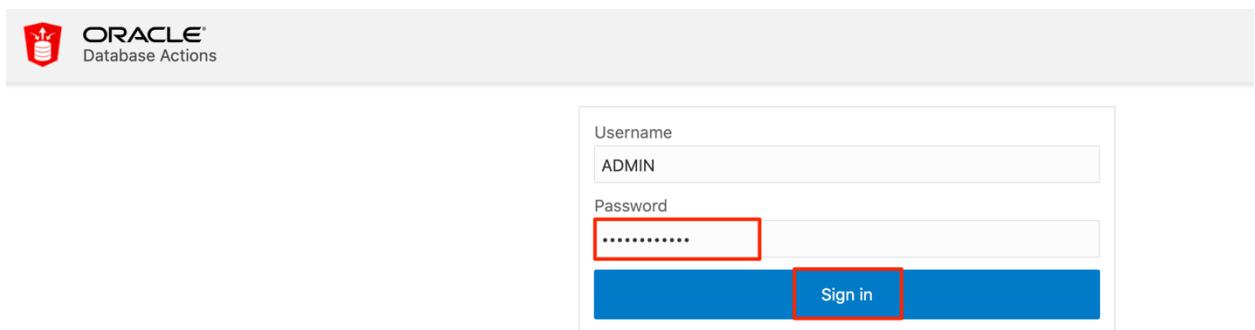
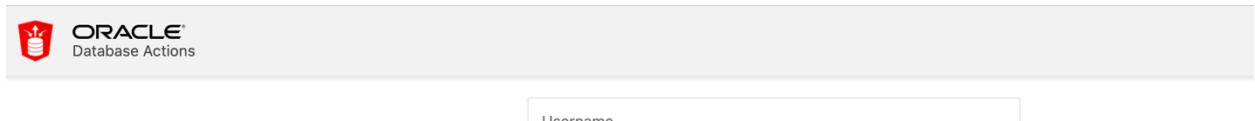
[Open Oracle ML User Administration](#)

SODA Drivers

Simple Oracle Document Access (SODA) is a set of APIs that let you work with JSON documents managed by the Oracle Database without needing to use SQL. SODA drivers are available for REST, Java, Node.js, Python, PL/SQL, and C. [Learn more](#).

[Download SODA Drivers](#)

4) Les abrió una pantalla para sign in. Tienen que poner de Username **ADMIN** y de Password, la que escribieron cuando configuramos la instancia de ADW.



5) De las opciones que se muestra, den click en **SQL**

The screenshot shows the Oracle SQL Developer Web interface. In the 'Development' section, the 'SQL' option is highlighted with a red box. The 'Data Tools' section contains four items: 'DATA LOAD', 'CATALOG', 'DATA INSIGHTS', and 'BUSINESS MODELS'. The 'Administration' section contains one item: 'DATABASE USERS'. The right sidebar has several sections: 'Getting Started' (with sub-sections for RESTful Web Services, Load Data, JSON, and Available On-Premises), 'Need Help?' (with links to Documentation, Community Forum, and Twitter), and a status bar at the bottom.

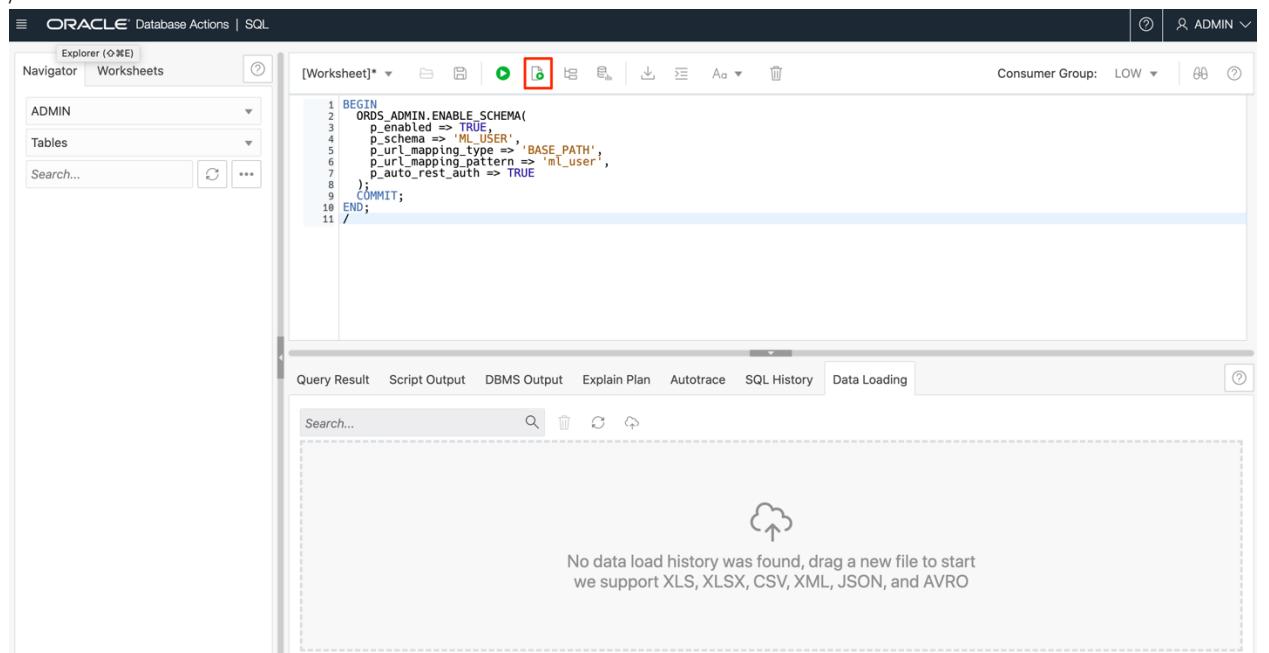
6) Para otorgar permisos a ML_USER utilizar SQL Developer Web es necesario correr el siguiente query.

```
BEGIN  
ORDS_ADMIN.ENABLE_SCHEMA(  
p_enabled => TRUE,  
p_schema => 'ML_USER',  
p_url_mapping_type => 'BASE_PATH',
```

```

p_url_mapping_pattern => 'ml_user',
p_auto_rest_auth => TRUE
);
COMMIT;
END;
/

```



The screenshot shows the Oracle Database Actions interface. In the top navigation bar, it says "ORACLE Database Actions | SQL" and "ADMIN". The main area is a "Worksheet" tab. On the left, there's a "Navigator" pane showing "ADMIN" selected under "Tables". The central workspace contains the following PL/SQL code:

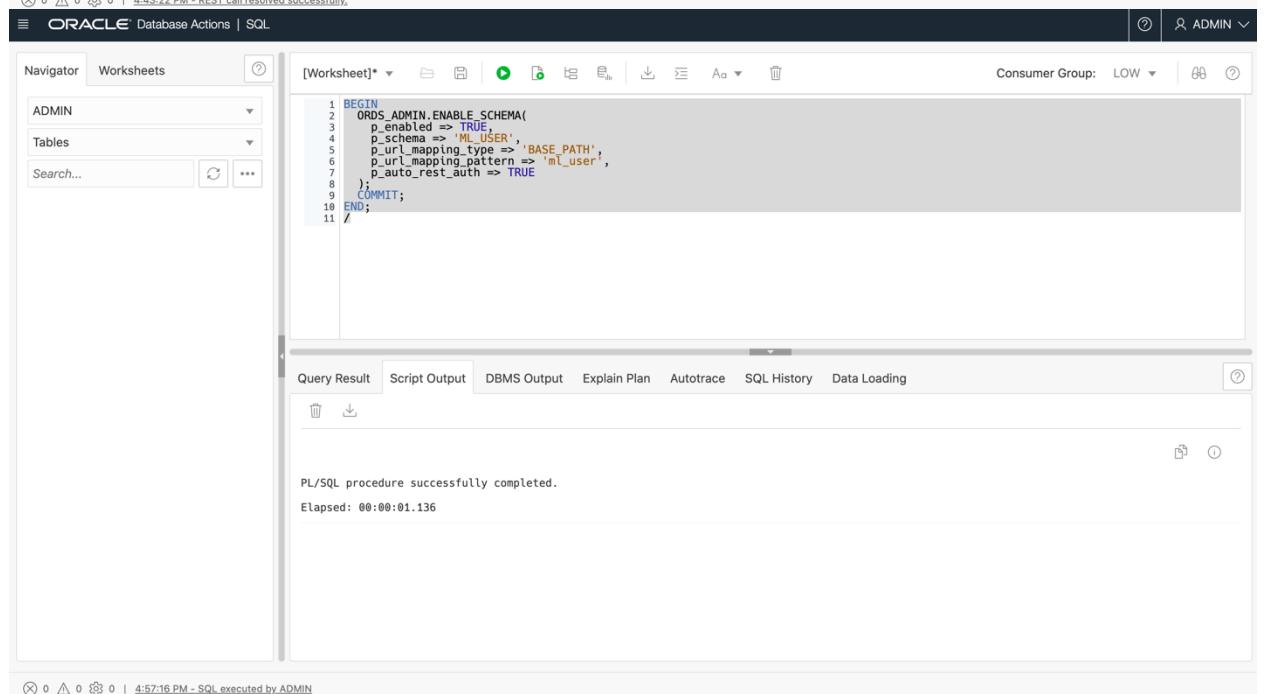
```

1 BEGIN
2   ORDS_ADMIN.ENABLE_SCHEMA(
3     p_enabled => TRUE,
4     p_schema => 'ML_USER',
5     p_url_mapping_type => 'BASE_PATH',
6     p_url_mapping_pattern => 'ml_user',
7     p_auto_rest_auth => TRUE
8   );
9   COMMIT;
10 END;
11 /

```

Below the code, the "Data Loading" tab is active. It has a search bar and a message: "No data load history was found, drag a new file to start we support XLS, XLSX, CSV, XML, JSON, and AVRO".

At the bottom of the screen, a status bar shows: "4:43:22 PM - REST call resolved successfully."



This screenshot shows the same Oracle Database Actions interface after the procedure has been executed. The status bar at the bottom now displays: "4:57:16 PM - SQL executed by ADMIN". The "Query Result" tab is active, showing the message "PL/SQL procedure successfully completed." and "Elapsed: 00:00:01.136".

- 7) Para otorgar privilegios de almacenamiento a ML_USER se requiere correr el siguiente query:

```
alter user ml_user quota 100m on data;
```

The screenshot shows the Oracle Database Actions interface. In the top navigation bar, 'ORACLE Database Actions | SQL' is selected. On the left, the 'Navigator' pane shows 'ADMIN' and 'Tables'. The main area is a 'Worksheet' titled '[Worksheet]*'. A red box highlights the green 'Run' button in the toolbar above the code editor. The code editor contains the command: '1 alter user ml_user quota 100m on data;'. Below the code editor, the 'Query Result' tab is active, showing the output: 'PL/SQL procedure successfully completed.' and 'Elapsed: 00:00:00.317'. The 'User ML_USER altered.' message is also displayed, along with its elapsed time: 'Elapsed: 00:00:00.028'. At the bottom of the worksheet, it says '6:30:41 AM - SQL executed by ADMIN'.

Paso 4: Descargar los file necesarios para el taller

- 1) Descargar los files del siguiente link:
<https://objectstorage.us-ashburn-1.oraclecloud.com/n/natdcshjumpstartprod/b/adbml/o/install.zip>
- 2) Realizar un unzip del file

The screenshot shows a browser window with a title 'Steps' and a sub-section 'Upload Credit Score'. Below this, there is a button labeled 'Click to Download' next to a link 'install.zip'. To the right of the browser, a 'Opening install.zip' dialog box is displayed. The dialog shows the file 'install.zip' has been chosen to open. It asks 'What should Firefox do with this file?' with two options: 'Open with Archive Manager (default)' (radio button not selected) and 'Save File' (radio button selected). There is also a checkbox 'Do this automatically for files like this from now on.' A red arrow points from the 'Save File' option in the browser to the 'Save File' radio button in the dialog box. At the bottom of the dialog are 'Cancel' and 'OK' buttons.

Paso 5: Upload los archivos a ML_USER

- 1) Ir al **Menu** arriba la izquierda, Seleccionar **Oracle Database** y después **Autonomouse Data Warehouse**.

The screenshot shows the Oracle Cloud interface. On the left, there is a navigation sidebar with various service categories. The 'Oracle Database' category is highlighted with an orange border. Within 'Oracle Database', the 'Autonomous Data Warehouse' option is also highlighted with an orange border. The main content area is titled 'Oracle Database' and contains sections like 'Overview', 'Autonomous Database' (with 'Autonomous Data Warehouse' selected), 'Autonomous Dedicated Infrastructure', and 'Help'. A search bar at the top and bottom of the page is visible.

The screenshot shows the 'Autonomous Database' list page. At the top, it says 'Autonomous Databases in DEMO Compartiment'. Below this is a table titled 'Create Autonomous Database' with one row. The table columns are: Display Name, State, Dedicated, OCPUs, Storage (TB), Workload Type, Autonomous Data Guard, and Created. The 'Display Name' column contains 'ADWLab' (which is highlighted with a red box). The 'State' column shows 'Available'. The 'Workload Type' column shows 'Data Warehouse'. The 'Created' column shows 'Thu, Mar 4, 2021, 15:06:38 UTC'. There is also a 'Filters' section at the bottom with dropdown menus for 'Compartiment', 'Workload Type', and 'State'.

Create Autonomous Database							
Display Name	State	Dedicated	OCPUs	Storage (TB)	Workload Type	Autonomous Data Guard	Created
ADWLab	Available	No	1	1	Data Warehouse	Disabled	Thu, Mar 4, 2021, 15:06:38 UTC

2) Seleccionar Tools

The screenshot shows the Oracle Cloud interface for an Autonomous Database named 'ADWLab'. The 'Tools' tab is highlighted with a red box. The page displays various database details such as General Information, Infrastructure, Autonomous Data Guard, Backup, Network, and Maintenance.

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- Database Name: ORCL
- Workload Type: Data Warehouse
- Compartment: [REDACTED]/DEMO
- OCID: .k0767q [Show](#) [Copy](#)
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- OCPU Count: 1
- Storage: 1 TB
- License Type: License included
- Database Version: 19c
- Auto Scaling: Enabled [\(i\)](#)
- Lifecycle State: Available
- Instance Type: Paid
- Mode: Read/Write [Edit](#)

Operations Insights [\(i\)](#)

Status: Not Enabled [Enable](#)

Infrastructure

Dedicated Infrastructure: No

Autonomous Data Guard [\(i\)](#)

Status: Disabled [Enable](#)

Backup

Last Automatic Backup: No active backups exist for this database.

Manual Backup Store: Not Configured

Network

Access Type: Allow secure access from everywhere

Access Control List: Disabled [Edit](#)

Maintenance [\(i\)](#)

Next Maintenance: Sun, Mar 7, 2021, 16:00:00 UTC - 20:00:00 UTC

3) Seleccionar Open Database Actions

The screenshot shows the same Oracle Cloud interface for the 'ADWLab' database. The 'Tools' tab is selected. The 'Database Actions' section is expanded, showing options like 'Open Database Actions' (which is highlighted with a red box), 'Open APEX', 'Open Oracle ML User Administration', and 'Download SODA Drivers'.

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[Download SODA Drivers](#)

4) Les abrió una pantalla para sign in. Tienen que poner de Username *ML_USER* y de Password, la que escribieron cuando crearon el usuario de *ML_USER*.

ORACLE Database Actions

Username
ML_USER

Next

ORACLE Database Actions

Username
ML_USER

Password
.....

Sign in

5) Seleccionar Data Load

ORACLE Database Actions

ML_USER

Development		Data Tools	Getting Started
SQL Execute queries and scripts, and create database objects	DATA MODELER Create relational diagrams for database objects	DATA LOAD Load or access data from local files or remote databases	RESTful Web Services Deploy REST APIs for your Oracle database - GET, PUT, POST and DELETE securely using HTTPS with your Oracle data and stored procedures.
REST Deploy REST APIs for your database	JSON Manage your JSON Document Database	DATA INSIGHTS Discover anomalies, outliers and hidden patterns in your data	Load Data Populate existing tables or build new ones from local files (Avro, JSON, XML, CSV, or Excel) using our data loading wizard.
		BUSINESS MODELS Create business models for performance and analysis	JSON Create collections, documents, add, edit, delete, and browse your documents, and visualize your JSON Data Guides.
			Available On-Premises SQL Developer Web is now available for your On-Premises Oracle Databases too!
			Need Help? Documentation SQL Developer Community Forum SQL Developer on Twitter

⊗ 0 ⚡ 0 ⚡ 0 | 6:27:57 PM - REST call resolved successfully.

- 6) Dejar las opciones ya seleccionadas **Load Data** y **Local File** y hacer click en **Next**.

What do you want to do with your data?

- LOAD DATA** Import data into your Autonomous Database
- LINK DATA Leave your data in place and let your Autonomous Database access it
- FEED DATA Setup ongoing feed of new data into your Autonomous Database

Where is your data?

- LOCAL FILE** Select text or Excel files from your local device
- DATABASE Select tables from your remote databases
- CLOUD STORAGE Select buckets from cloud storage (Oracle, S3, Azure, Google)

Getting Started

- Setup an Ingest Job Select how you want to analyze your data and where it is. Link and Feed data are only available for network sources
- Explore Explore data in your Autonomous Database
- Manage Manage your Cloud Storage Locations

Need Help?

- Documentation
- SQL Developer Community Forum
- SQL Developer on Twitter

Next

- 7) Arrastrar a la pantalla el archivo **credit_scoring_100k.csv** que se encuentra dentro de los files que se realizaron unzip.

Data Load / Local Files

Drag and drop here to upload
- OR -
Select Files

⊗ 0 ▲ 0 ⚙ 0 | 6:27:57 PM - REST call resolved successfully.

⊗ 0 ▲ 0 ⚙ 0 | 6:30:56 PM - REST call resolved successfully.

- 8) Cuando se termine de cargar el archivo. Se tiene que dar click en el botón de **Start** y después en el botón de **Run**. A partir de aquí los archivos empezaran a subirse.

The screenshot shows two consecutive views of the Oracle Database Actions Local Files interface.

Top View: The interface displays a data load job configuration. The source is set to "credit_scoring_100k.csv (48M)" and the target is "CREDIT_SCORING_100K". A green play button icon is highlighted with a red box, indicating the job is currently running.

Bottom View: The interface shows the same configuration, but a modal dialog titled "Run Data Load Job" is displayed over the main screen. The dialog asks, "Do you wish to run the data load job?" and contains two buttons: "Run" (highlighted with a red box) and "Cancel".

- 9) Cuando este cargando el archivo estar con un status de *Running* y cuando termine se mostrara como *Complete*.

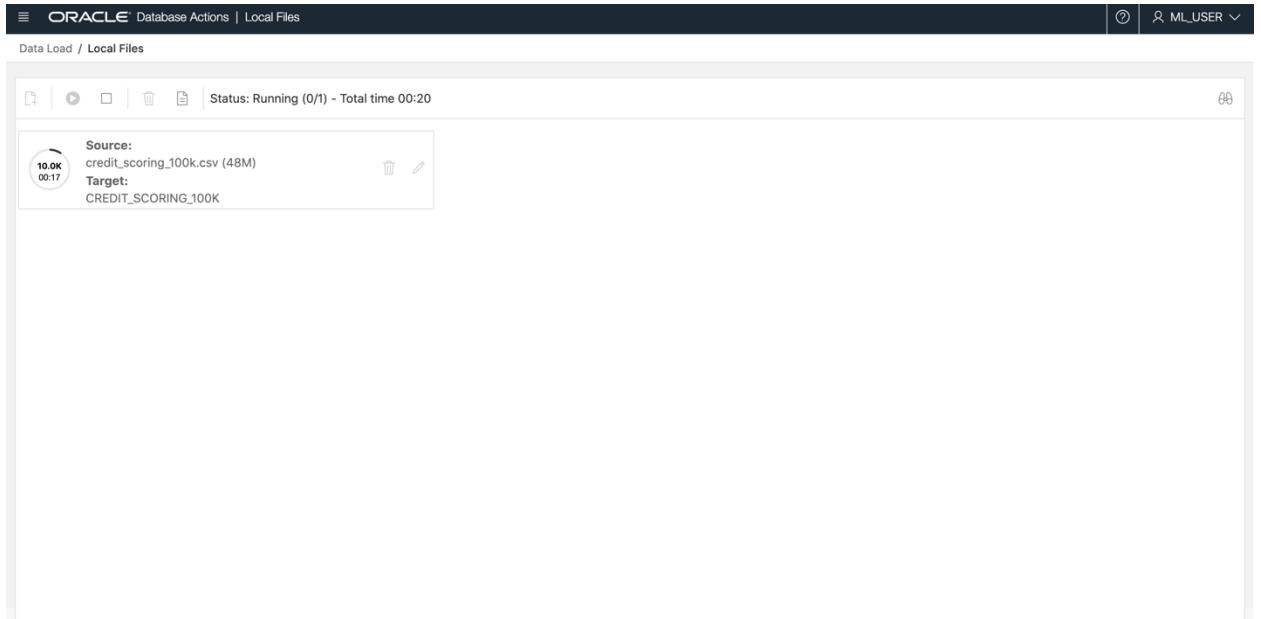
☰ ORACLE Database Actions | Local Files

Data Load / Local Files

Status: Running (0/1) - Total time 00:20

Source:
10.0X credit_scoring_100k.csv (48M)
00:17

Target:
CREDIT_SCORING_100K



ⓧ 0 ⚠ 0 ⚡ 1 | 6:48:04 PM - Importing credit_scoring_100k.csv data to ML_USER.CREDIT_SCORING_100K

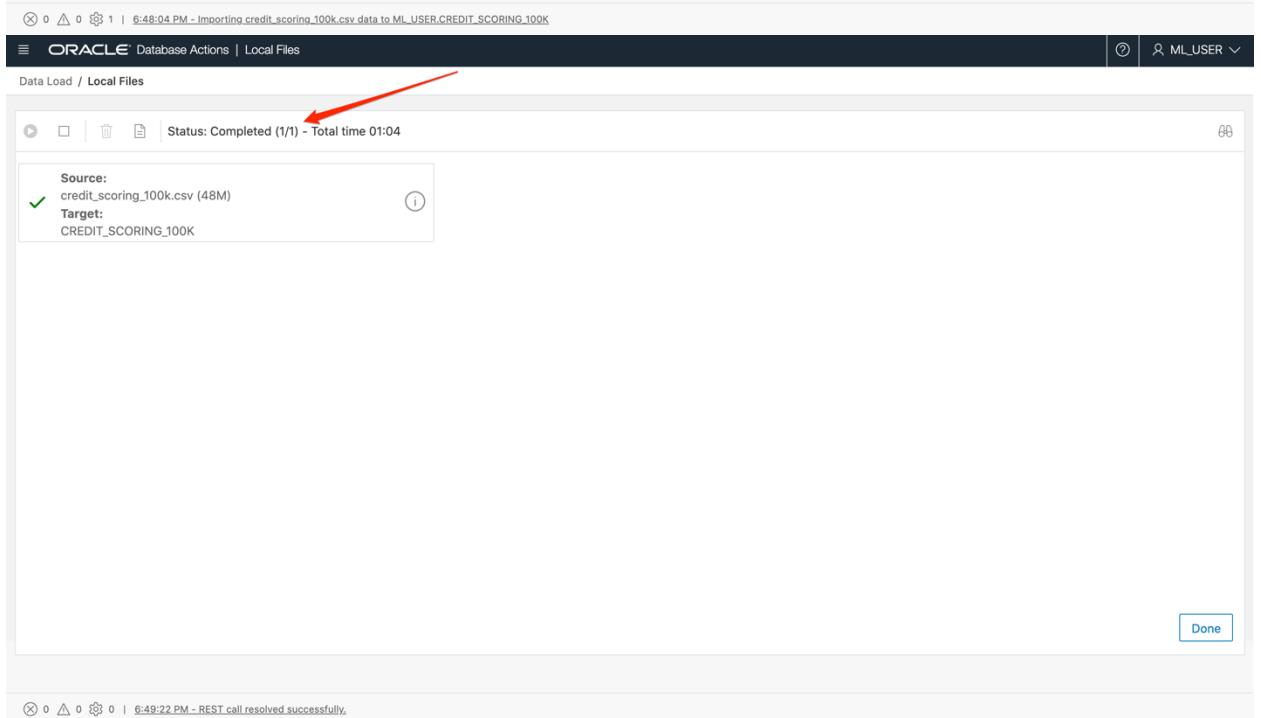
☰ ORACLE Database Actions | Local Files

Data Load / Local Files

Status: Completed (1/1) - Total time 01:04

Source:
✓ credit_scoring_100k.csv (48M)

Target:
CREDIT_SCORING_100K



Done

10) Despues en tienen que hacer click en el menú de arriba la izquierda, en la sección de **Developmenet**, tienen que dar click en **SQL**.

The screenshot shows the Oracle Database Actions interface. At the top, it says "Data Load / Local Files". Below that, a status bar indicates "Status: Completed (1/1) - Total time 01:04". A main panel displays the following details:

- Source:** credit_scoring_100k.csv (48M)
- Target:** CREDIT_SCORING_100K

At the bottom right of the main panel is a "Done" button. The footer of the interface shows the timestamp "6:49:22 PM - REST call resolved successfully."

11) Se muestra el SQL Web Developer con la tabla creada exitosamente.

The screenshot shows the Oracle SQL Web Developer interface. At the top, it says "Database Actions | SQL". The left sidebar, titled "Navigator", shows the schema "ML_USER" and the table "CREDIT_SCORING_100K", which is highlighted with a red box. The main workspace is titled "[Worksheet]".

The bottom section of the interface is a "Data Loading" area. It includes tabs for "Query Result", "Script Output", "DBMS Output", "Explain Plan", "Autotrace", "SQL History", and "Data Loading". The "Data Loading" tab is selected. A message in this area states: "No data load history was found, drag a new file to start we support XLS, XLSX, CSV, XML, JSON, and AVRO".

The footer of the interface shows the timestamp "7:00:46 PM - REST call resolved successfully."

Paso 6: Crear un ML Notebook

- 1) Ir al **Menu** arriba la izquierda, Seleccionar **Oracle Database** y despues **Autonomouse Data Warehouse**.

The screenshot shows the Oracle Cloud interface. The left sidebar has a search bar and navigation links including Home, Compute, Storage, Networking, Oracle Database (which is selected and highlighted with an orange border), Databases, Analytics & AI, Developer Services, Identity & Security, Observability & Management, Hybrid, Migration, Governance and Administration, Marketplace, and OCI Classic Services. The main content area is titled "Oracle Database" and has a sub-section "Overview". Under "Autonomous Database", "Autonomous Data Warehouse" is selected and highlighted with an orange border. Other options include Autonomous JSON Database and Autonomous Transaction Processing. Under "Autonomous Dedicated Infrastructure", options like Bare Metal, VM, and Exadata, Exadata at Oracle Cloud, Exadata Cloud@Customer, External Database, Data Safe, and GoldenGate are listed. A "Related Services" sidebar on the right lists APEX Application Development, Database Management, Data Integration, Streaming, MySQL, and Oracle NoSQL Database. A "Help" sidebar lists Autonomous Databases, Bare Metal and VM DB Systems, Exadata Cloud@Customer, and All Oracle Database Documentation. The top right corner shows a dropdown for location (US East (Ashburn)), a search bar, and various status icons.

The screenshot shows the "Autonomous Databases in DEMO Compartiment" page. It features a table with one row of data. The table columns are: Display Name, State, Dedicated, OCPUs, Storage (TB), Workload Type, Autonomous Data Guard, and Created. The data row is: ADWLab, Available, No, 1, 1, Data Warehouse, Disabled, Thu, Mar 4, 2021, 15:06:38 UTC. Below the table, a message says "Displaying 1 Autonomous Database < 1 of 1 >". On the left, there are filters for List Scope (set to DEMO), Compartment (set to DEMO), and Workload Type (set to Data Warehouse). There are also filters for State (set to Any state).

Create Autonomous Database							
Display Name	State	Dedicated	OCPUs	Storage (TB)	Workload Type	Autonomous Data Guard	Created
ADWLab	Available	No	1	1	Data Warehouse	Disabled	Thu, Mar 4, 2021, 15:06:38 UTC

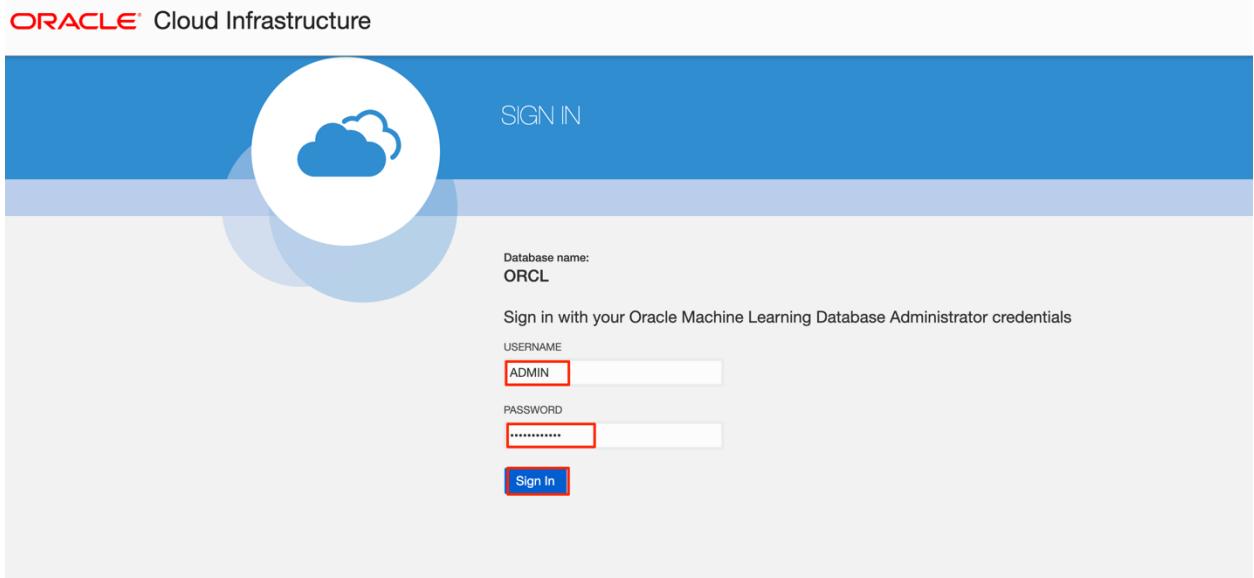
2) Seleccionar Tools

The screenshot shows the Oracle Cloud interface for an Autonomous Database named ORCL. The top navigation bar includes the Oracle Cloud logo, a search bar, and a dropdown for 'US East (Ashburn)'. The main content area is titled 'ADWLab' and displays 'Autonomous Database Information'. A navigation bar at the top of this section includes 'DB Connection', 'Performance Hub', 'Service Console', 'Scale Up/Down', and 'More Actions'. The 'Tools' tab is highlighted with a red box. Below this, there are sections for 'General Information' and 'Operations Insights'. To the right, there are sections for 'Infrastructure', 'Autonomous Data Guard', 'Backup', 'Network', and 'Maintenance'. Each section contains various status and configuration details.

3) Seleccionar Open Oracle ML User Administration

The screenshot shows the 'Tools' section of the ADWLab page. It features a large green 'ADW' logo on the left. The main content area has tabs for 'Autonomous Database Information' and 'Tools', with 'Tools' being the active tab. Below the tabs, there's a general description: 'Database administration and developer tools for Autonomous Database'. The page is divided into several boxes: 'Database Actions' (with a button 'Open Database Actions'), 'Oracle Application Express' (with a button 'Open APEX'), 'Oracle ML User Administration' (with a button 'Open Oracle ML User Administration' highlighted with a red box), and 'SODA Drivers' (with a button 'Download SODA Drivers').

- 4) Les abrió una pantalla para sign in. Tienen que poner de Username **ADMIN** y de Password, la que escribieron cuando configuramos la instancia de ADW.



- 5) Dar click en el **Home Icon**, que se muestra en al parte superior derecha.

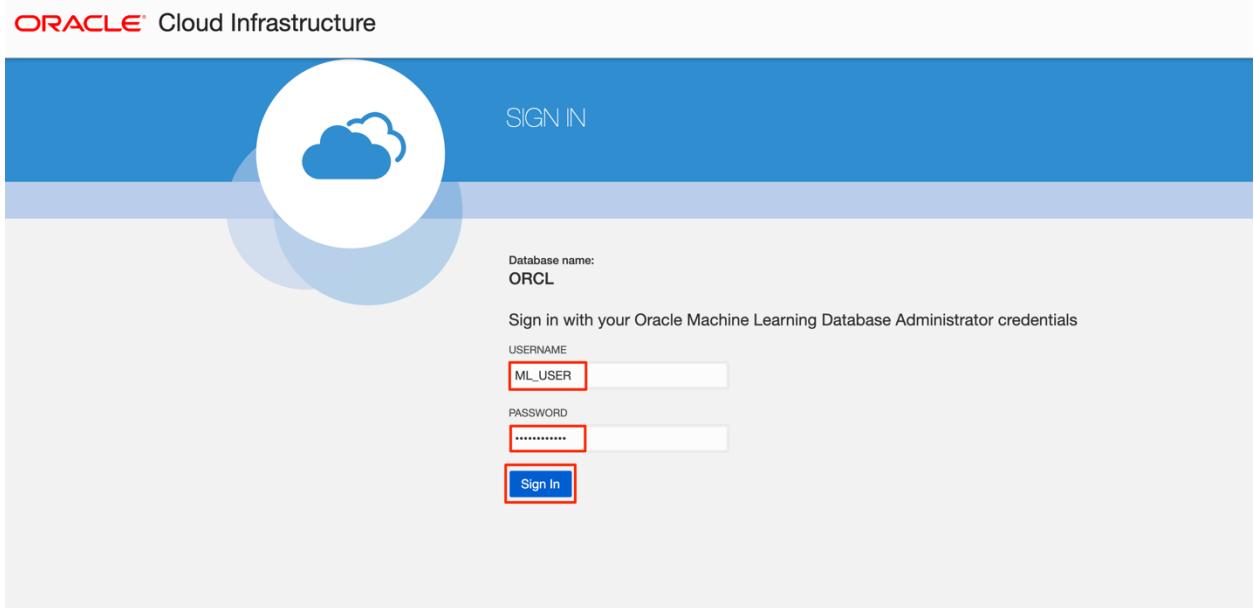
ORACLE Machine Learning User Administration

User Created

Users

User Name	Full Name	Role	Email	Created On	Status
ADMIN		System Administrator		27/01/2020 23:34	Open
ML_USER		Developer	admin@oracle.com	04/03/2021 16:35	Open

- 6) Se abrirá una pagina para realizar Login, entrar con las credenciales de ML_USER que usamos anteriormente.



- 7) Dar click en **Example**.

The screenshot shows the Oracle Machine Learning dashboard. At the top, there's a navigation bar with the "ORACLE Machine Learning" logo and a dropdown menu. On the right, there's a user profile icon and the text "ML_USER Project [ML_USER Works...]" and "ML_USER". The main content area has several sections: "How Do I?", "Quick Actions", and "Recent Activities". In the "Quick Actions" section, there are four items: "Scratchpad", "Notebooks", "Jobs", and "Examples". A red arrow points from the text "Dar click en Example." to the "Examples" button. The "Recent Activities" section below it says "No items to display."

- 8) Aquí se muestra diferentes ejemplos de Notebooks. Para continuar tenemos que abrir el menú que se encuentra en la parte superior izquierda.

The screenshot shows the Oracle Machine Learning interface. At the top, there's a navigation bar with the Oracle logo, the project name 'ML_USER Project [ML_USER Works...]', and a user dropdown 'ML_USER'. Below the navigation bar, the title 'Example Templates' is displayed, along with a 'Create Notebook' button and a search bar. The main content area is titled 'Example Templates' and contains eight cards, each representing a different notebook template:

- My First Notebook**: Oracle Machine Learning example...
Author: Oracle
Date Added: 13/02/2018 23:16
Tags: 'SQL' 'Data' 'Graph'
0 Likes, 1680 views, 50 downloads
- OML4Py -0- Tour**: This notebook highlights a wide r...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Attribute Importance' 'Clas...
0 Likes, 25 views, 5 downloads
- OML4Py -1- Introduction**: This notebook highlights OML4Py...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Anomaly Detection' 'Attribu...
0 Likes, 19 views, 1 download
- OML4Py -2- Data Selectio...**: This notebook highlights the OML...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Join' 'Split' 'Python' 'Data S...
0 Likes, 5 views, 0 downloads
- OML4Py -3- Datastore an...**: This notebook highlights features...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Regression' 'Python' 'Data ...
0 Likes, 3 views, 0 downloads
- OML4Py -4- Embedded P...**: This notebook highlights features...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Regression' 'Python' 'Matpl...
0 Likes, 2 views, 0 downloads
- OML4Py -5- AutoML**: This notebook highlights the Auto...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Classification' 'Regression' ...
0 Likes, 24 views, 3 downloads
- OML4Py Anomaly Detection**: This notebook builds an anomaly ...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Anomaly Detection' 'Sampli...
0 Likes, 11 views, 3 downloads
- OML4Py Association Rules**: This notebook builds an associati...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Classification' 'Regression' ...
0 Likes, 0 views, 0 downloads
- OML4Py Attribute Importa...**: This notebook builds an attribut...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Classification' 'Regression' ...
0 Likes, 0 views, 0 downloads
- OML4Py Classification**: This notebook builds and applies...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Classification' 'Regression' ...
0 Likes, 0 views, 0 downloads
- OML4Py Clustering**: This notebook builds and applies...
Author: Oracle
Date Added: 26/11/2020 11:41
Tags: 'Classification' 'Regression' ...
0 Likes, 0 views, 0 downloads

- 9) Despues se tiene que seleccionar Notebooks

The screenshot shows the Oracle Machine Learning interface with the 'Notebooks' section selected in the sidebar. The sidebar includes links for Home, Project, Notebooks (which is highlighted with a red box), Templates, Personal, Shared, Examples, Jobs, Connection Groups, and Notebook Sessions. The main content area displays several informational cards:

- Create Jobs**: How to create a job
- Manage Permissions**: How to manage collaborative permissions in workspaces
- Try It**: Follow along with a hands on workshop
- Notebooks**: The place for data discovery and analytics
- Jobs**: Schedule notebooks to run at certain times
- Examples**: Check out some examples

On the right side, there's a 'Recent Notebooks' section with the message 'Nothing to Display'.

10) Para crear un Notebook se tiene que iniciar haciendo click en **Create**.

The screenshot shows the Oracle Machine Learning interface with the title bar 'ADWC_WS Project [ADWC_WS Works...]' and user 'ADWC_WS'. Below it is a 'Notebooks' section with a table header: Name, Comment, Last Update, Updated By, and Connection Group. A red arrow points to the '+ Create' button in the top navigation bar.

11) Poner **adw_notebook** como nombre y hacer click en **OK**.

The screenshot shows the 'Create Notebook' dialog box. It has fields for 'Name' (with a red circle around 'adwc_notebook'), 'Comment', 'Connection' (set to 'Global'), and 'OK' and 'Cancel' buttons at the bottom right. A red arrow points from the 'adwc_notebook' entry to the 'OK' button.

12) Ahora tenemos un Notebook creado.

The screenshot shows the Oracle Machine Learning interface with the title bar 'ML_USER Project [ML_USER Works...]' and user 'ML_USER'. Below it is a 'Notebooks' section with a table. The first row is 'adwc_notebook' with a status icon showing 'Connected'. A red arrow points to the 'Connected' status indicator.

Paso 7: Agregar contenido al Notebook

- 1) Click en el menú arriba izquierda

The screenshot shows the Oracle Machine Learning interface. At the top, there is a navigation bar with a menu icon, the Oracle Machine Learning logo, and a blurred search bar. Below the navigation bar, there are two main sections: "How Do I?" and "Quick Actions".

How Do I?

- Get Started**: Get started with Oracle Machine Learning.
- Create Notebooks**: How to create a notebook.
- Create Jobs**: How to create a job.
- Manage Permissions**: How to manage collaborative permissions in workspaces.
- Try It**: Follow along with a hands on workshop.

Quick Actions

- Run SQL Statements**: Enter and run SQL statements.
- Run SQL Scripts**: Enter and run SQL scripts.
- Notebooks**: The place for data discovery and analytics.
- Jobs**: Schedule notebooks to run at certain times.
- Examples**: Check out some examples.

Below these sections is a dark sidebar with the following menu items:

- Home**
- Notebooks**
- Templates** (with a right arrow)
- Jobs**
- Connection Groups**
- Notebook Sessions**

A red arrow points from the "Templates" item in the sidebar towards the "Templates" section in the "How Do I?" menu.

- 2) Selecciona el Notebook que creamos anteriormente

The screenshot shows the 'Notebooks' page in the Oracle Machine Learning interface. At the top, there are buttons for Edit, Create, Duplicate, Save as Template, Delete, Import, and Version. Below the header is a table with columns: Name, Comment, Last Update, Updated By, and Connection Group. One row is visible, showing 'adwc_notebook' as the name, with other details like last update date and updated by user. At the bottom, there's a pagination bar showing 'Page 1 of 1 (1 of 1 items)'.

- 3) Dale click en el engrane que se encuentra en la parte superior derecha y tienes que estar seguro que tengas elegido aun que sea uno de los servicios y despues guarda al hacer click en **Save**.

The screenshot shows the 'Settings' page for the 'adwc_notebook'. At the top, it says 'adwc_notebook' and has a toolbar with various icons. Below that is a 'Settings' section with a 'Interpreter binding' subsection. It lists four interpreters: 'orcl_low %sql (default), %script, %python', 'orcl_medium %sql (default), %script, %python', 'orcl_high %sql (default), %script, %python', and 'md %md (default)'. The 'orcl_low' option is selected. At the bottom of the page are 'Save' and 'Cancel' buttons.

- 4) Pega el texto inferior, despues dale click en el botón con el triangulo. Se tardara unos minutos y despues se mostrara la informacion con un formato.

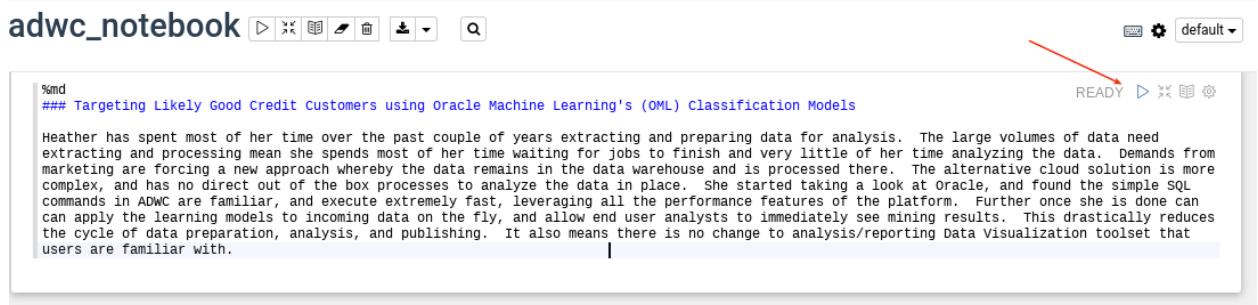
%md

Targeting Likely Good Credit Customers using Oracle Machine Learning's (OML) Classification Models

Heather has spent most of her time over the past couple of years extracting and preparing data for analysis. The large volumes of data need extracting and processing mean she spends most of her time waiting for jobs to finish and very little of her time analyzing the data. Demands from marketing are forcing a new approach whereby the data remains in the data warehouse and is processed there. The alternative cloud solution is more

complex, and has no direct out of the box processes to analyze the data in place. She started taking a look at Oracle, and found the simple SQL commands in ADW are familiar, and execute extremely fast, leveraging all the performance features of the platform. Further once she is done can apply the learning models to incoming data on the fly, and allow end user analysts to immediately see mining results. This drastically reduces the cycle of data preparation, analysis, and publishing. It also means there is no change to analysis/reporting Data Visualization toolset that users are familiar with.

adwc_notebook

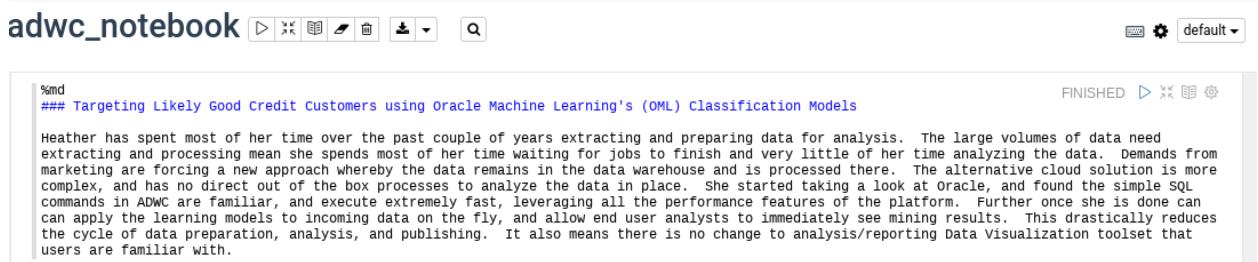


```
%md
### Targeting Likely Good Credit Customers using Oracle Machine Learning's (OML) Classification Models
```

Heather has spent most of her time over the past couple of years extracting and preparing data for analysis. The large volumes of data need extracting and processing mean she spends most of her time waiting for jobs to finish and very little of her time analyzing the data. Demands from marketing are forcing a new approach whereby the data remains in the data warehouse and is processed there. The alternative cloud solution is more complex, and has no direct out of the box processes to analyze the data in place. She started taking a look at Oracle, and found the simple SQL commands in ADWC are familiar, and execute extremely fast, leveraging all the performance features of the platform. Further once she is done can apply the learning models to incoming data on the fly, and allow end user analysts to immediately see mining results. This drastically reduces the cycle of data preparation, analysis, and publishing. It also means there is no change to analysis/reporting Data Visualization toolset that users are familiar with.

READY

adwc_notebook



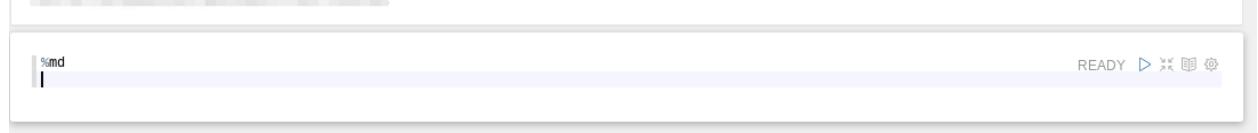
```
%md
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FINISHED

Targeting Likely Good Credit Customers using Oracle Machine Learning's (OML) Classification Models

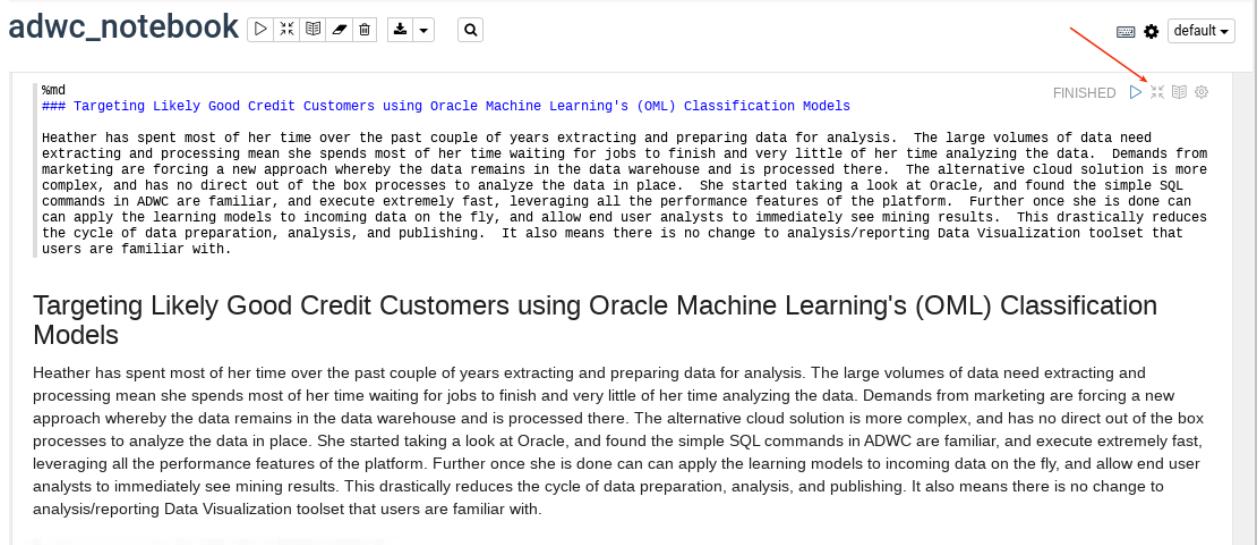
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```
%md
```

READY

- 5) Si queremos ver el resultado sin el código hacer click en el icono **show details**.



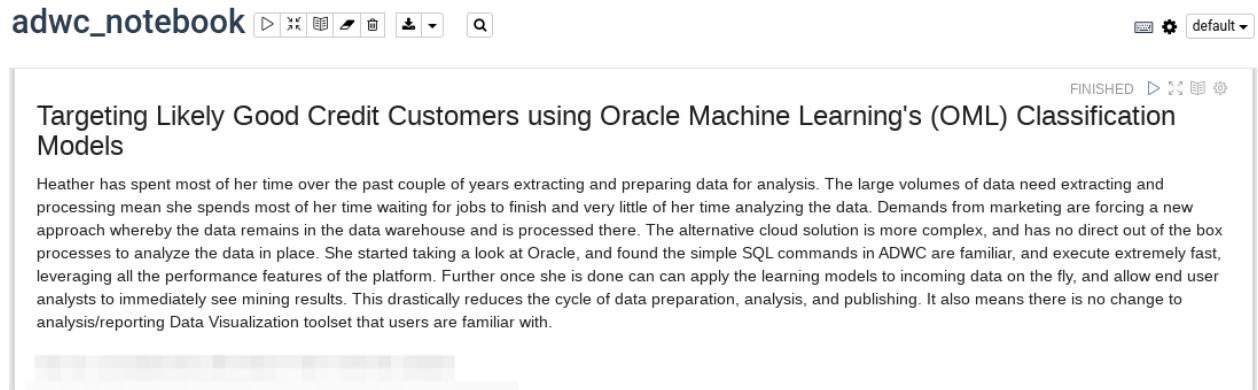
adwc_notebook FINISHED 

```
%md
## Targeting Likely Good Credit Customers using Oracle Machine Learning's (OML) Classification Models
```

Heather has spent most of her time over the past couple of years extracting and preparing data for analysis. The large volumes of data need extracting and processing mean she spends most of her time waiting for jobs to finish and very little of her time analyzing the data. Demands from marketing are forcing a new approach whereby the data remains in the data warehouse and is processed there. The alternative cloud solution is more complex, and has no direct out of the box processes to analyze the data in place. She started taking a look at Oracle, and found the simple SQL commands in ADWC are familiar, and execute extremely fast, leveraging all the performance features of the platform. Further once she is done can apply the learning models to incoming data on the fly, and allow end user analysts to immediately see mining results. This drastically reduces the cycle of data preparation, analysis, and publishing. It also means there is no change to analysis/reporting Data Visualization toolset that users are familiar with.

Targeting Likely Good Credit Customers using Oracle Machine Learning's (OML) Classification Models

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adwc_notebook FINISHED 

Targeting Likely Good Credit Customers using Oracle Machine Learning's (OML) Classification Models

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- 6) En el siguiente párrafo copia el texto y ejecútalo.

%sql

```
/* This shows the credit scoring data we will use historical data to predict the likelihood  
of a customer having good credit. */
```

Select * from ml_user.credit_scoring_100k where rownum < 100

```
%sql
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Select * from ml_user.credit_scoring_100k where rownum < 100

%sql
/* This shows the credit scoring data we will use historical data to predict the likelihood of a customer having good credit. */
Select * from ml_user.credit_scoring_100k where rownum < 100
```

READY 

FINISHED 

CUSTOMER_ID	AGE	INCOME	MARITAL_STATUS	NUMBER_OF LIABLE	WEALTH	EDUCATION LEVEL	TENURE	LOAN_TYPE
36968	58	2150	Married	5	Poor	Bachelor's Degree	8	Need
40553		2150	Married	3	Poor	Bachelor's Degree	9	Auto
96479	69	2150	Married	5	Poor	Bachelor's Degree	13	Need
19835	48	2150	Married	3	Poor	Bachelor's Degree	5	Need
52469	38	2750	Married	5	Poor	Bachelor's Degree	3	Need
68809		2750	Married	4	Poor	Bachelor's Degree	2	Need
74621	56	2150	Married	3	Poor	Bachelor's Degree	17	Need
14315	22	2750	Married	2	Average	Master's Degree	26	Need

- 7) Para agregar un título tienen que hacer click en el engrane del lado derecho y seleccionar **Show title**

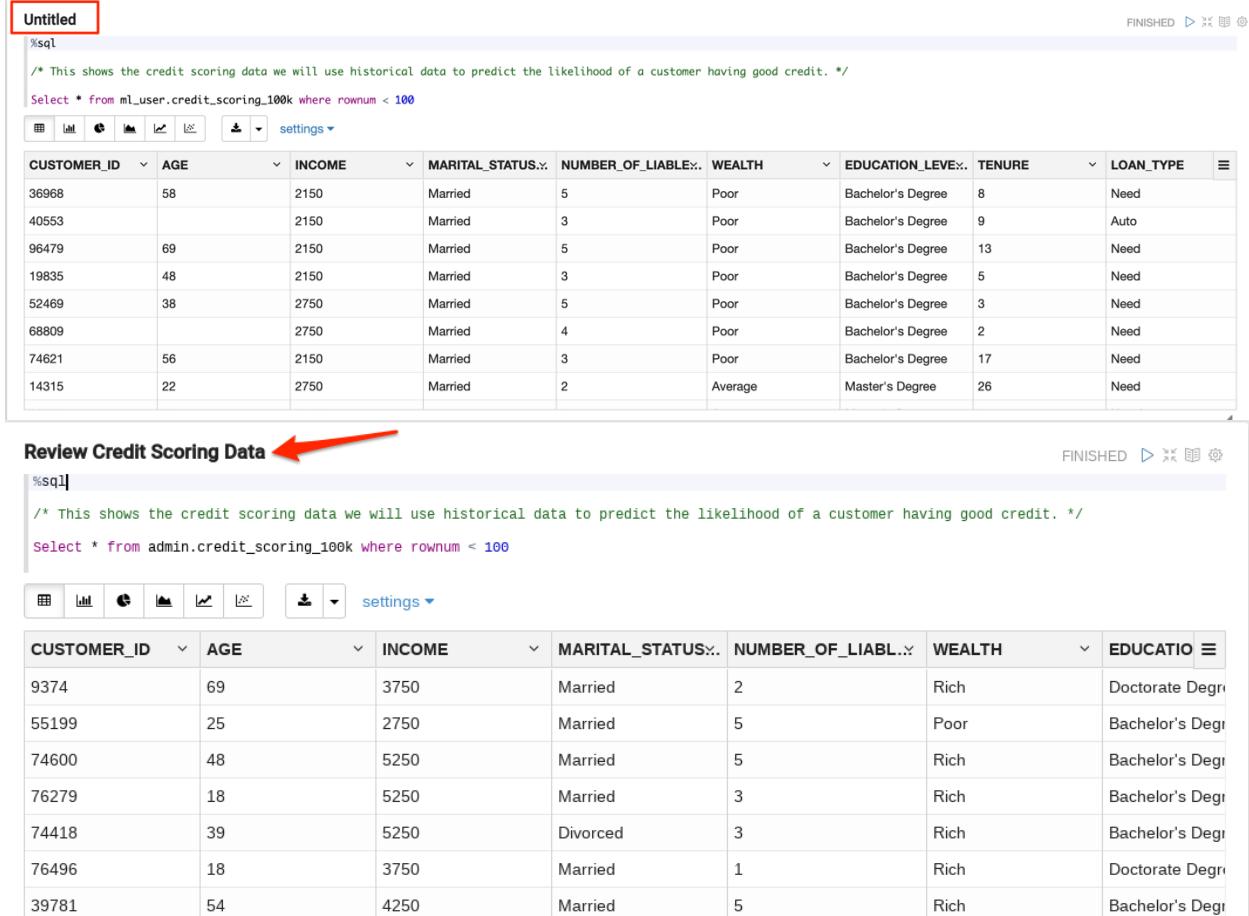
```
/* This shows the credit scoring data we will use historical data to predict the likelihood of a customer having good credit. */
Select * from ml_user.credit_scoring_100k where rownum < 100
```

settings ▾

CUSTOMER_ID	AGE	INCOME	MARITAL_STATUS	NUMBER_OF LIABLE	WEALTH	EDUCATION_LEVEL	TENURE
36968	58	2150	Married	5	Poor	Bachelor's Degree	8
40553		2150	Married	3	Poor	Bachelor's Degree	9
96479	69	2150	Married	5	Poor	Bachelor's Degree	13
19835	48	2150	Married	3	Poor	Bachelor's Degree	5
52469	38	2750	Married	5	Poor	Bachelor's Degree	3
68809		2750	Married	4	Poor	Bachelor's Degree	2
74621	56	2150	Married	3	Poor	Bachelor's Degree	17
14315	22	2750	Married	2	Average	Master's Degree	26

Width 12 ▾
T1 Font size 9 ▾
Move up Ctrl+Option+K
Move down Ctrl+Option+J
Insert new Ctrl+Option+B
Run all above Ctrl+Shift+Enter
Run all below Ctrl+Shift+Enter
Clone paragraph Ctrl+Shift+C
Show title Ctrl+Option+T
Show line numbers Ctrl+Option+M
Disable run Ctrl+ Option+R
Clear output Ctrl+Option+L
Remove Ctrl+Option+D

- 8) Escribir el siguiente titulo: *Review Credit Scoring Data*



Untitled

sql

```
/* This shows the credit scoring data we will use historical data to predict the likelihood of a customer having good credit. */
Select * from ml_user.credit_scoring_100k where rownum < 100
```

settings ▾

CUSTOMER_ID	AGE	INCOME	MARITAL_STATUS	NUMBER_OF_LIABLES	WEALTH	EDUCATION_LEVEL	TENURE	LOAN_TYPE
36968	58	2150	Married	5	Poor	Bachelor's Degree	8	Need
40553		2150	Married	3	Poor	Bachelor's Degree	9	Auto
96479	69	2150	Married	5	Poor	Bachelor's Degree	13	Need
19835	48	2150	Married	3	Poor	Bachelor's Degree	5	Need
52469	38	2750	Married	5	Poor	Bachelor's Degree	3	Need
68809		2750	Married	4	Poor	Bachelor's Degree	2	Need
74621	56	2150	Married	3	Poor	Bachelor's Degree	17	Need
14315	22	2750	Married	2	Average	Master's Degree	26	Need

Review Credit Scoring Data 

sql

```
/* This shows the credit scoring data we will use historical data to predict the likelihood of a customer having good credit. */
Select * from admin.credit_scoring_100k where rownum < 100
```

settings ▾

CUSTOMER_ID	AGE	INCOME	MARITAL_STATUS	NUMBER_OF_LIABLES	WEALTH	EDUCATION_LEVEL
9374	69	3750	Married	2	Rich	Doctorate Degree
55199	25	2750	Married	5	Poor	Bachelor's Degree
74600	48	5250	Married	5	Rich	Bachelor's Degree
76279	18	5250	Married	3	Rich	Bachelor's Degree
74418	39	5250	Divorced	3	Rich	Bachelor's Degree
76496	18	3750	Married	1	Rich	Doctorate Degree
39781	54	4250	Married	5	Rich	Bachelor's Degree

- 9) En el ultimo parágrafo copiar el siguiente query:

%sql

```
/* This is a basic example of a chart visualization in Zeppelin. This particular one is a column graph. Click on the 'settings' link below. That will show you the fields in the query that were used to create the chart. After you review the settings you can click on the link again to hide the settings. */
```

```
select customer_id, age, income, tenure, loan_type, loan_amount, occupation,
number_of_current_accounts, max_cc_spent_amount, mode_job_of_contacts from
ml_user.credit_scoring_100k where rownum < 1000
```

READY ▶ XX ☰ ⚡

```
/* This is a basic example of a chart visualization in Zeppelin. This particular one is a column graph. Click on the 'settings' link below. That will show you the fields in the query that were used to create the chart. After you review the settings you can click on the link again to hide the settings. */

select customer_id, age, income, tenure, loan_type, loan_amount, occupation, number_of_current_accounts, max_cc_spent_amount, mode_job_of_contacts from ml_user.credit_scoring_100k where
rownum < 1000
```

FINISHED ▶ XX ☰ ⚡

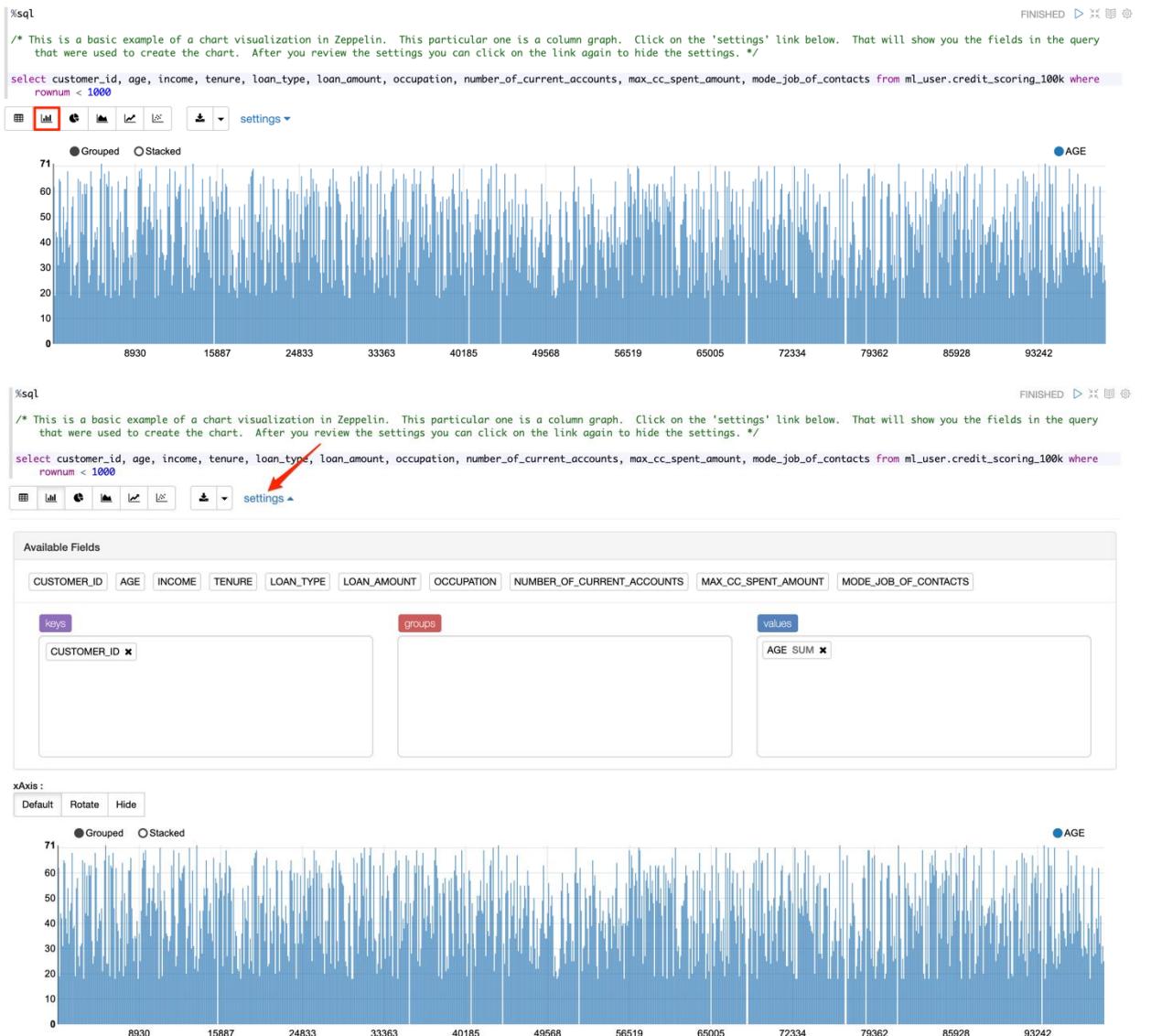
```
/* This is a basic example of a chart visualization in Zeppelin. This particular one is a column graph. Click on the 'settings' link below. That will show you the fields in the query that were used to create the chart. After you review the settings you can click on the link again to hide the settings. */

select customer_id, age, income, tenure, loan_type, loan_amount, occupation, number_of_current_accounts, max_cc_spent_amount, mode_job_of_contacts from ml_user.credit_scoring_100k where
rownum < 1000
```

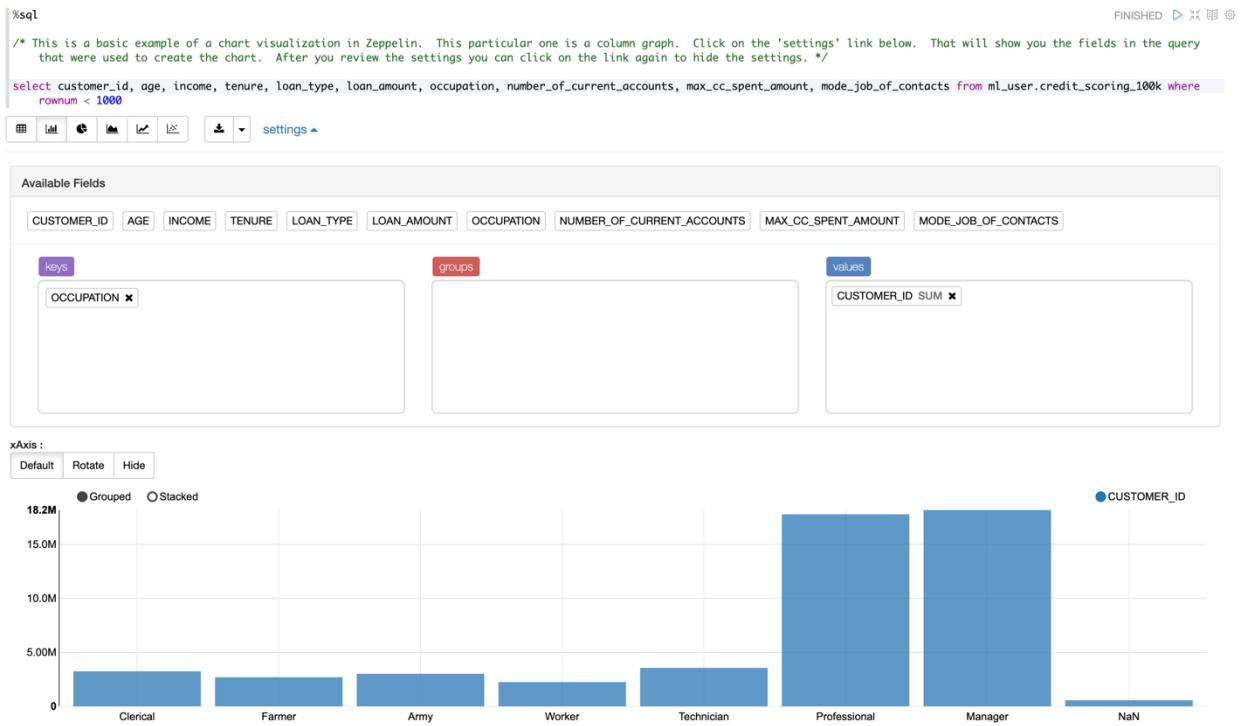
grid table list chart settings ▾

CUSTOMER_ID	AGE	INCOME	TENURE	LOAN_TYPE	LOAN_AMOUNT	OCCUPATION	NUMBER_OF_CURRENT_ACCOUNTS	MAX_CC_SPENT_AMOUNT
36968	58	2150	8	Need	20000	Clerical	4	1290
40553		2150	9	Auto	15000	Farmer	3	1935
96479	69	2150	13	Need	20000	Army	3	3225
19835	48	2150	5	Need	25000	Clerical	2	5160
52469	38	2750	3	Need	20000	Worker	2	5775
68809		2750	2	Need	25000	Army	2	3300
74621	56	2150	17	Need	45000	Farmer	6	645
14315	22	2750	26	Need	30000	Army	5	5775

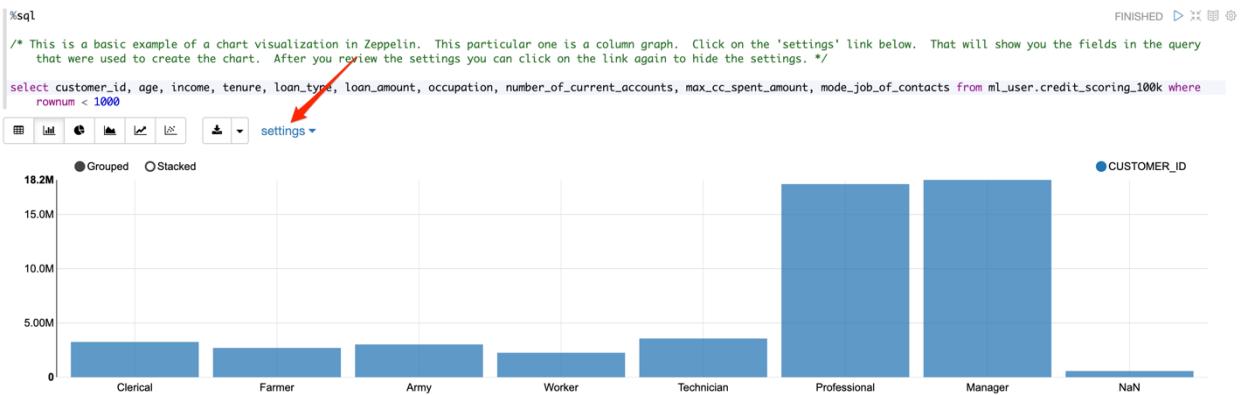
10) Cambiar el estilo de presentación en bar chart y dar click en Settings



11) Pueden arrastrar los campos para ver diferentes resultados



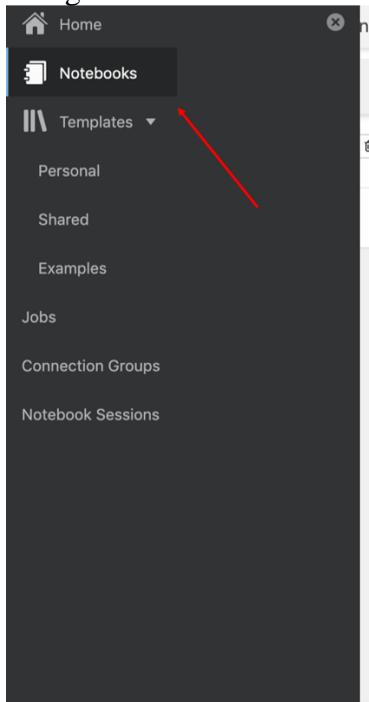
12) Para ocultar las opciones de settings, solo es necesario dar click en settings de nuevo.



Paso 8: Importar Notebooks

- 1) Descargar Notebook -> https://oracle.github.io/learning-library/data-management-library/oracle-machine-learning/adb-oml/create-ml-model/files/targeting_customers_that_complete_all_payments_v4.json

2) Navega a la sección de Notebook



3) Selecciona Import

A screenshot of the Oracle Machine Learning interface showing the 'Notebooks' list. The 'Import' button in the toolbar is highlighted with a red arrow. The table lists one notebook: 'adwc_notebook'. The 'Import' button is located in the toolbar above the table.

4) Selecciona el JSON file que descargaste anteriormente
targeting_customers_that_complete_all_payments_v4.json

A screenshot of the Oracle Machine Learning interface showing the 'Notebooks' list after import. A blue banner at the top indicates "1 out of 1 notebooks imported successfully". The table now shows two notebooks: 'Targeting Customers That Complete All...' and 'adwc_notebook'. The 'Import' button is no longer visible in the toolbar.

- 5) Selecciona el Notebook que acabas de crear
Notebooks

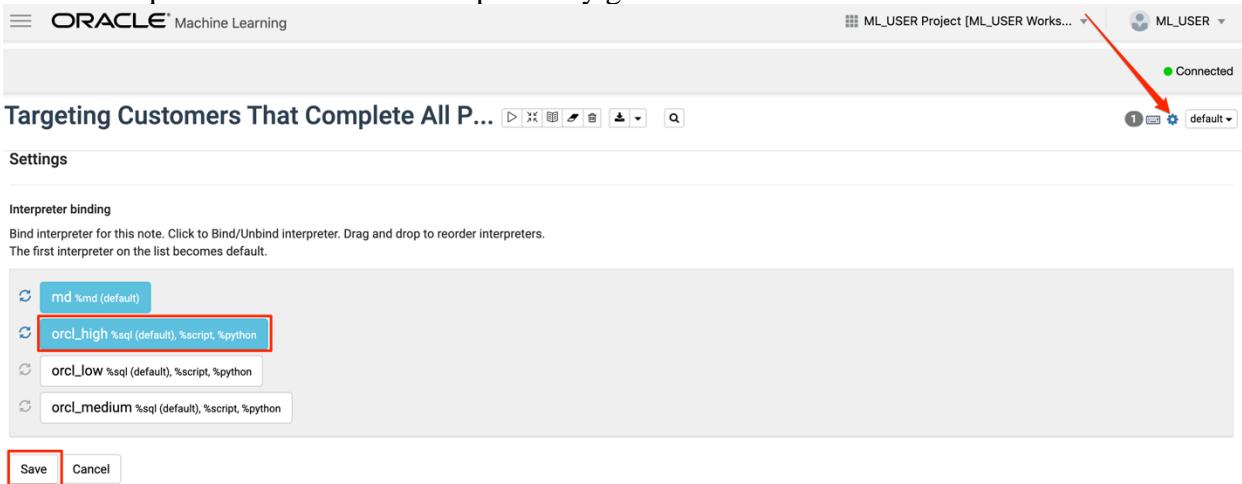
Name	Comment	Last Update	Updated By	Connection Group
Targeting Customers That Complete All Payments_V4_1		09/05/2020 03:23	ML_USER	Global
adwc_notebook		09/05/2020 03:13	ML_USER	Global

- 6) Antes de empezar a trabajar en el Notebook es necesario revisar los bindings. Dale click al engrane

Targeting Customers That Complete All P... 

A red arrow points to the gear icon in the top right corner of the notebook preview.

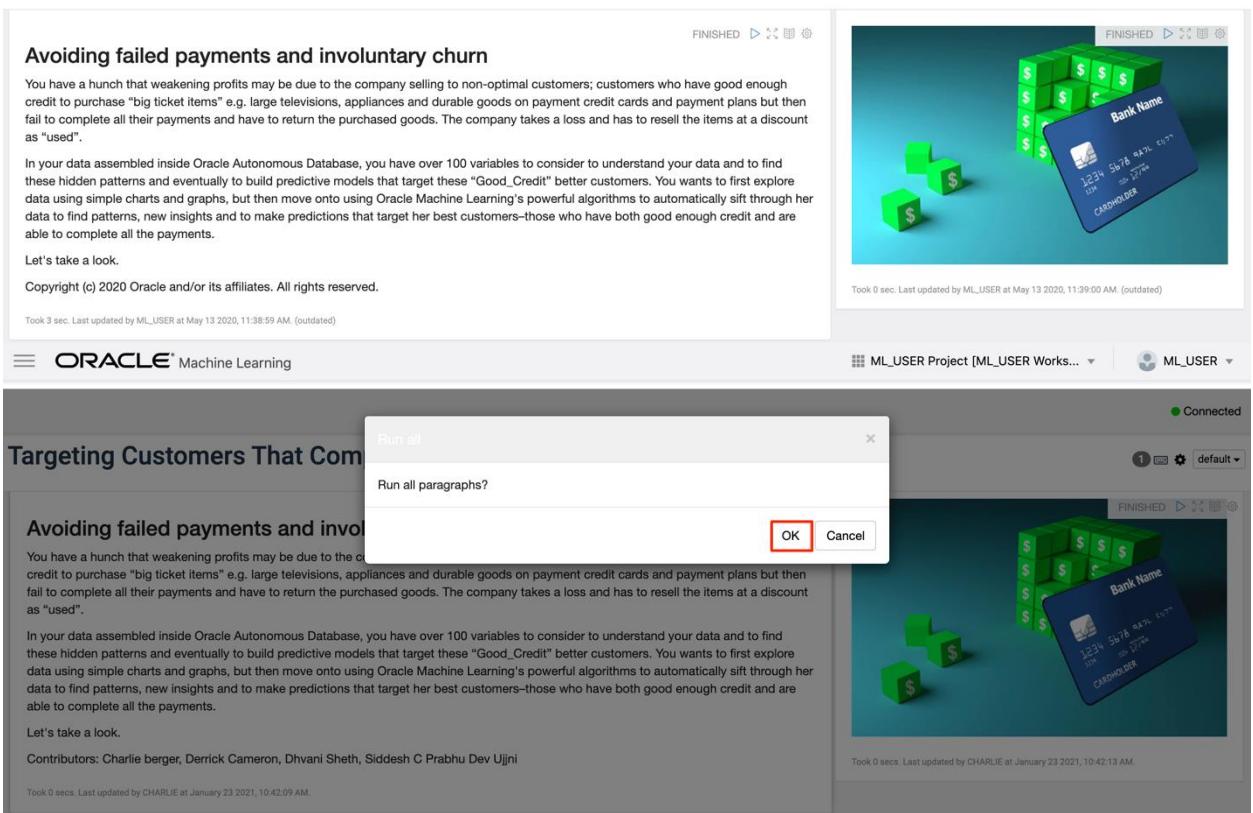
- 7) Selecciona por lo menos una de las opciones y guarda dando click en Save

Targeting Customers That Complete All P... 

A red box highlights the 'orcl_high %sql (default), %script, %python' option in the list. A red arrow points to the 'Save' button at the bottom left of the dialog.

- 8) Haz click en el Run icono para correr el párrafo.

Targeting Customers That Complete All P... 



Avoiding failed payments and involuntary churn

You have a hunch that weakening profits may be due to the company selling to non-optimal customers; customers who have good enough credit to purchase "big ticket items" e.g. large televisions, appliances and durable goods on payment credit cards and payment plans but then fail to complete all their payments and have to return the purchased goods. The company takes a loss and has to resell the items at a discount as "used".

In your data assembled inside Oracle Autonomous Database, you have over 100 variables to consider to understand your data and to find these hidden patterns and eventually to build predictive models that target these "Good_Credit" better customers. You want to first explore data using simple charts and graphs, but then move onto using Oracle Machine Learning's powerful algorithms to automatically sift through her data to find patterns, new insights and to make predictions that target her best customers-those who have both good enough credit and are able to complete all the payments.

Let's take a look.

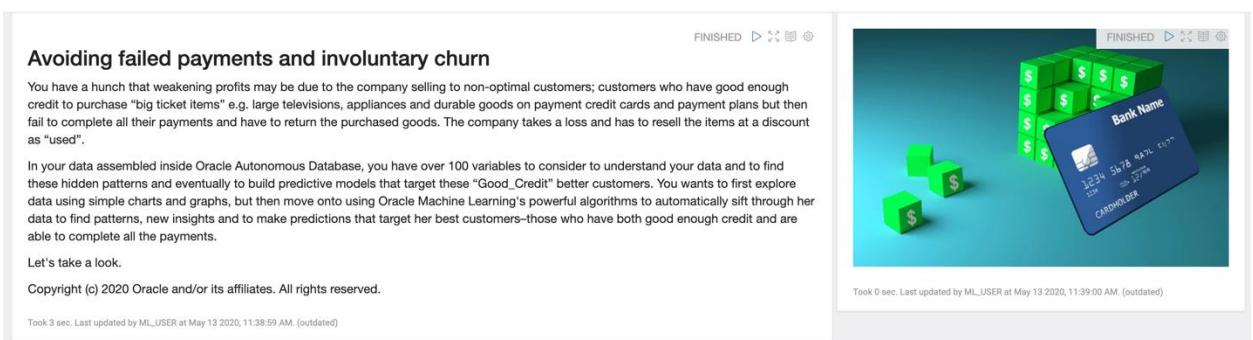
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Took 3 sec. Last updated by ML_USER at May 13 2020, 11:38:59 AM. (outdated)

ML_USER Project [ML_USER Works... | ML_USER | Connected

- 9) Asegúrate que todos los párrafos estén terminados. Para esto da click en el botón de **output y show editor**.

Targeting Customers That Complete All P... 



Avoiding failed payments and involuntary churn

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Took 0 sec. Last updated by ML_USER at May 13 2020, 11:39:00 AM. (outdated)

Documentación

Database PL/SQL Packages and Types Reference

https://docs.oracle.com/en/database/oracle/oracle-database/12.2/arpls/DBMS_DATA_MINING.html#GUID-7B9145D4-831F-46B3-977F-01AF77ACA4A1