Lab-1: Setup Environment

Introduction

This lab will set up the Cloud Pak for Data environment for subsequent labs and introduce you to the Project and Gallery features of Cloud Pak for Data. Cloud Pak for Data is an integrated platform of tools, services, data, and meta-data to help companies and agencies accelerate their shift to be data driven organizations. The platform enables data professionals such as data scientists, data engineers, business analysts, and application developers collaboratively work with data to build, train, deploy machine learning and deep learning models at scale to infuse AI into business to drive innovation. Cloud Pak for Data is designed to support the development and deployment of data and analytics assets for the enterprise.

End-to-End Data Science

The general flow of the End to End Data Science PoT will be guided by the activities shown in Figure 1- End to End Flow. This lab will focus on the Create Project and Research Topics activities.

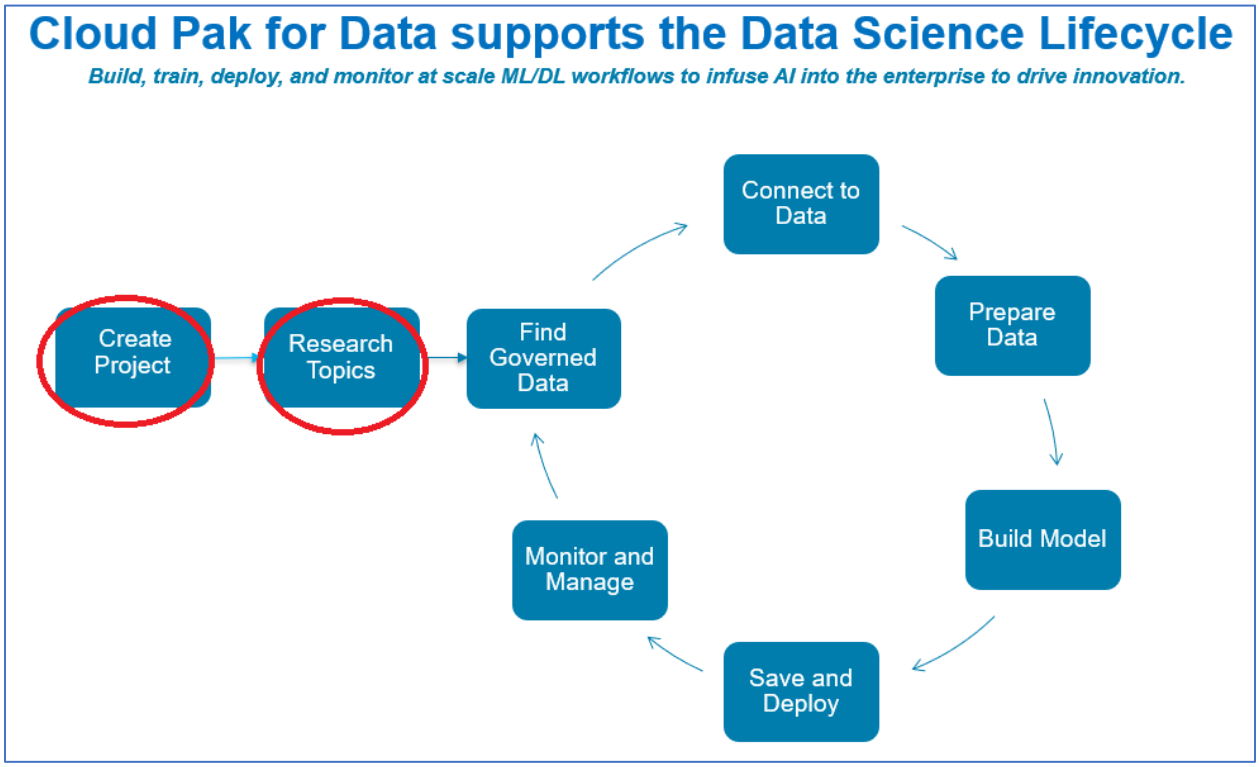


Figure 1- End to End Flow

Objectives

The goal of this lab is to familiarize the user with the Project and Gallery features of Cloud Pak for Data, and to set up the environment for subsequent labs. Projects are a core component of Cloud Pak for Data. Projects enable you to organize your analytic and data assets in one place.

Projects are also the home base for collaboration. Colleagues can be added as collaborators on a project with administrator, editor, or viewer access.

The Watson Gallery contains samples that you can use in your project:

- Run sample notebooks to learn new techniques or to use as templates for your own notebooks.
- Add sample data sets to your project

The Watson Community contains resources to help you learn about data science:

- Read articles from many sources to keep current with data science trends.
- Read tutorials for multiple skill levels to learn how to do specific data science tasks.

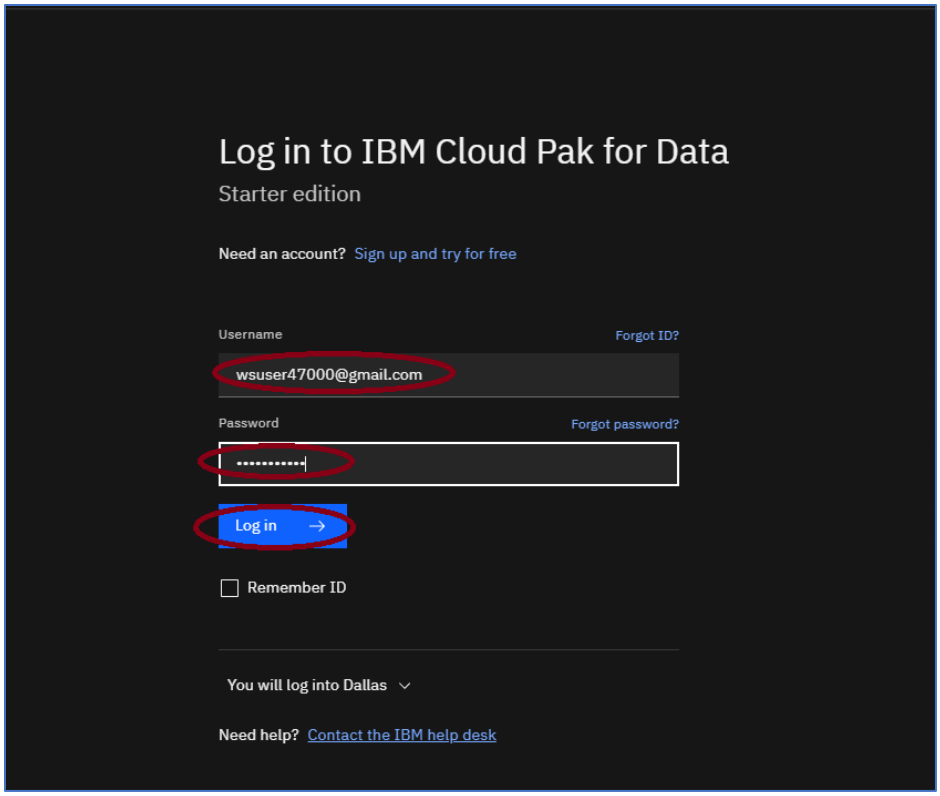
The Watson Gallery and Watson Community features support the "Research Topics" activity in the end-to-end process shown above.

After completing this lab, you will be familiar with these features of Watson Studio.

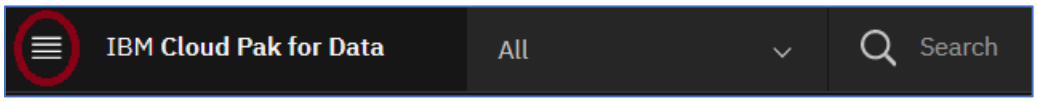
1. Create a project
2. Associate an existing Watson Machine Learning service instance with the project
3. Associate an existing Watson OpenScale service instance with the project
4. Add a collaborator to the project
5. Research topics by searching for a notebook in the Gallery

Create a Project

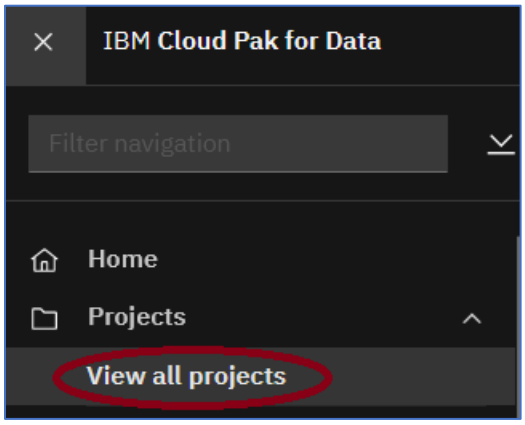
1. Log into your Cloud Pak for Data account by typing in the url **dataplatform.cloud.ibm.com** in your Firefox or Chrome browser.
2. Enter the **Username, Password** and click **Log in.**



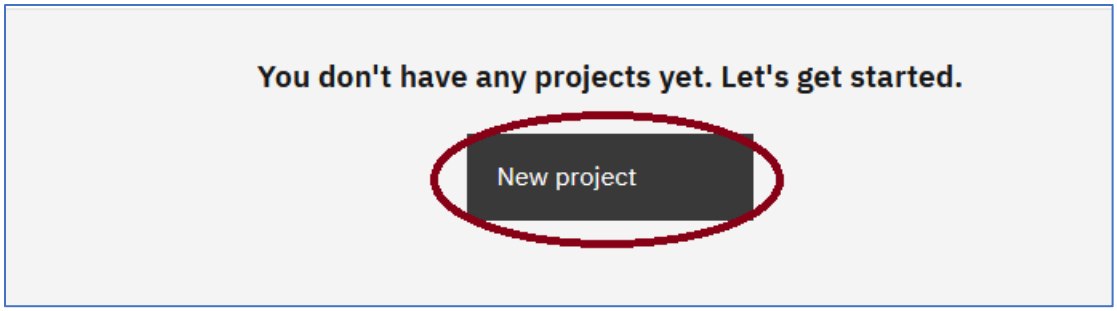
3. Click on the hamburger icon ☰.



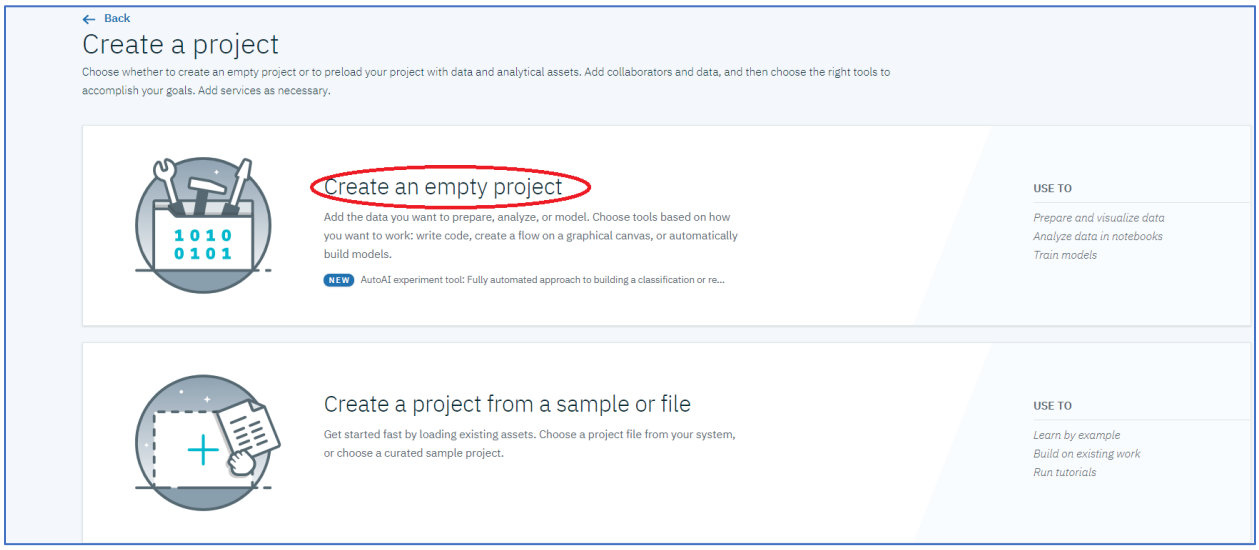
4. Click on **View All Projects**



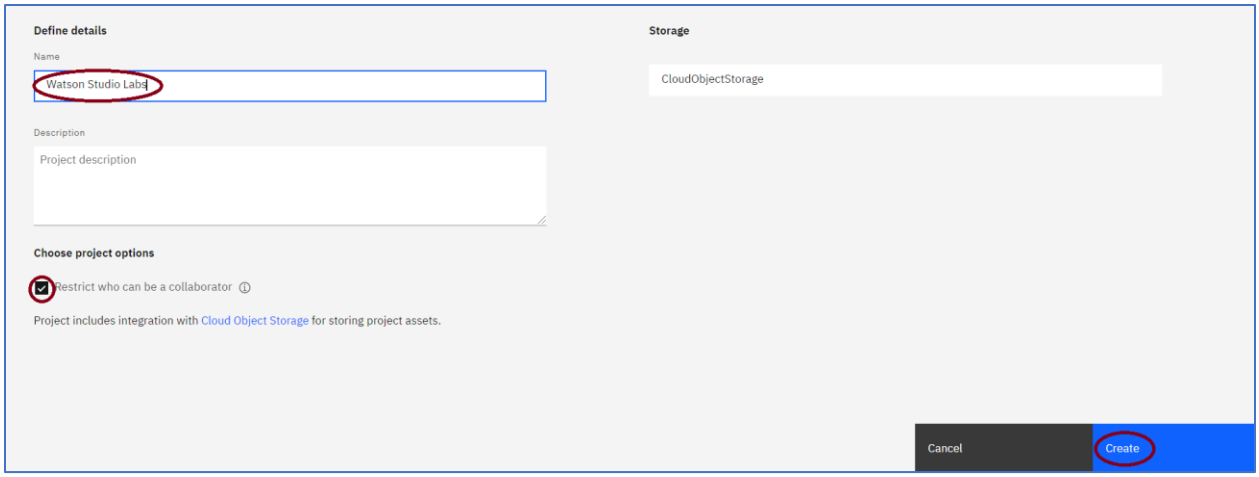
5. Click on **New Project**.



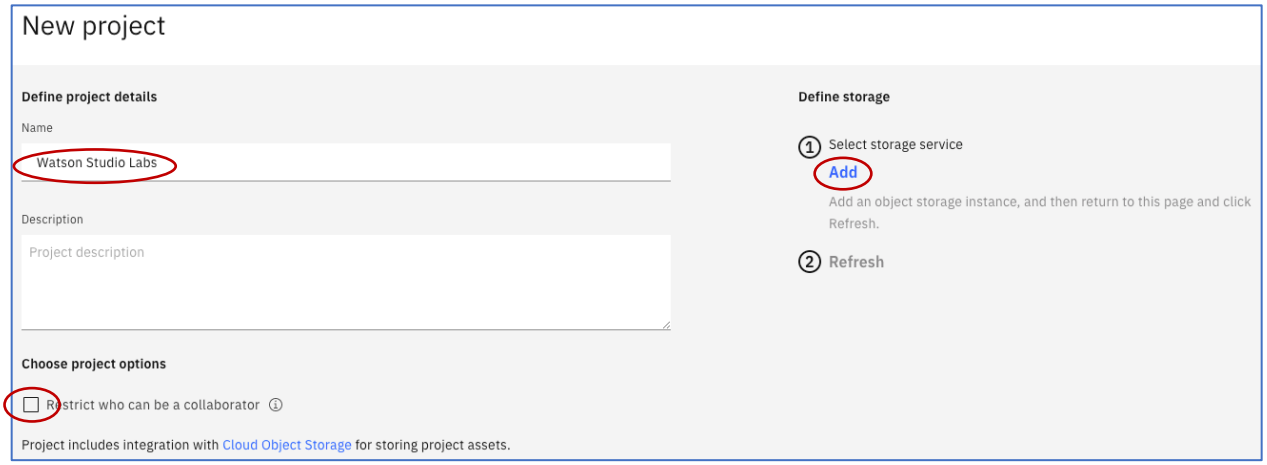
6. Click on Create an empty project.



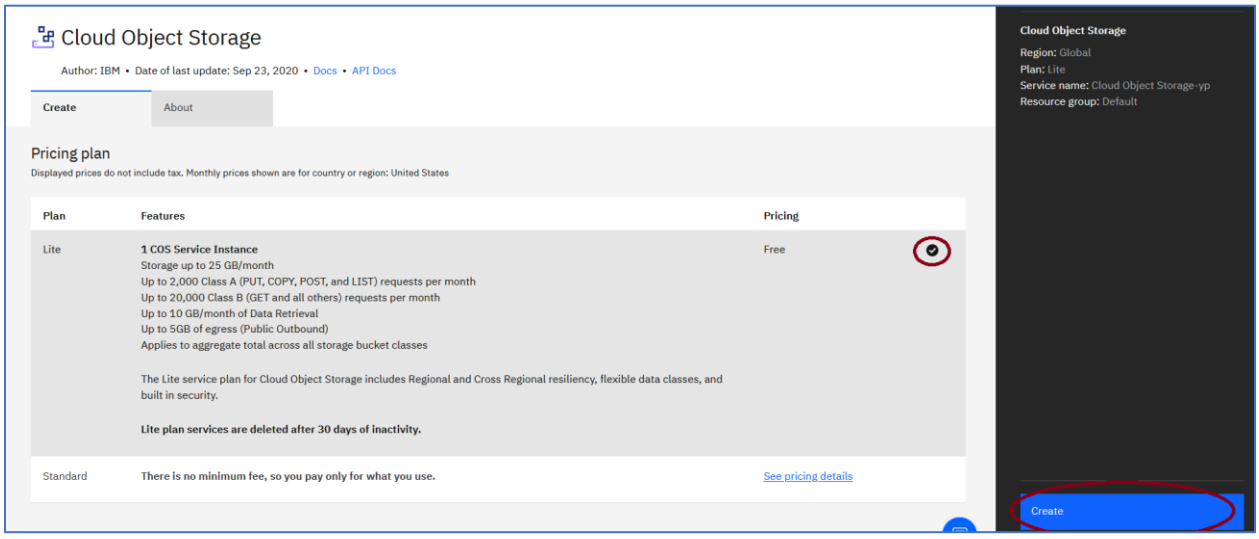
7. Enter “Watson Studio Labs” for the **Name,** optionally enter a **Description,** check **Restrict who can be a collaborator** (if it’s unchecked) and click **Create**. Note, if you have more than one instance of object storage listed, select an instance. Further note, if you do not have object storage already provisioned, you will see an area marked **Define Storage** and this must be completed before you can click Create. If you need to define object storage, please continue, otherwise go to step 12.



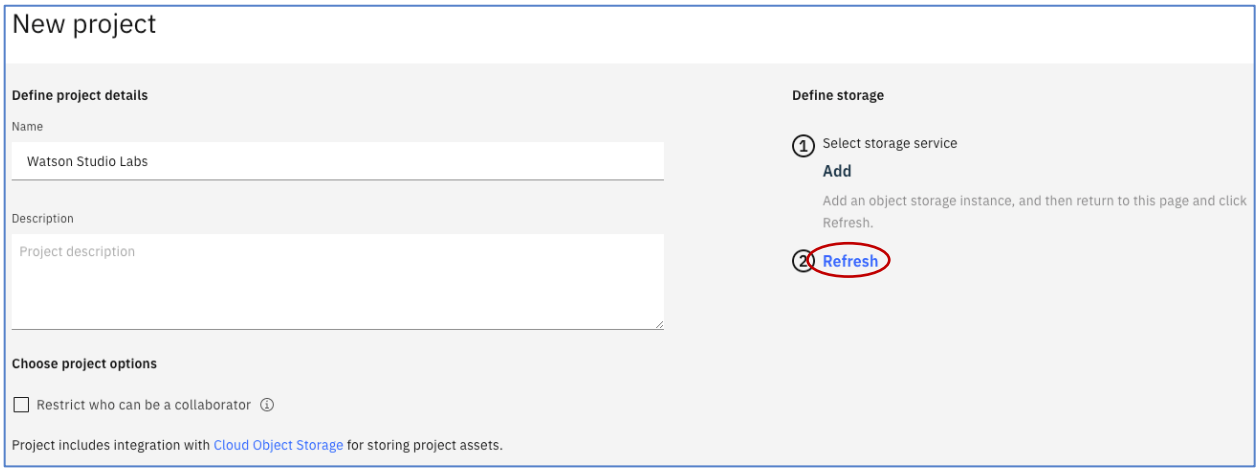
8. The next few steps are to be followed if you don't have object storage provisioned. Otherwise skip to step 12. In the **Define Storage** area click on **Add** to add an object storage instance.



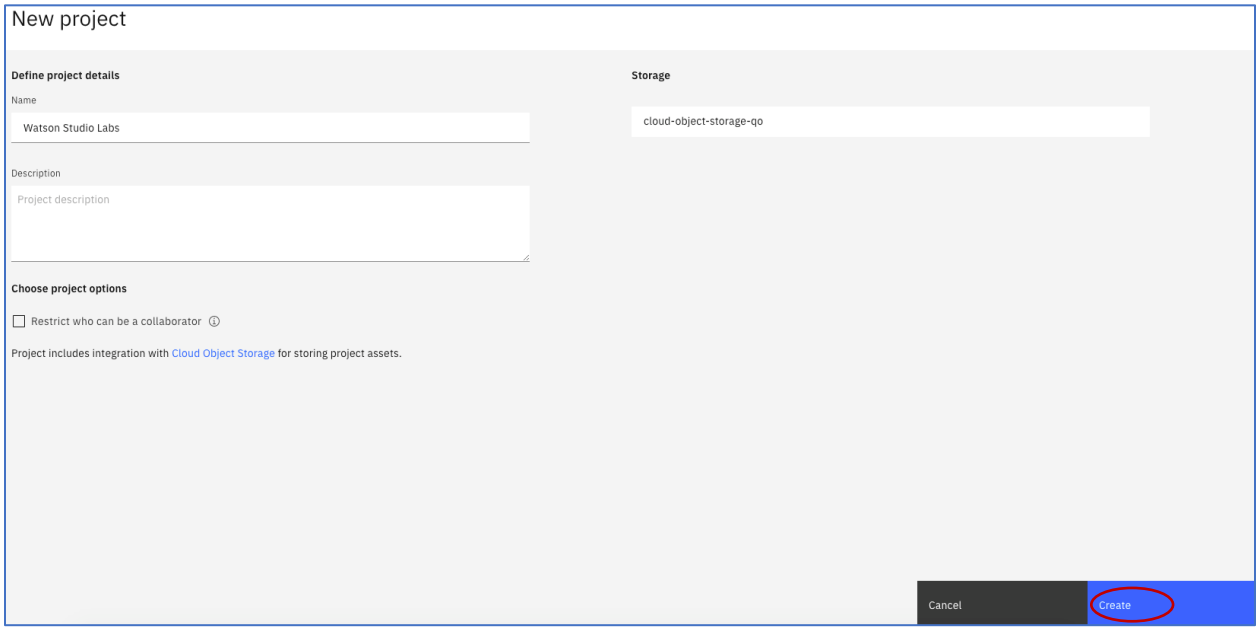
9. Make sure the **Lite** plan is selected**,** and then click on **Create**



10. Note that it may take a minute for your storage service to show up. Click **Refresh**.



11. Click **Create**.



12. The Project **Overview** page is shown. This page provides summarized information about the project. In addition to the Overview page, are five other pages described below.

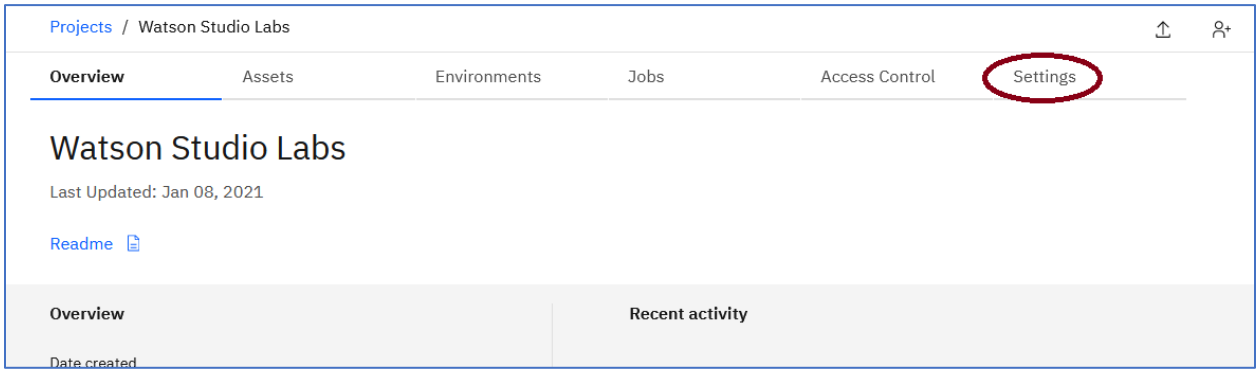
- **a. Assets Page –** Analytics and Data assets can be added to the project from this page.
- **b. Environments Page -** Provides information on the current notebook environments that are defined, lists the active notebook environments currently running, and enables users to create custom notebook environments. Similar information for DataStage environments is provided as well. DataStage is a highly performant ETL engine.
- **c. Jobs Page –** Provides the interface to the job subsystem.

d. **Access Control –** Lists the project collaborators and enables users to add/remove collaborators.
e. **Settings –** Enables users to view and set project attributes.

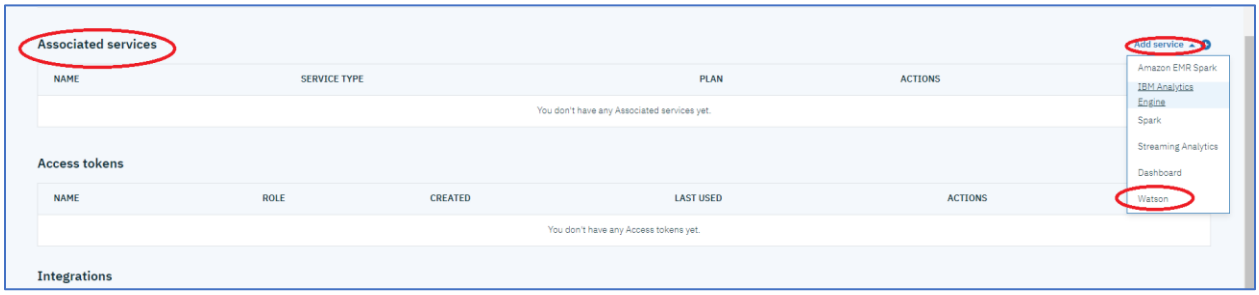
Associate Watson Machine Learning service to the Project

To save and deploy machine learning models, a Watson Machine Learning service must be created (if one doesn't exist) and associated to our project.

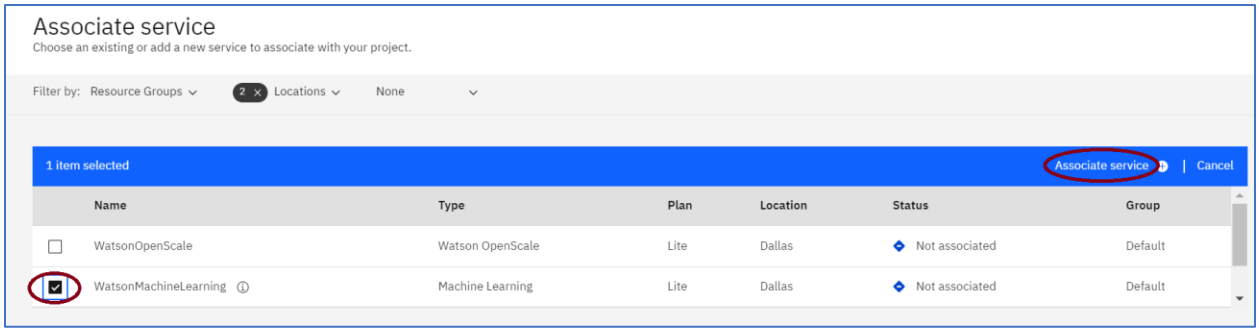
1. Click on **Settings** to navigate to the Project **Settings** page.



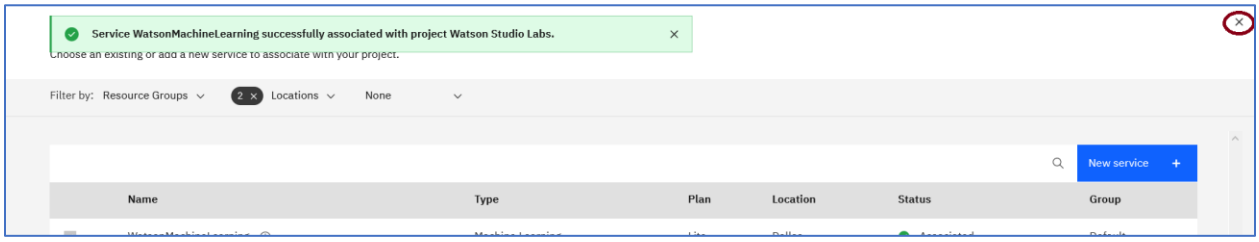
2. Scroll down to **Associated Services,** click on **Add service,** click on **Watson**.



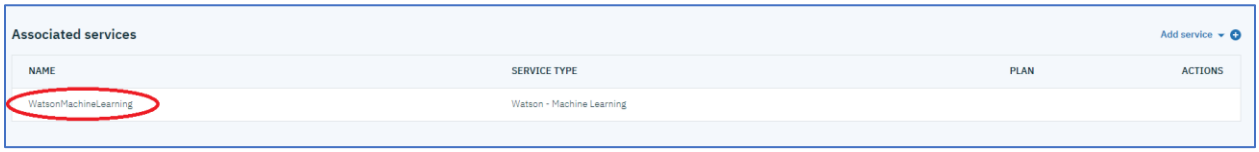
3. Newer Watson Studio accounts come with the WatsonMachineLearning instance already created. Click on the checkbox adjacent to the WatsonMachineLearning (Type-Machine Learning) service and click **Associate service**. Note, if a service of Type **Machine Learning** does not exist, go to step 6.



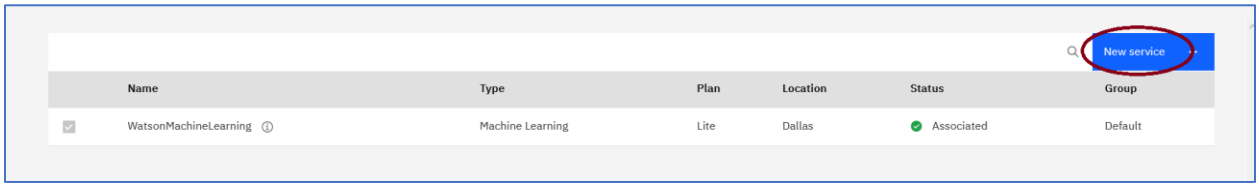
4. Click on **x** to close the window.



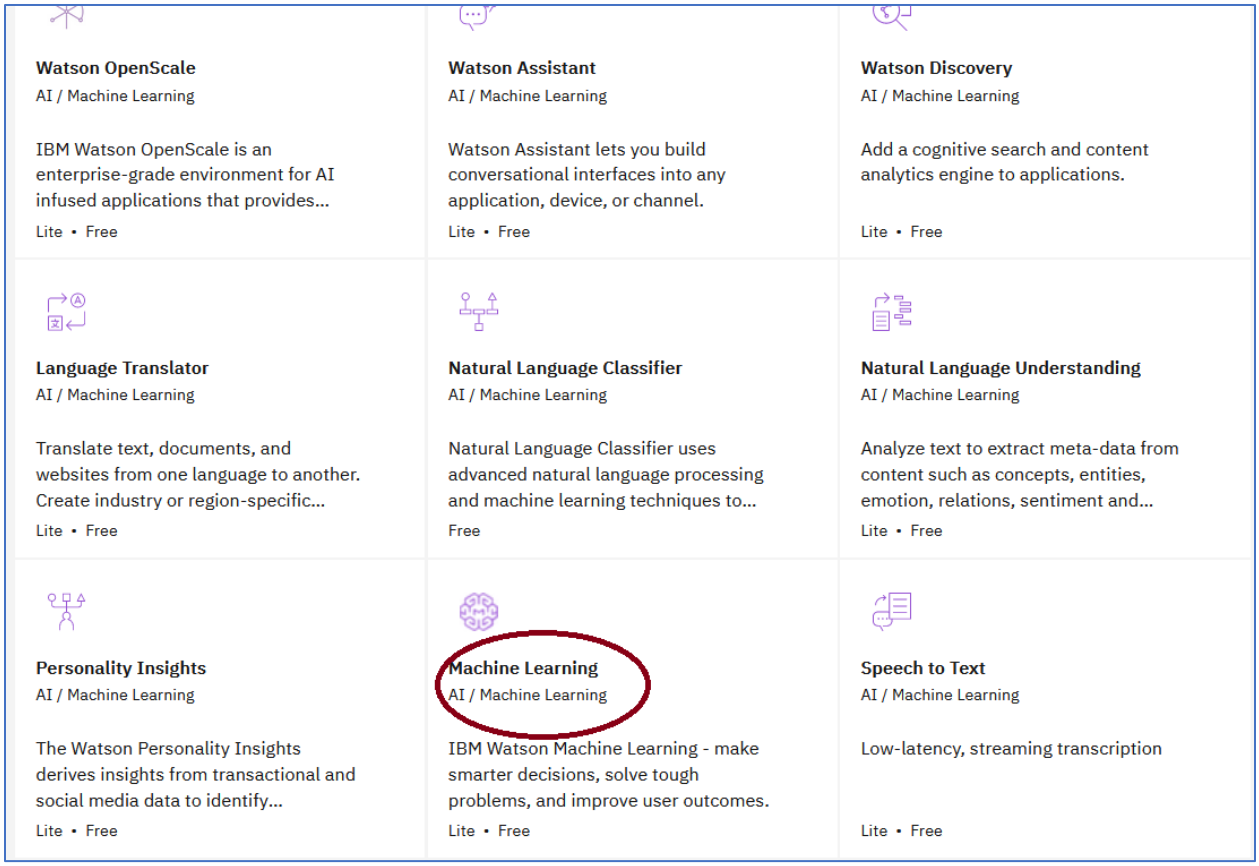
5. The **WatsonMachineLearning** service is associated with the project. Skip to the next section - Add a Project Collaborator



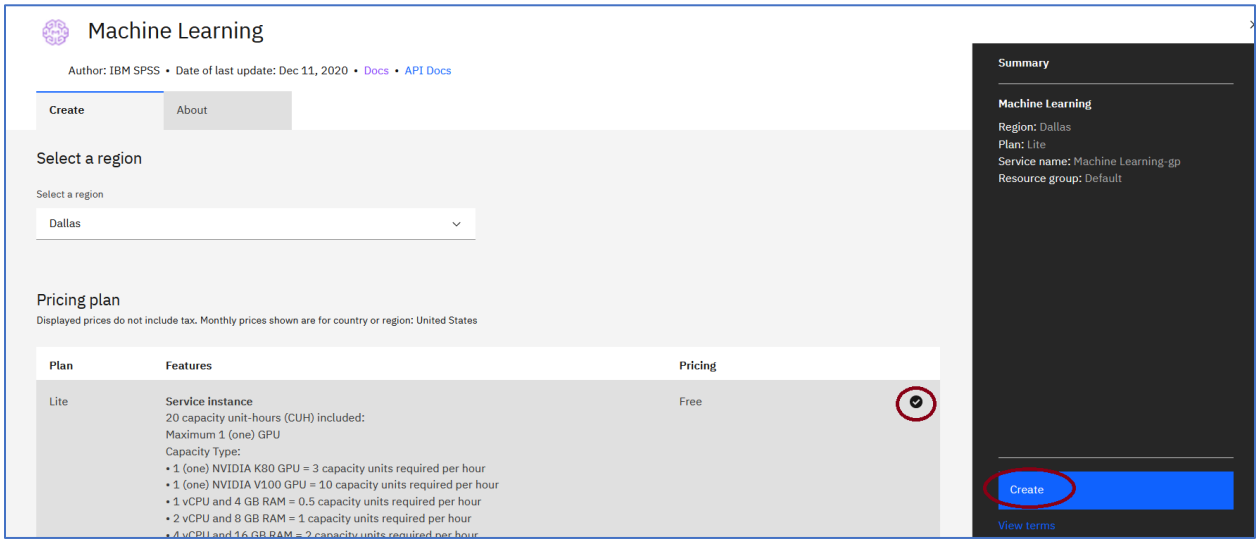
6. If a service of type Machine Learning does not exist, you will need to create the service. Click on **New service**.



7. Click on **Machine Learning**.



8. Make sure the Lite service is selected and click **Create**.



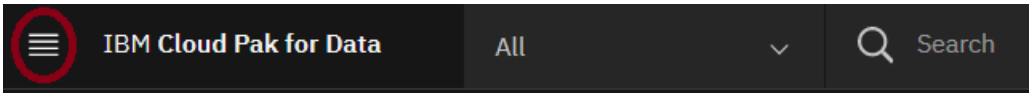
Add a Project Collaborator

Colleagues can gain access to a project's data and analytic assets by being made a collaborator. Permissions are based on the assigned role. The roles are administrator, editor, and viewer.

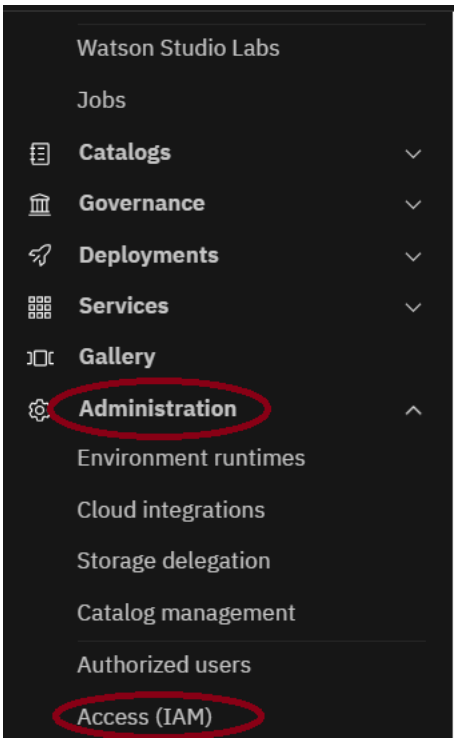
Recall, the project that was created in this lab restricts who can collaborate. This option was required to demonstrate the Watson Knowledge catalog features in lab-2. The restriction limits the collaborators to be members of your company (if your company has federated SAML with IBM Cloud), or a member of the project creator's IBM Cloud account. Given the restriction, to demonstrate adding collaborators to the project, we will need to first add the collaborator to your IBM Cloud account. Instructions to remove the collaborator are provided in the beginning of Lab-3.

Step 1 – Add Collaborator to the IBM Account

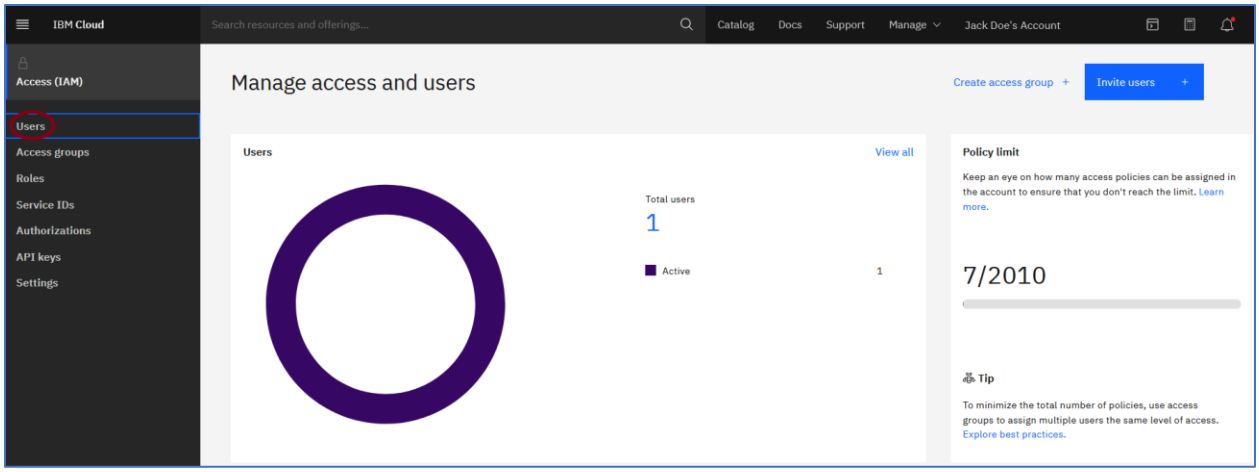
1. Click on the hamburger icon



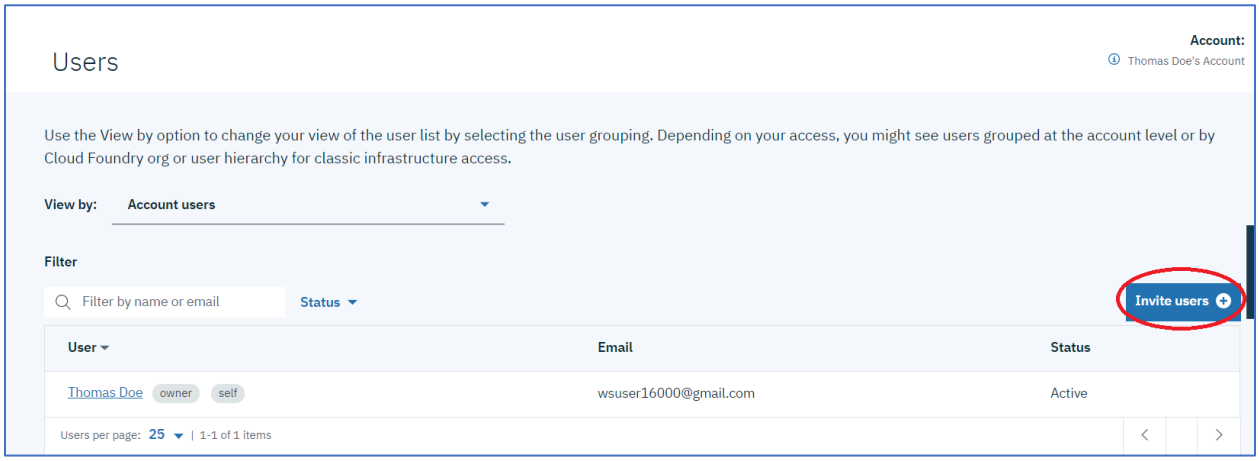
2. Click on **Administration** and then click on **Access (IAM).** Scroll down if necessary.



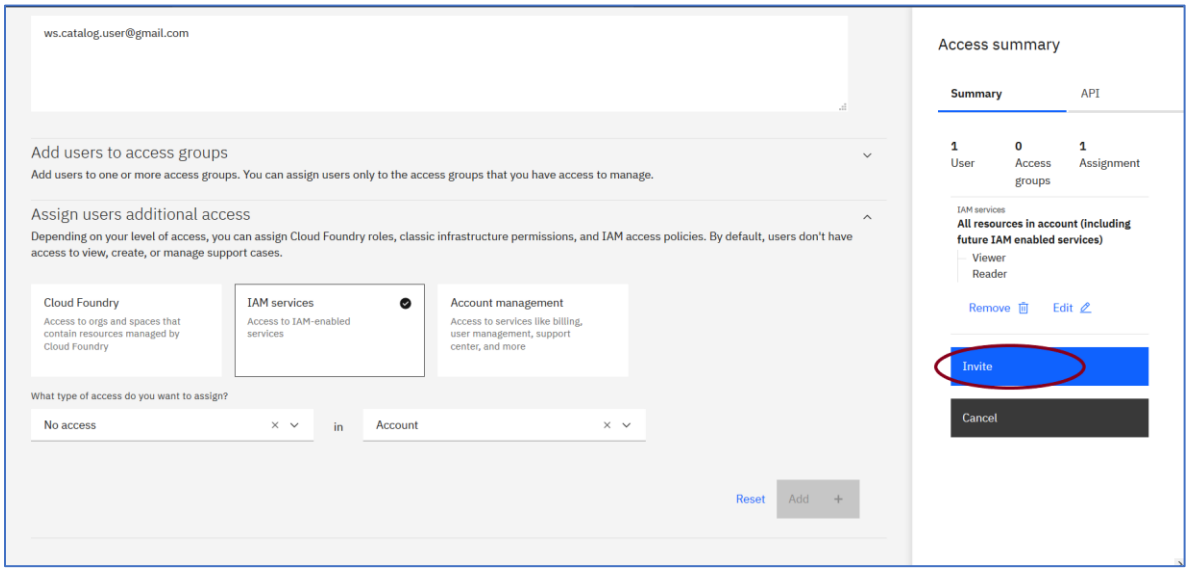
3. An **Identity and Access Management (IAM)** browser tab is created providing the IBM Cloud user interface to the IAM subsystem. Note, you may have to log-in first. Click on **Users** in the menu panel.



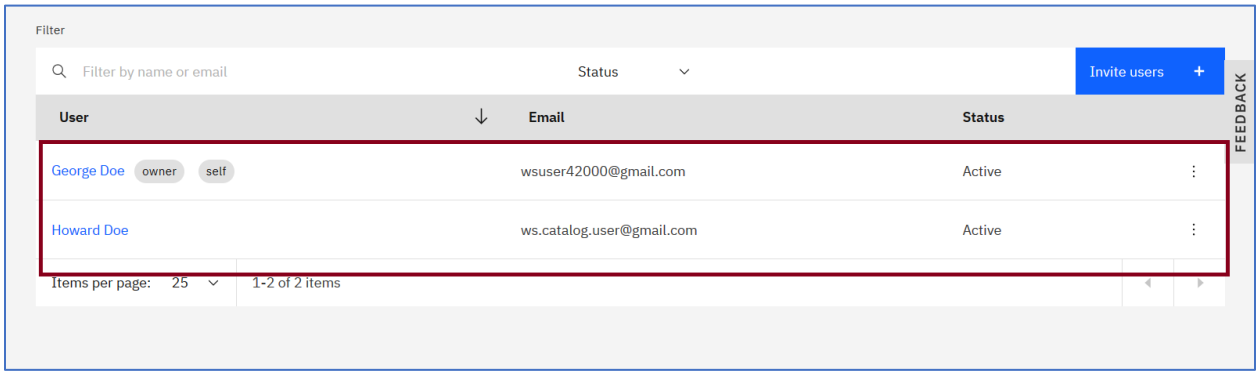
4. Click on **Invite users**.



5. For **E-mail address**, enter **ws.catalog.user@gmail.com** and click **Invite**



6. You should have two users in the account. The second user should be “Howard Doe”. Note that “Howard Doe” will need to accept the invite to be put into an **Active Status** (this is a recent change in behavior for Cloud Pak for Data). The status will move from **Processing** to **Pending**. Once “Howard Doe” accepts the invite, the status should move to **Active**. The instructors will be accepting the invite on behalf of Howard Doe. You don’t need to wait until the status changes. Please continue with the lab.

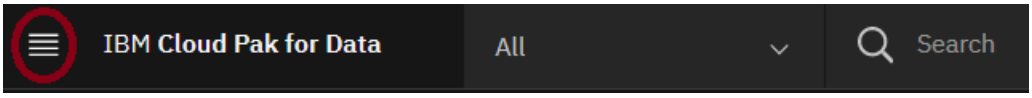


Step 2 – Add Collaborator to the Project

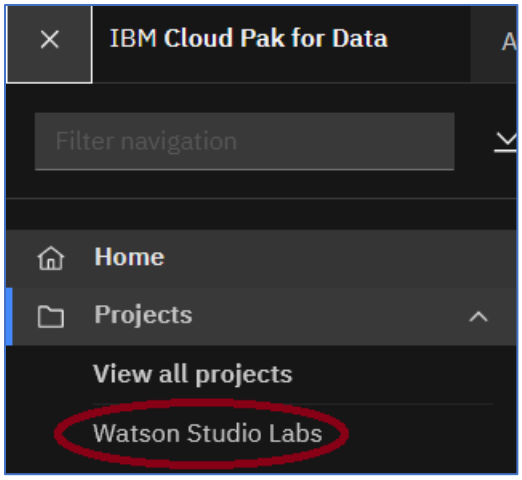
Now that the collaborator has been added to your IBM Cloud Account, you can add the collaborator to the project.

1. Close the Identity and Access Management tab.

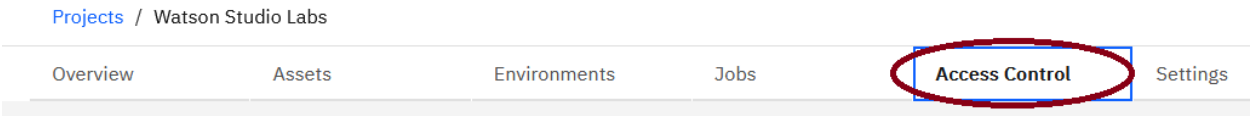
2. Click on the **IBM Cloud Pak for Data** tab. Click on the ☰ icon.



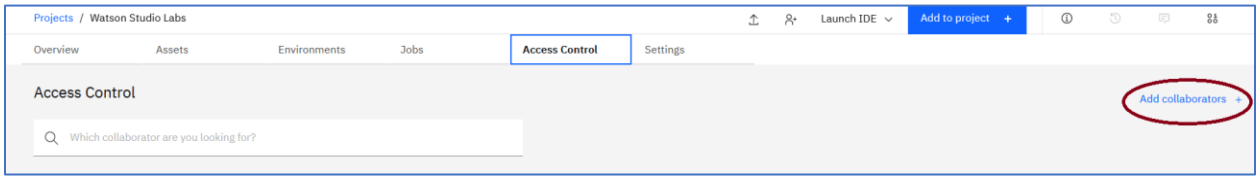
3. Click on Watson Studio Labs.



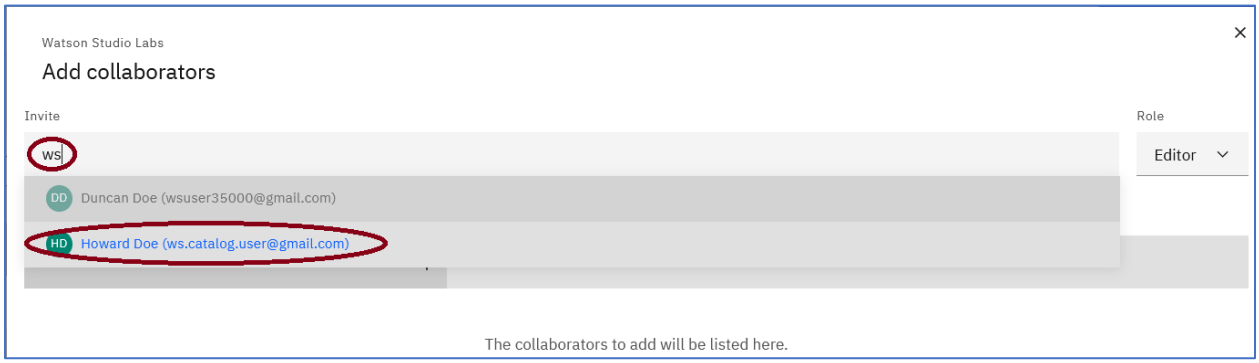
4. Click on the **Access Control** tab.



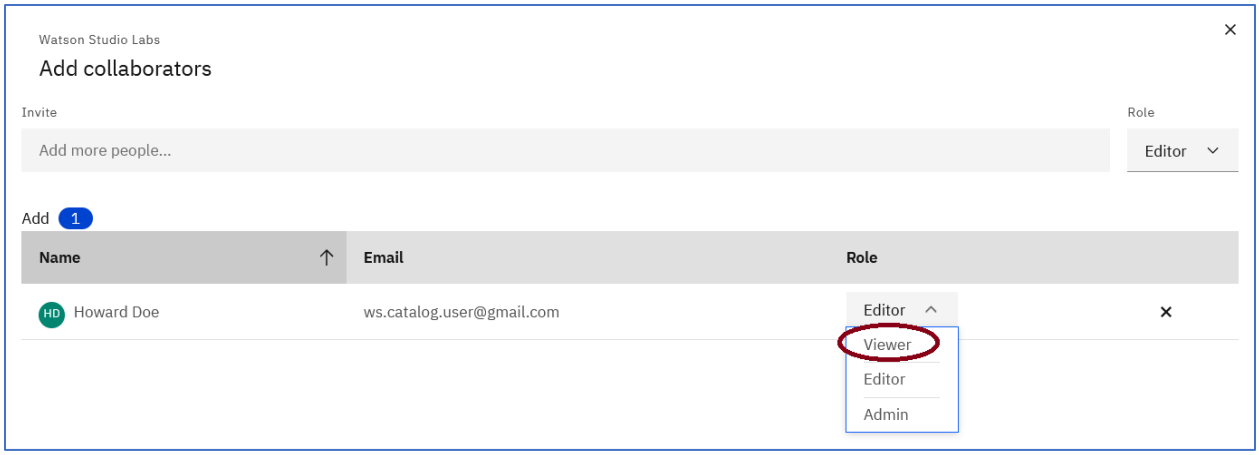
5. Click on **Add collaborators**.



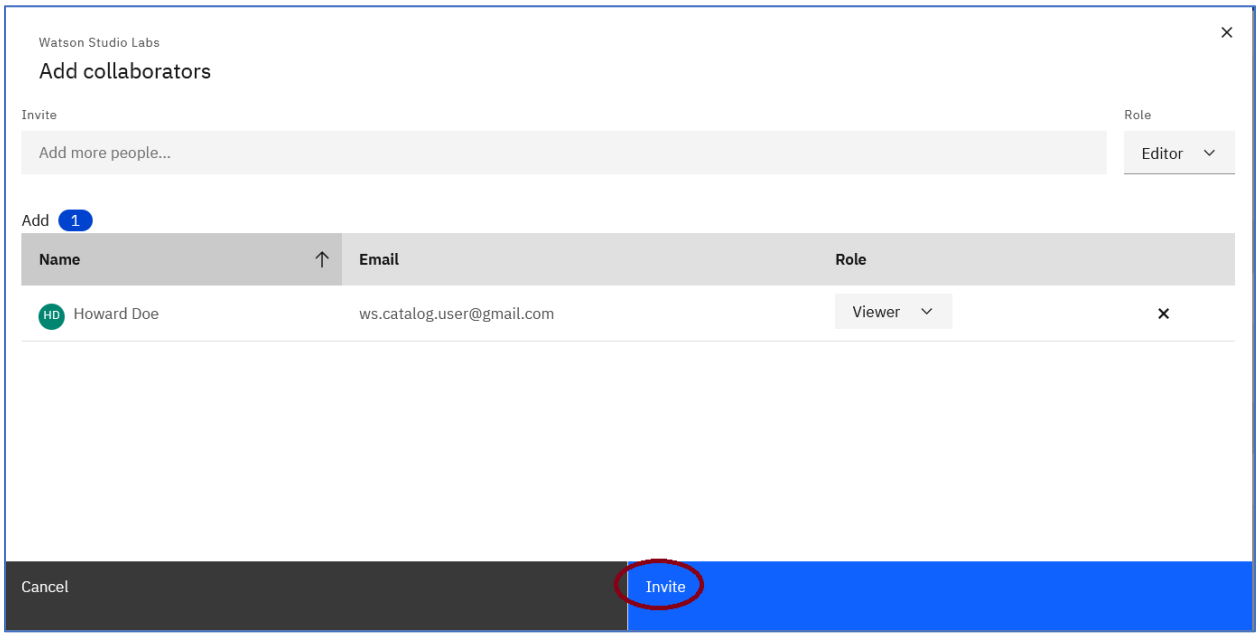
6. For **Invite**, start entering **ws.catalog.user@gmail.com** and once a match has been made, click on the name in the list.



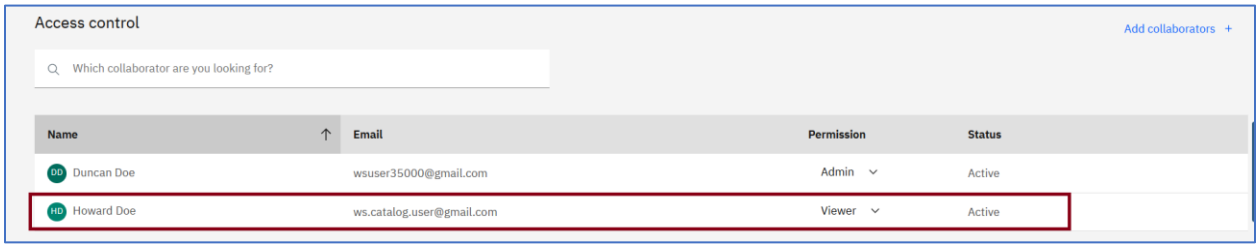
7. Switch to the role to **Viewer.**



8. Click **Invite**.



9. The collaborator is added.



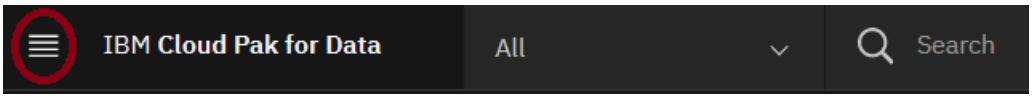
Research Topics

As you work on a data analysis project, you may need to do some research to help find a solution. Cloud Pak for Data provides a built-in capability, accessed via the **Gallery** option, that

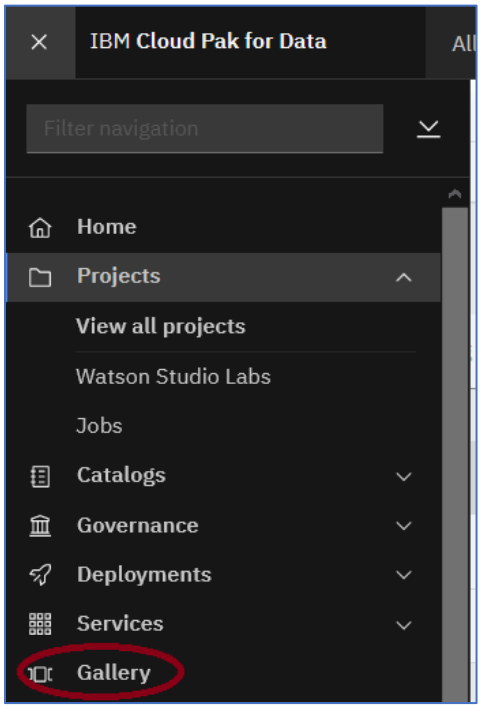
contains sample notebooks, sample datasets, governance content and sample projects. These are curated on a regular basis to provide up-to-date materials.

For the lab exercise, assume that you are interested in learning how to develop a Spark model. We will look for a sample notebook that demonstrates this capability and add this notebook to our project. **Note, we are doing this exercise for illustrative purposes on using the Gallery, and not for use in any subsequent lab.**

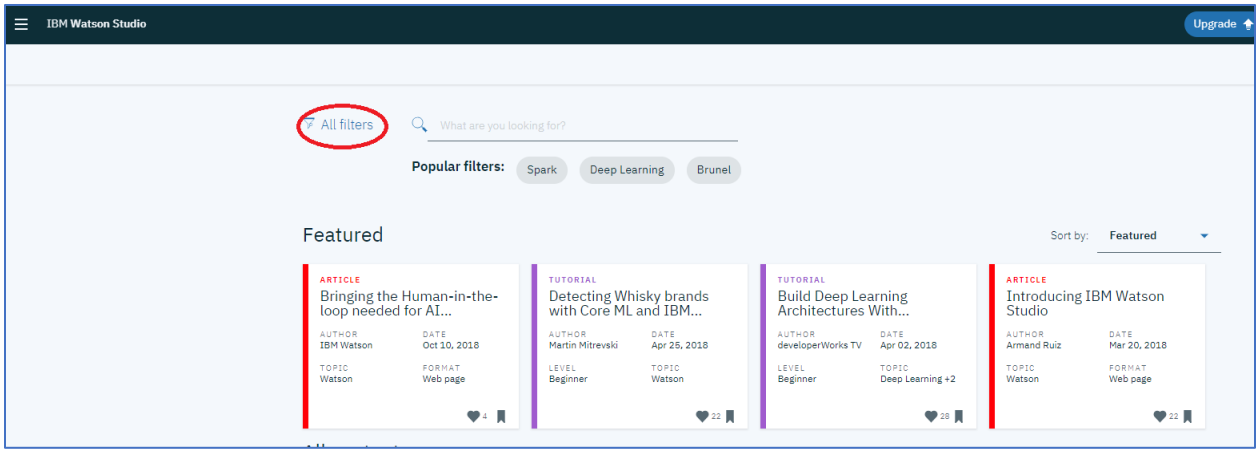
1. Click on the ☰ icon.



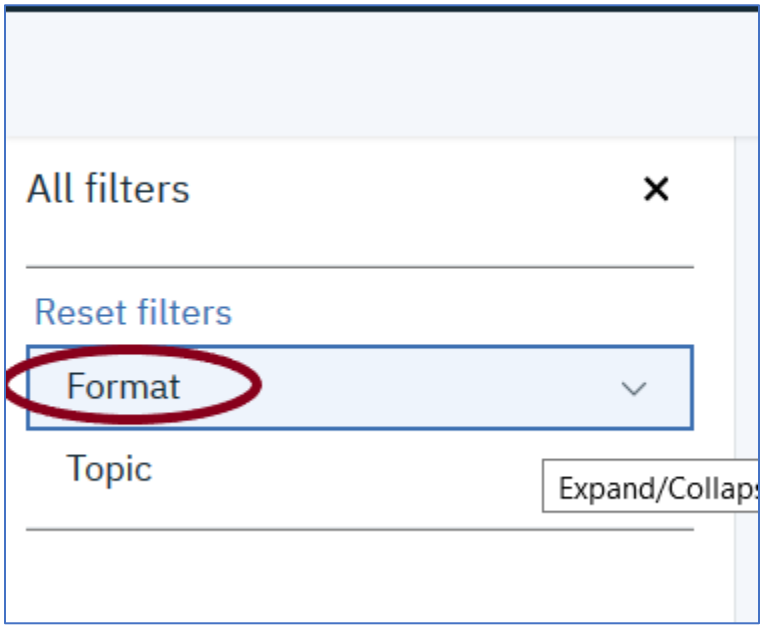
2. Click on **Gallery**.



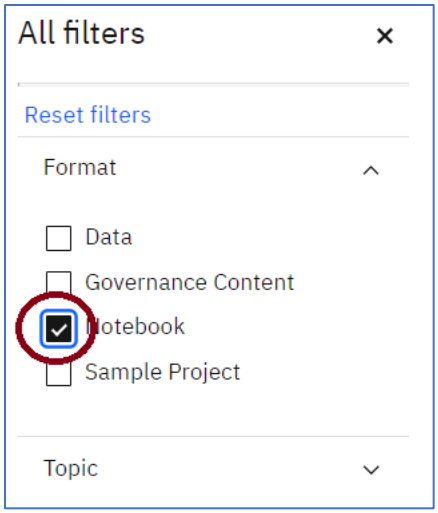
3. The Gallery is displayed. Click on **All filters**.



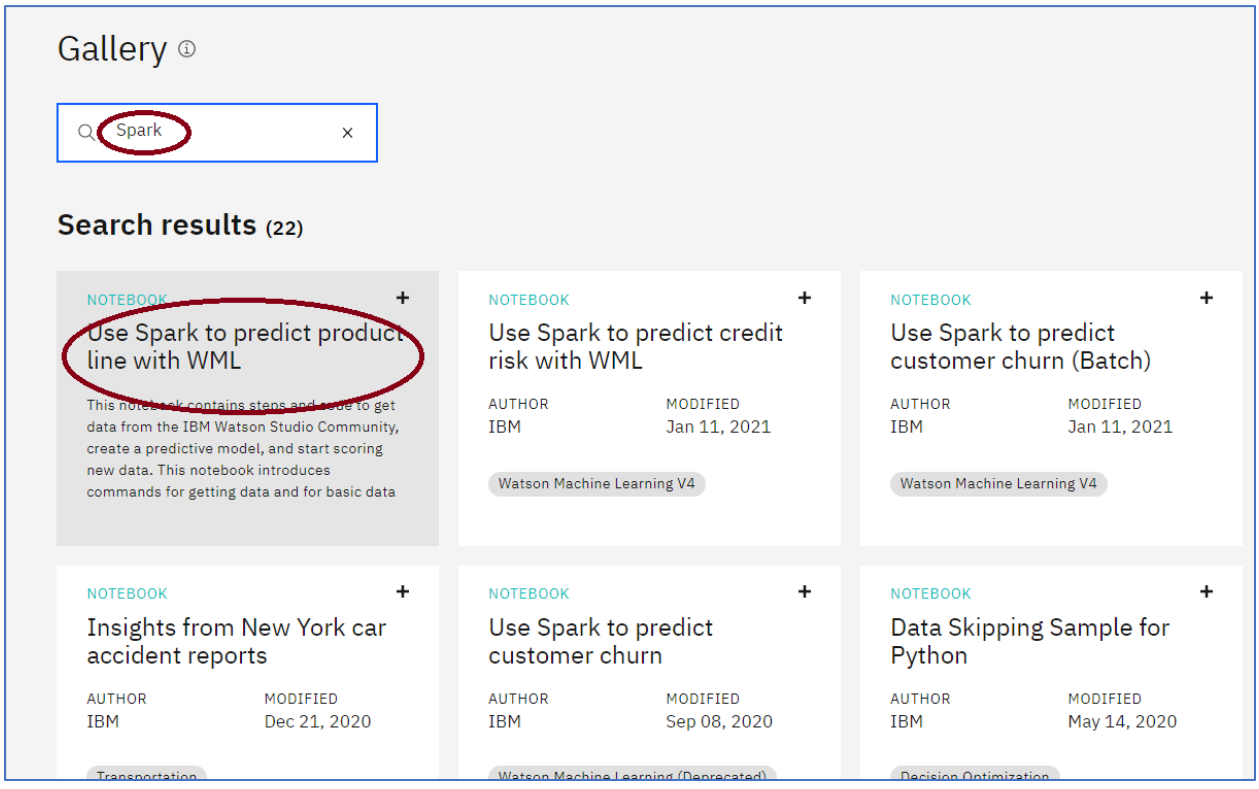
4. Click on **Format**.



5. Click on **Notebook**.



6. Enter **Spark** in the **Search** area. The Gallery view is updated. Locate the Gallery Card "Use Spark to predict product line with WML". Hover the mouse over the card. The descriptive text provides a notebook summary. This notebook appears to be a good candidate for having code demonstrating the use of the Spark. Click on the **Gallery Card.**

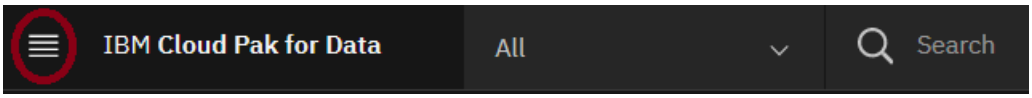


7. Here you can review the notebook documentation and then add it to the project if this notebook was a good starting point. We are not using this notebook for our labs so don't add it to the project. Our purpose was just to demonstrate the **Gallery** feature.

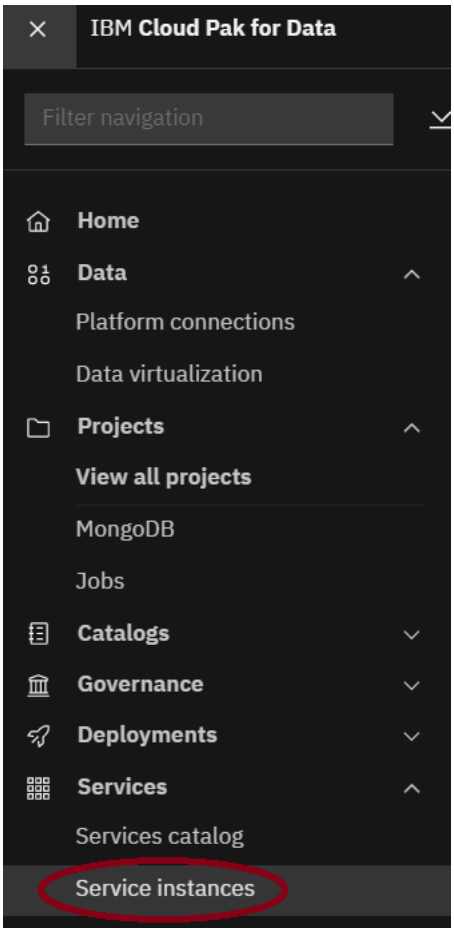
Provision Watson OpenScale

In this section, we will provision a Watson OpenScale service for use in a later lab, if one has not already been provisioned. Note, newer Cloud Pak for Data accounts are provisioned with a Watson OpenScale service.

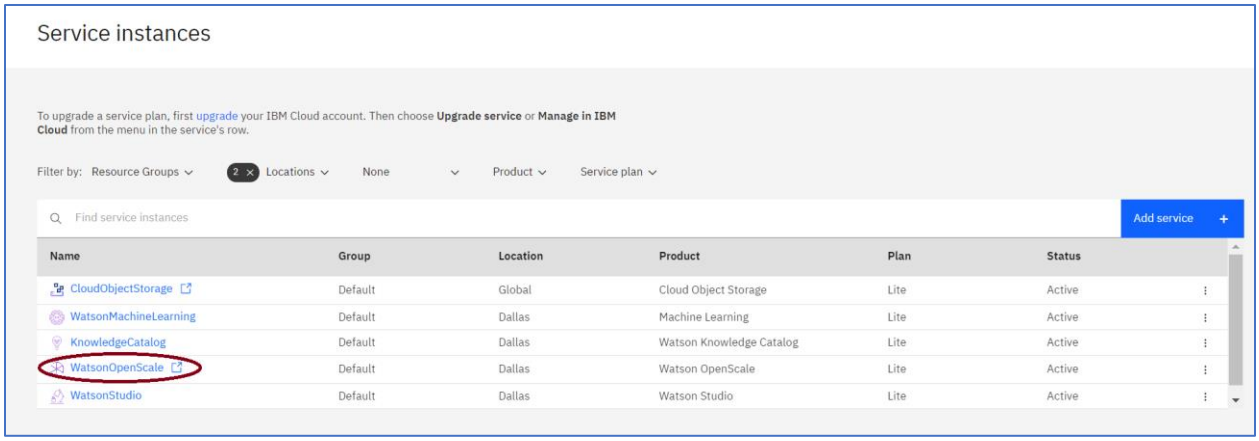
1. Click on the ☰ icon.



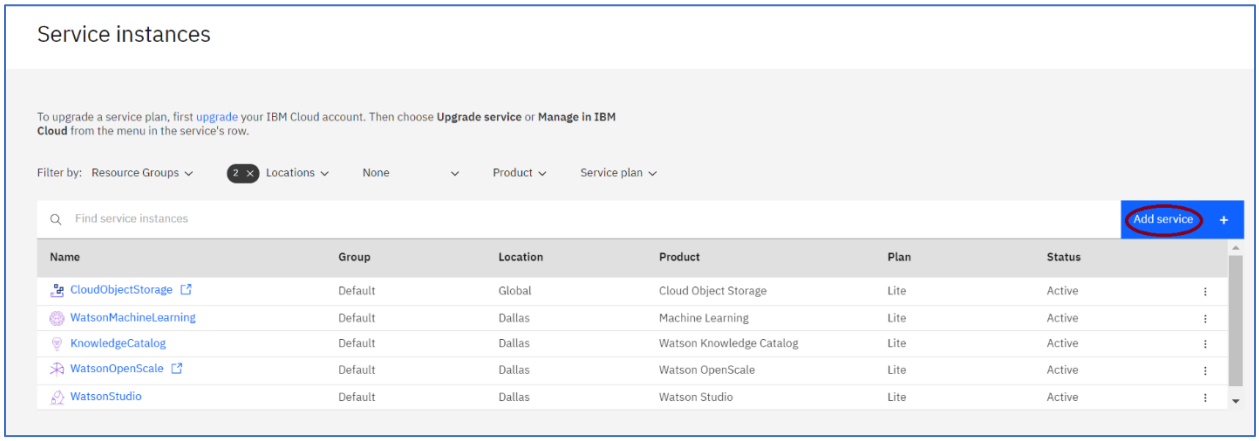
2. Click on **Services** and then **Service instances**



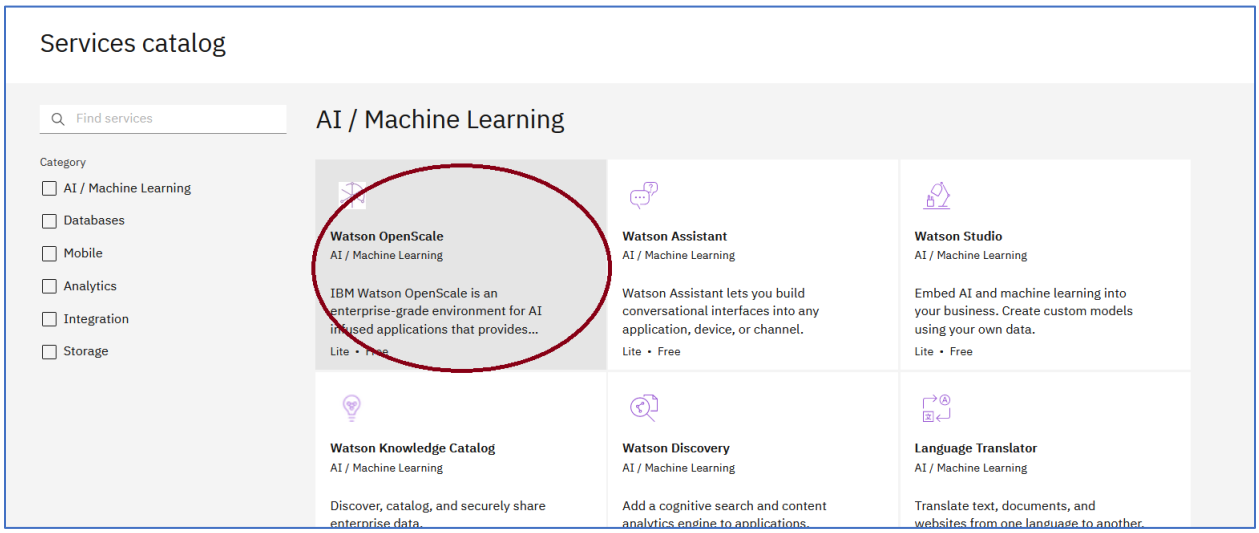
3. Check to see if **Watson OpenScale** is in the list of services. In the screenshot below, Watson OpenScale is an existing service. You have completed Lab-1! In the case where Watson OpenScale is not listed, go to the next step.



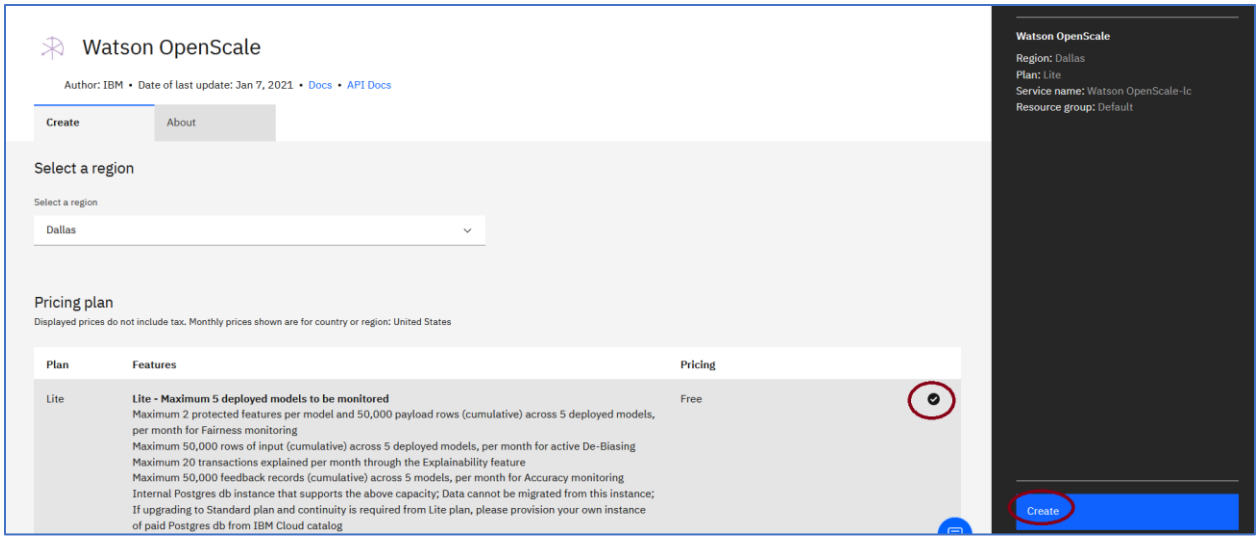
4. Click on **Add service** if WatsonOpenScale is not listed.



5. Click on **Watson OpenScale**



6. Make sure the Lite plan is selected and click **Create**.



You have completed Lab-1!

- ✓ Created a project
- ✓ Associated an existing Watson Machine Learning service instance with the project
- ✓ Added a collaborator to the project
- ✓ Demonstrated researching topics by searching the Gallery.
- ✓ Created an instance of Watson OpenScale if required