

Demo- Create Jupyter Notebook on IBM cloud

Step1) Login to IBM cloud portal cloud.ibm.com with your credentials.

The screenshot shows the IBM Cloud dashboard. At the top, there's a navigation bar with 'IBM Cloud' in the center, a search bar, and account information for 'Aditya Raje's Account'. Below the navigation bar is a 'Dashboard' section with a 'Build' card and several other cards for 'Track emissions with Carbon Calculator', 'Use Watson Assistant', 'Build with Watson', and 'Get Started with Watson Studio'. To the left, there's a sidebar with icons for various services like Build, Watson Assistant, and Watson Studio. At the bottom, there's a taskbar with icons for different applications and system status information.

Step2) From top left ,Click on Navigation Menu → Resource list

The screenshot shows the 'Resource list - IBM Cloud' page. The left sidebar has a 'Resource list' section under 'Projects'. The main area displays a table with columns for Group, Location, Product, Status, and Tags. There are filter options at the top of the table. The table shows several entries, including 'Classic Infrastructure' and 'VPC Infrastructure'. At the bottom, there's a taskbar with application icons and system status information.

Step3) Make sure you deleted all resources under Storage and AI/ Machine Learning

The screenshot shows the IBM Cloud Resource list interface. On the left, there is a navigation sidebar with categories like Compute, Containers, Networking, Storage, Converged infrastructure, Enterprise applications, AI / Machine Learning, Analytics, Blockchain, and Databases. The AI / Machine Learning category is currently selected. The main area displays a table with columns: Name, Group, Location, Product, Status, and Tags. There are several filter and search input fields at the top of the table. A blue 'Create resource' button is located in the top right corner.

Step4) Search for Watson Studio service

The screenshot shows the IBM Cloud Resource list interface with a search query 'Watson studio' entered in the search bar. The search results are displayed in a catalog format. The first result is 'Watson Studio Service'. Other results include 'NeuralSeek Service', 'watsonx SaaS Software', 'CrushBank Service', and 'Converlistics Service'. The interface includes a navigation sidebar on the left and a main search/filter area on the right. A blue 'Create resource' button is visible in the top right.

Step5) Create Watson Studio service with Free pricing

The screenshot shows the IBM Cloud Catalog interface. On the left, there's a sidebar with service details: Type (Service), Provider (IBM), Last updated (06/11/2024), Category (AI / Machine Learning), Compliance (HIPAA Enabled, IAM-enabled), and Location (Frankfurt). The main area displays the "Watson Studio" service card. It includes a summary table:

Watson Studio	Free
Location: Frankfurt	
Plan: Lite	
Service name: Watson Studio-i9	
Resource group: Default	

Below the summary, there's a note: "Develop sophisticated machine learning models using Notebooks and code-free tools to infuse AI throughout your business." There are two tabs: "Create" (selected) and "About". A dropdown menu shows "Select a location" with "Frankfurt (eu-de)" selected. A table titled "Select a pricing plan" lists the "Lite" plan with the following details:

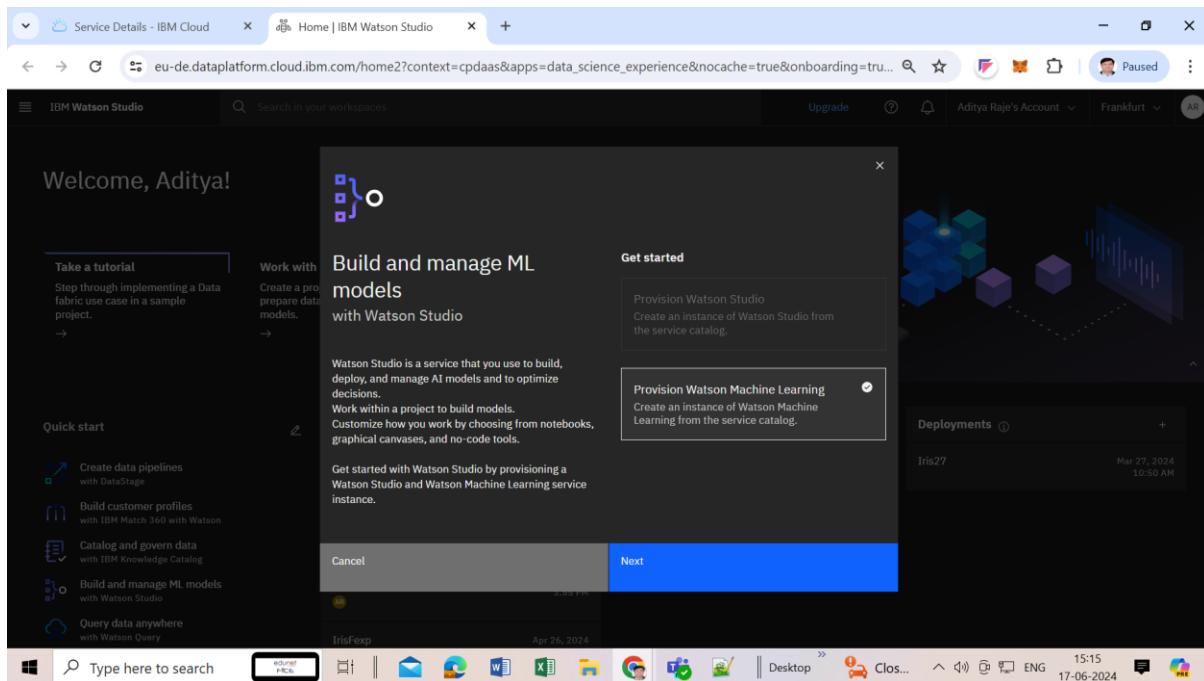
Plan	Features and capabilities	Pricing
Lite	<p>1 authorized user 10 capacity unit-hours monthly limit Environment = # of capacity units required per hour • 1 vCPU + 4 GB RAM = 0.5 • 2 vCPU + 8 GB RAM = 1 • 4 vCPU + 16 GB RAM = 2</p>	Free

A checkbox for "I have read and agree to the following license agreements: Terms" is checked. At the bottom right, there are "Create" and "Add to estimate" buttons.

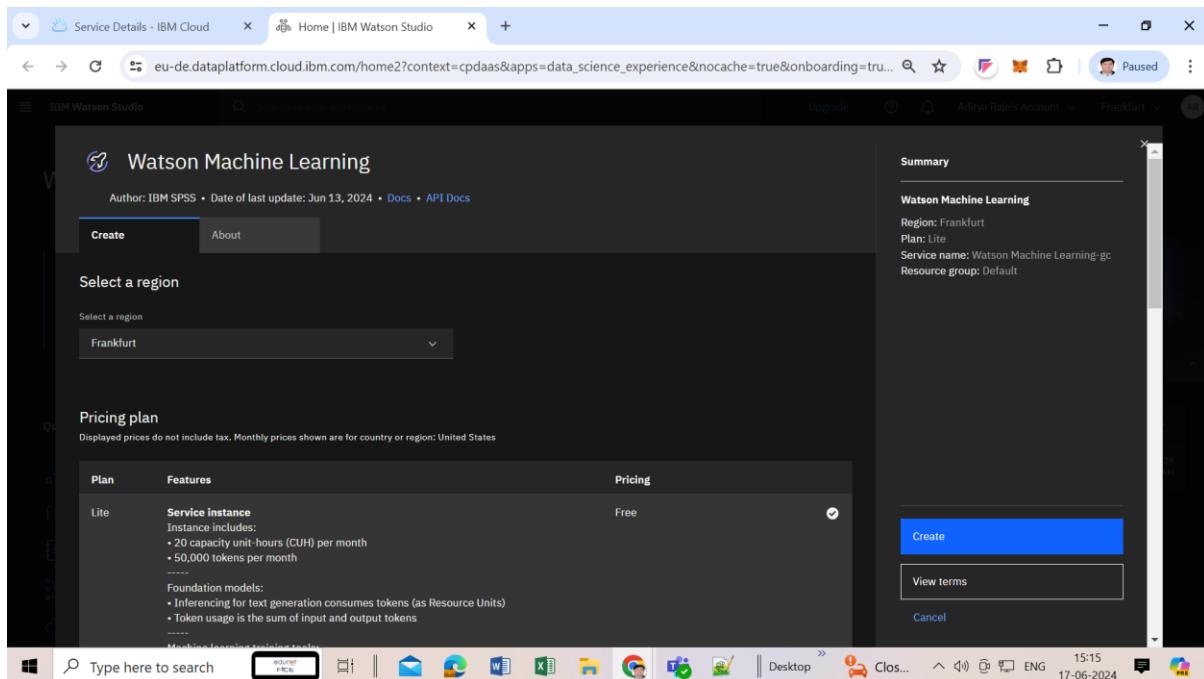
Step6) Click on Launch In

The screenshot shows the "Service Details - IBM Cloud" page for the "Watson Studio-i9" service. The top navigation bar includes "Catalog", "Manage", and "Aditya Raje's Account". The main content area shows the "Watson Studio in Cloud Pak for Data and watsonx" card. It features a diagram illustrating the architecture: "IBM Watson Studio in Cloud Pak for Data and watsonx" sits atop "IBM Cloud Pak for Data, watsonx Unifying platforms", which sits on top of "IBM Cloud Base cloud infrastructure". Below the card, there's a "Launch in" button. A note states: "Build and deploy machine learning models on either platform. Work with foundation models on watsonx as a Service." A "Helpful links" section includes "Documentation", "Learning path", and "Videos". The bottom of the screen shows the Windows taskbar with various pinned icons.

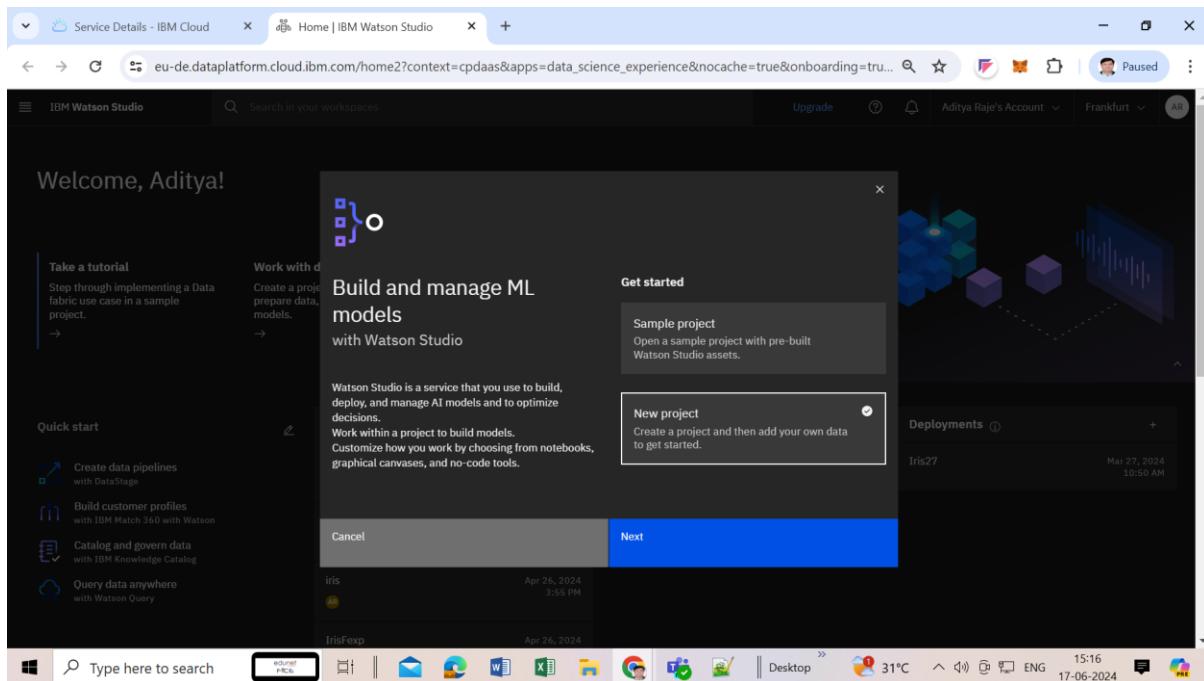
Step6) Select Provision Watson Machine Learning, Click on Next



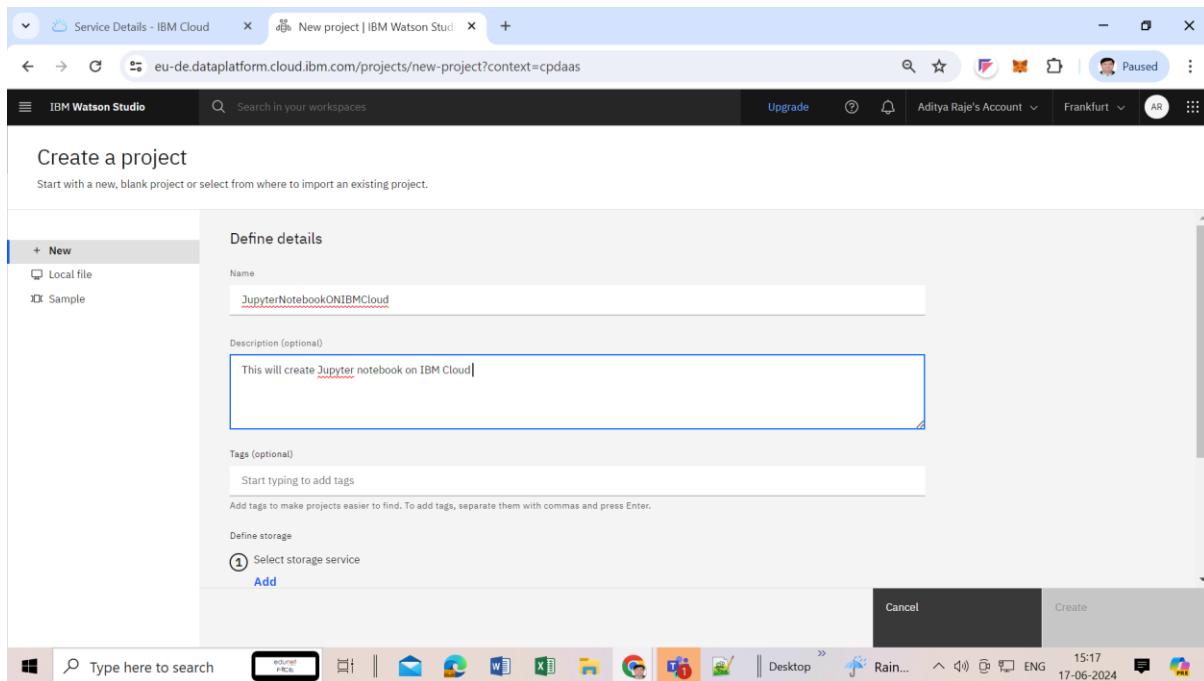
Step7) Create Watson Machine Learning service



Step8) Click on New Project and Next



Step9) In Create Project window – Provide details about Name , Description



Step10) Click on Add to create new storage service to upload files. It will open in new window.

Step11) Select Free Pricing with Lite plan then click Create

The screenshot shows the 'Pricing plan' section of the IBM Watson Studio interface. It displays three plan options: One Rate, Lite, and Standard. The 'Lite' plan is selected, indicated by a checked checkbox next to the 'Free' price column. The 'Summary' panel on the right provides details about the selected 'Cloud Object Storage' service, including its region (Global), plan (Lite), service name (Cloud Object Storage-rs), and resource group (Default). A large blue 'Create' button is prominently displayed at the bottom right of the dialog.

Step12) Click on 2 Refresh

Your storage service name is appeared and Click on Create button

The screenshot shows the 'Create a project' screen in IBM Watson Studio. The 'Storage' field is populated with 'Cloud Object Storage-rs'. At the bottom right, there are two buttons: 'Cancel' and a large blue 'Create' button. The status bar at the bottom indicates it's 31°C, 15:21, and the date is 17-06-2024.

The screenshot shows the IBM Watson Studio interface for a project named "JupyterNotebookONIBMCLOUD". The "Overview" tab is selected. At the top, there are four cards: "Add users as collaborators", "Add data to work with", "Work with data and models in Python or R notebooks", and "Build machine learning models automatically". Below these are sections for "Assets" (with a "View all" link) and "Resource usage" (showing 0 CUH). On the right, there is a "Project history" panel with a message from the user: "You created project JupyterNotebookONIBMCLOUD Today at 3:22 PM". The bottom of the screen shows a Windows taskbar with various pinned icons.

Step13) Click on Manage tab- Services and Integrations

The screenshot shows the "Manage" tab selected in the IBM Watson Studio interface. The left sidebar has a "Services & integrations" section highlighted. The main area displays a "Services & integrations" section with tabs for "IBM services" and "Third-party integrations". A search bar and a "Find services" button are present. Below, there is a "Name" input field and a "Service type" dropdown. A large "No services" message with the sub-instruction "Click Associate service or ask a project Admin to associate one" is centered. The bottom of the screen shows a Windows taskbar with various pinned icons.

Step14) Click on Associate service button. Check checkbox – Associate

Step15) Select Checkbox and Click on Associate

The screenshot shows two views of the IBM Watson Studio interface. The top view is a modal dialog titled 'Associate service' with the sub-instruction 'Choose an existing or add a new service to associate with your project.' It lists a single service entry:

Name	Type	Plan	Location	Status	Group
Watson Machine Learning-gc	Watson Machine Learning	Lite	Frankfurt	Not associated	Default

The 'Associate' button at the bottom right of the dialog is highlighted with a blue background. The bottom view shows the main 'Manage' tab of the Watson Studio interface. On the left sidebar, 'Services & integrations' is selected. In the main area, under 'IBM services (1)', it shows the same service entry:

Name	Service type
Watson Machine Learning-gc	Watson Machine Learning

The 'Associate service' button at the top right of this section is also highlighted with a blue background.

Step16) Go to Environments – Template – New Template

The screenshot shows the IBM Watson Studio interface. The left sidebar has a 'Project' section with 'General', 'Access control', 'Environments' (which is selected), 'Resource usage', and 'Services & integrations'. The main area is titled 'Environments' and contains a sub-section 'Tool runtimes' with a button 'Templates (21)'. Below this is a search bar 'Find environment template'. A table lists five templates:

Template name	Tool	Language	Last modified
Default SPSS Modeler S 2 vCPU and 8 GB RAM	Modeler		3 yr ago Created by IBM
Default SPSS Modeler M 4 vCPU and 16 GB RAM	Modeler		3 yr ago Created by IBM
Default SPSS Modeler L 6 vCPU and 24 GB RAM	Modeler		3 yr ago Created by IBM
Default DataStage PX S 1 Conductor: 2 vCPU and 8 GB RAM	DataStage		4 yr ago Created by IBM
Default DataStage PX L 1 Conductor: 8 vCPU and 32 GB RAM	DataStage		4 yr ago Created by IBM

At the bottom right of the table is a blue button 'New template +'. The taskbar at the bottom includes icons for various applications like Microsoft Word, Excel, and Google Chrome.

Step17) Provide Name, description; Change Hardware configuration to 4VCPU 32GB RAM - Create

The screenshot shows the 'New environment' dialog box. On the left, under 'Define environment details', the 'Name' field is filled with 'python310'. Below it, the 'Description (optional)' field contains the text 'This is 4VCPU with 16 GB RAM and runtime 23.1 on Python 3.10'. On the right, under 'Define configuration', the 'Type' section has 'Default' selected. The 'Hardware configuration' dropdown is set to '4 vCPU and 16 GB RAM'. The 'Software version' dropdown is set to 'Runtime 23.1 on Python 3.10'. At the bottom right of the dialog are 'Cancel' and 'Create' buttons. The taskbar at the bottom includes icons for various applications like Microsoft Word, Excel, and Google Chrome.

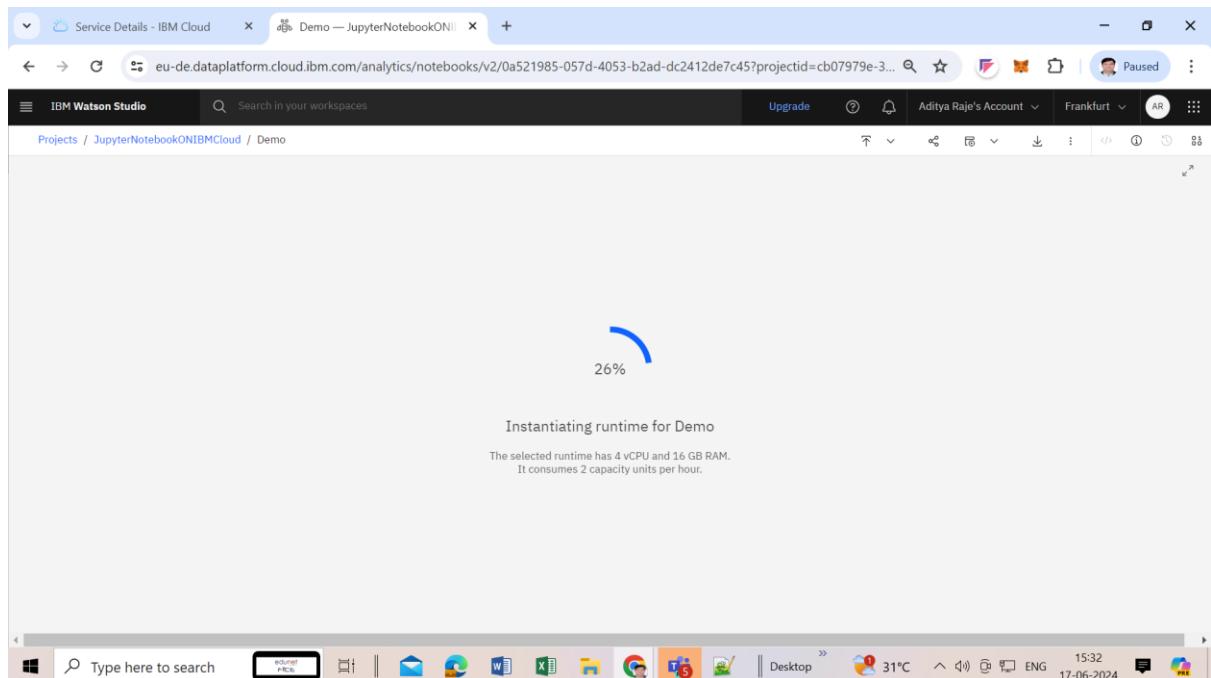
Step18) New Template is listed in list. From newly created Template name, click on **three dots** and select option **New Notebook**

The screenshot shows the IBM Watson Studio interface. On the left, there's a sidebar with 'Project' and 'Environments' selected. The main area is titled 'Environments' and shows a table of templates. A context menu is open over the first row, which has 'python310' and '4 vCPU and 16 GB RAM'. The menu options include 'New template', 'New notebook' (which is highlighted with a blue border), 'Promote to space', 'Edit', and 'Delete'. The status bar at the bottom right shows the date as 17-06-2024 and the time as 15:30.

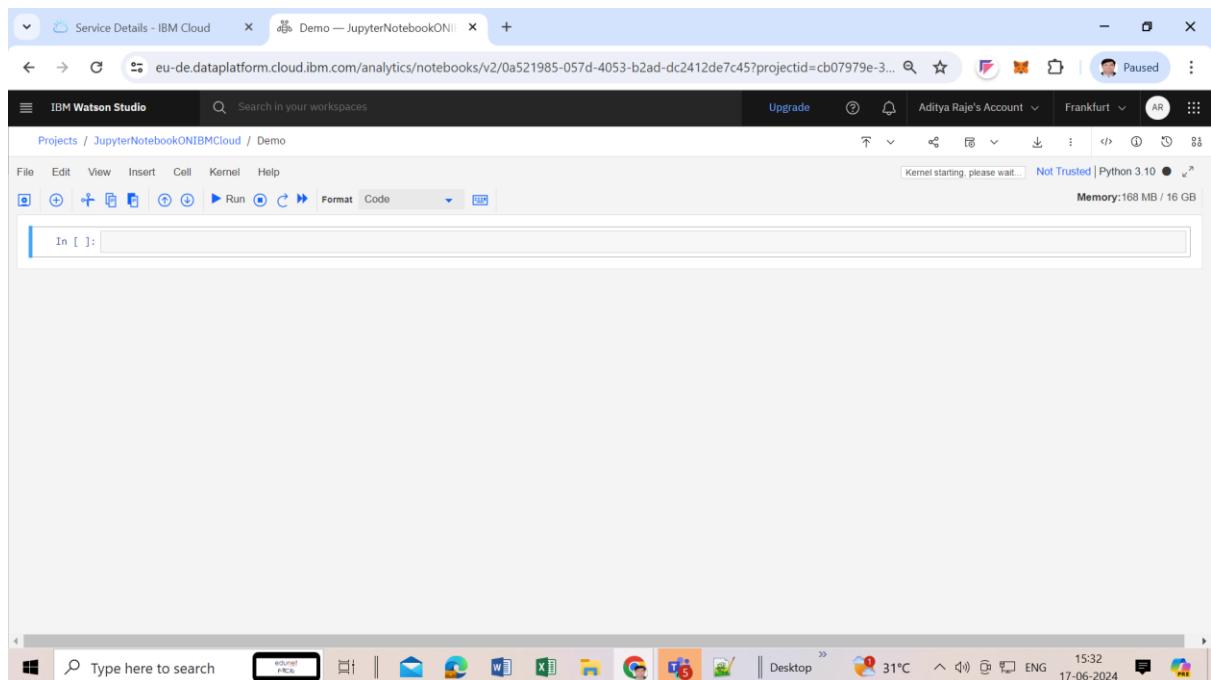
Step19) Provide name, description for New notebook and Click on **Create**.

The screenshot shows the 'New asset' dialog for creating a new notebook. On the left, there's a sidebar with 'New asset' and '+ New' selected. The main area has two tabs: 'Define details' and 'Define configuration'. In 'Define details', the 'Name' field is set to 'Demo' and the 'Description (optional)' field contains 'This is demo notebook'. In 'Define configuration', the 'Select runtime' dropdown is set to 'python310 (4 vCPU 16 GB RAM)'. The 'Language' dropdown is set to 'Python 3.10'. At the bottom right of the dialog are 'Cancel' and 'Create' buttons, with 'Create' being highlighted with a blue border.

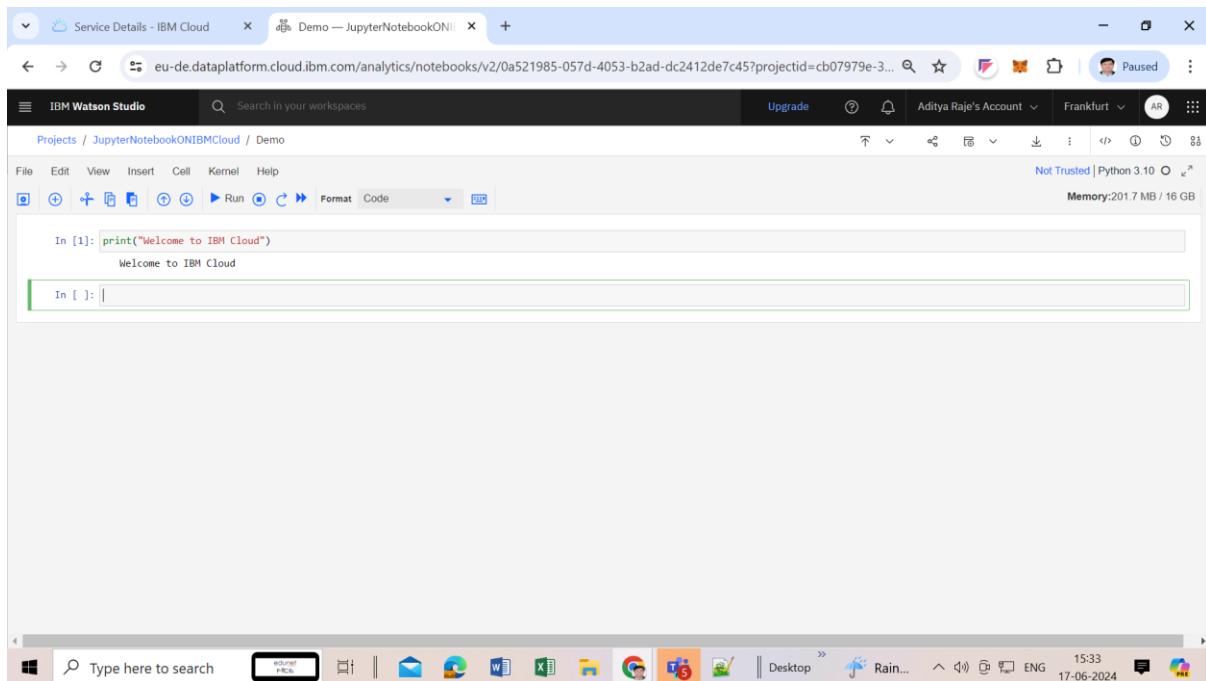
Step20) Wait for 100% to complete and load the Naitebook.



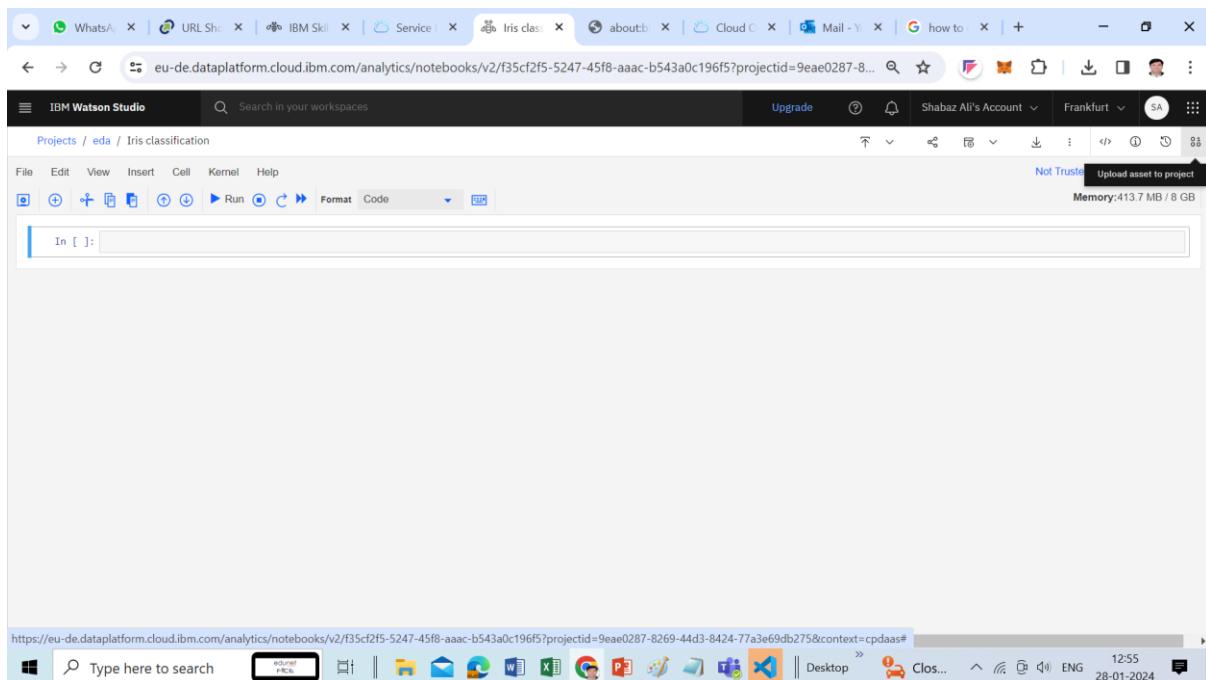
Step21) Now Notebook is ready



Step22) Run python code



Step23) From top right corner window, Click on icon Upload asset to project



Step24) In Data in this project, click on **Drop data files here or brose for files to upload**

The screenshot shows the IBM Watson Studio interface. On the right side, there is a panel titled "Data in this project". Within this panel, there is a dashed rectangular area containing the text "Drop data files here or browse for files to upload". This is the step where the user is instructed to upload the Iris.csv file.

Step25) Upload Iris.csv file.

Step26) Import Iris.csv file into code cell. Click on **Code Snippets** icon.

The screenshot shows the IBM Watson Studio interface with the "Code Snippets" icon highlighted in the toolbar. Below the toolbar, two code cells are visible: In [1] contains "import pandas as pd" and In [2] contains "import numpy as np". This is the step where the user imports the Iris.csv file into the code cell.

Step27) From Data Ingestion section; Click on Read data.

The screenshot shows the IBM Watson Studio interface. On the right side, there is a sidebar titled "Code Snippets" which contains a "Data Ingestion" section. Within this section, there is a "Read data" button. The main workspace shows some Python code in a notebook cell:

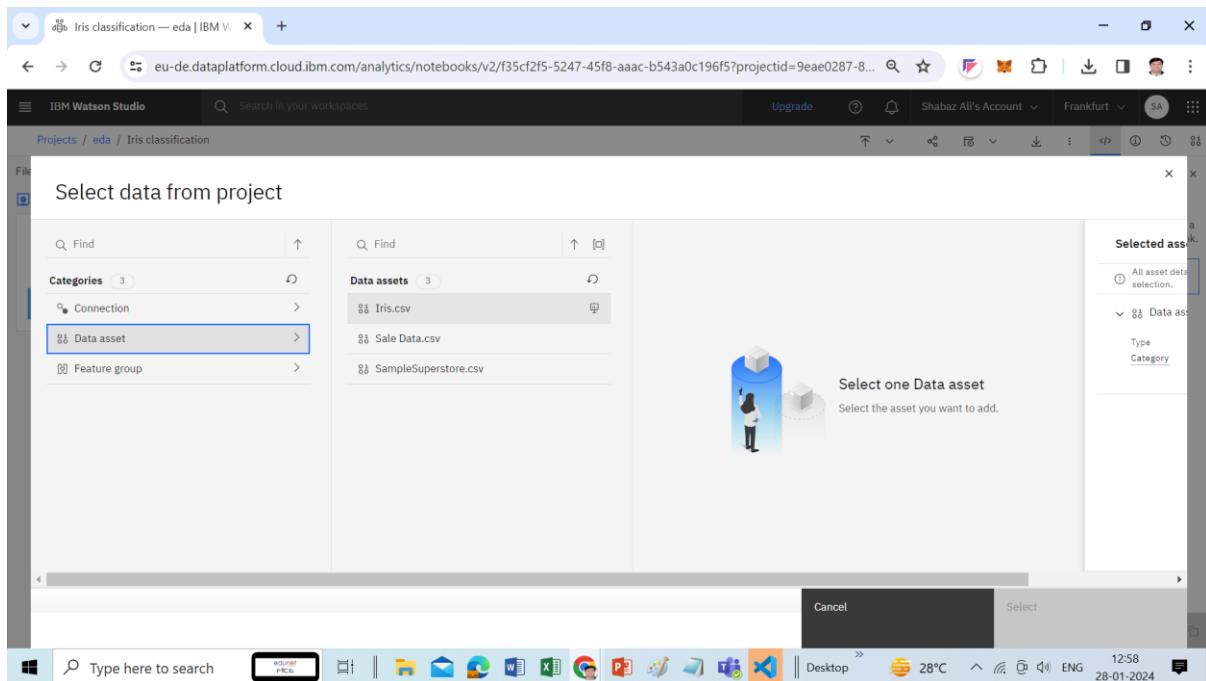
```
In [1]: import pandas as pd  
In [2]: import numpy as np
```

The status bar at the bottom indicates "Memory: 445.7 MB / 8 GB".

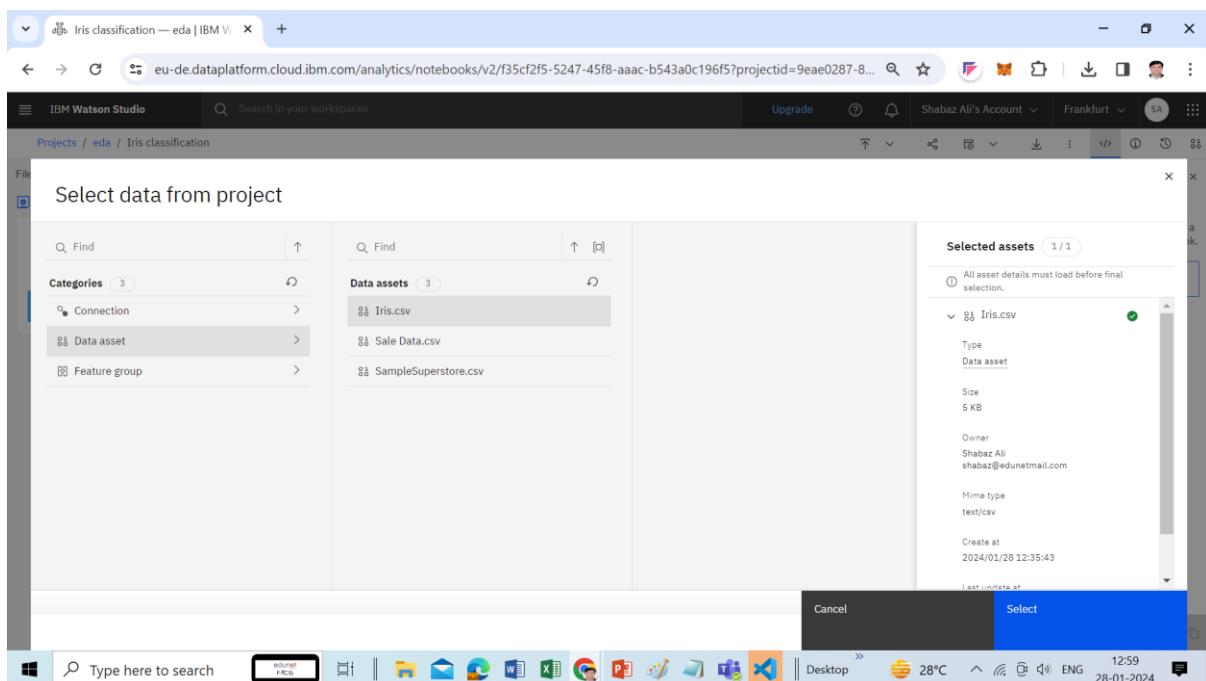
Step28) Select data from project; Click Data asset

The screenshot shows the "Select data from project" dialog box. On the left, there is a sidebar with a "Find" input field and a "Categories" section containing "Connection", "Data asset" (which is selected), and "Feature group". The main area is titled "Select an asset" with the sub-instruction "Select the asset you want to add." At the bottom right of the dialog are "Cancel" and "Select" buttons. The status bar at the bottom indicates "Memory: 445.7 MB / 8 GB".

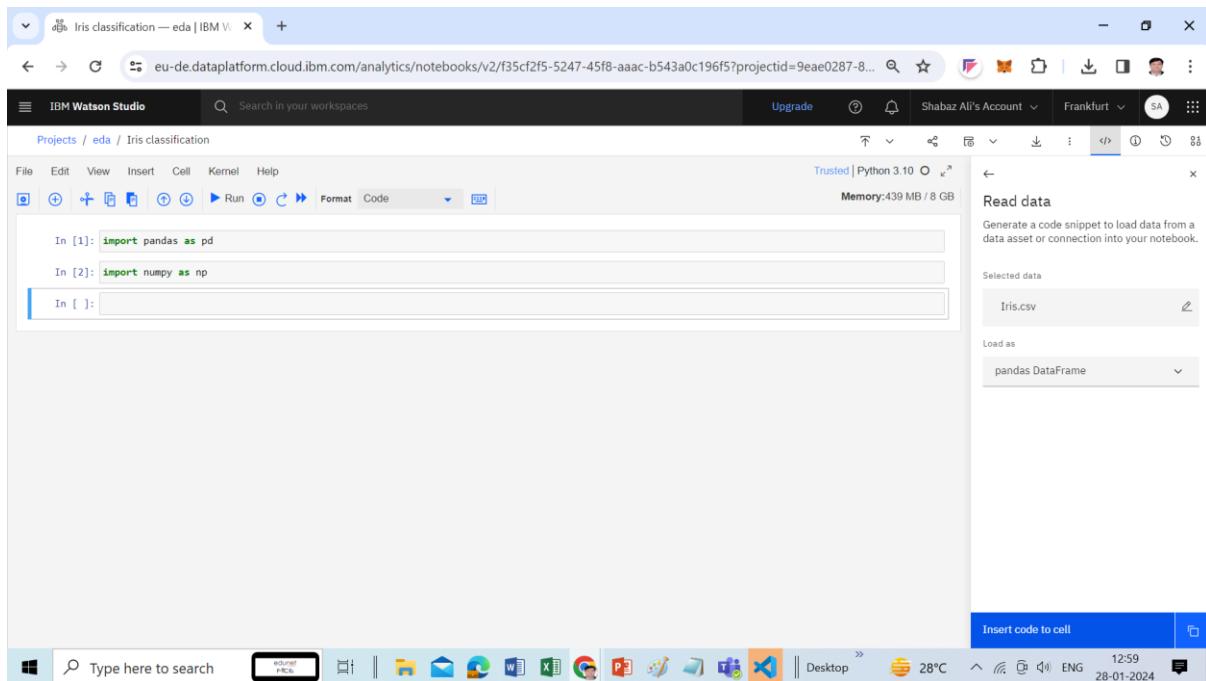
Step29) Select your Iris.csv file



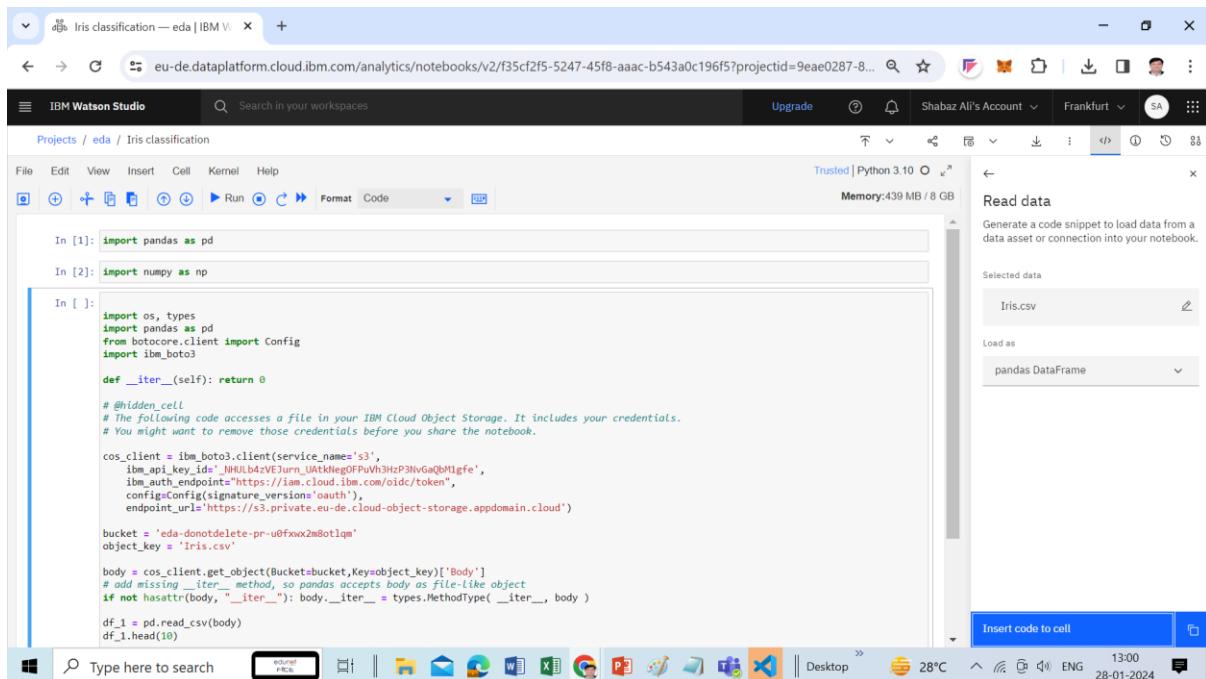
Step30) Click on Select



Step31) Copy code or Insert code to cell



Step32) Code for importing Iris.csv file will get displayed in code cell.



Step33) Click on Run icon

The screenshot shows the IBM Watson Studio interface with a Jupyter Notebook open. The notebook has a single cell with the following Python code:

```
object_key = 'Iris.csv'
body = cos_client.get_object(Bucket=bucket,Key=object_key)['Body']
# add missing __iter__ method, so pandas accepts body as file-like object
if not hasattr(body, '__iter__'): body.__iter__ = types.MethodType( __iter__, body )

df_1 = pd.read_csv(body)
df_1.head(10)
```

The output of this cell, labeled "Out[3]:", displays the first 10 rows of the Iris dataset as a pandas DataFrame:

	ID	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
5	6	5.4	3.9	1.7	0.4	Iris-setosa
6	7	4.6	3.4	1.4	0.3	Iris-setosa
7	8	5.0	3.4	1.5	0.2	Iris-setosa
8	9	4.4	2.9	1.4	0.2	Iris-setosa
9	10	4.9	3.1	1.5	0.1	Iris-setosa

The notebook interface includes a toolbar with various icons for file operations, a search bar, and a status bar at the bottom showing system information like temperature and date.

Congratulations! You successfully created Jupyter Notebook using IBM Cloud.