Lab-1: Setup Environment

Introduction

This lab will set up the Watson Studio environment for subsequent labs and introduce you to the Project and Gallery features of Watson Studio. Watson Studio 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. Watson Studio 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.

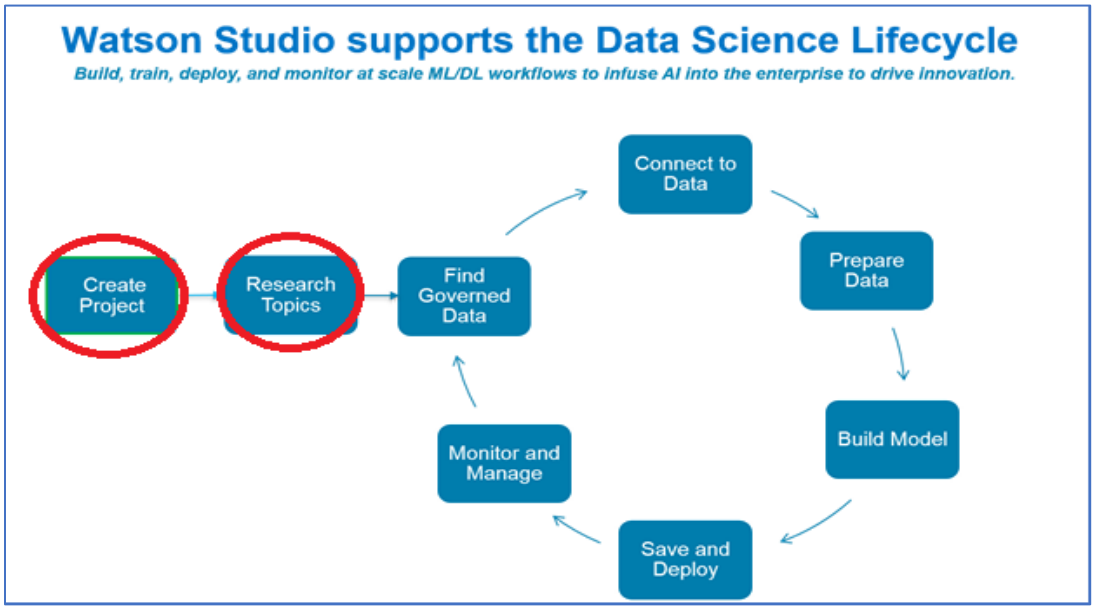


Figure 1- End to End Flow

Objectives

The goal of this lab is to familiarize the user with the Project and Gallery features of Watson Studio, and to set up the environment for subsequent labs. Projects are a core component of Watson Studio. 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.

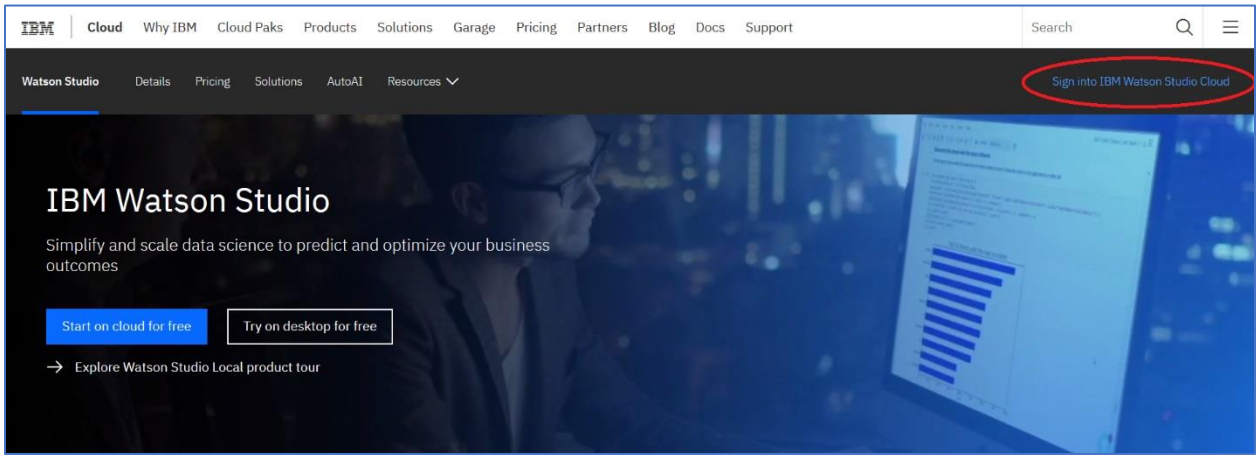
The Watson Gallery and Watson Community features support the “Research Topics” activity in the end-to-end process shown above.

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

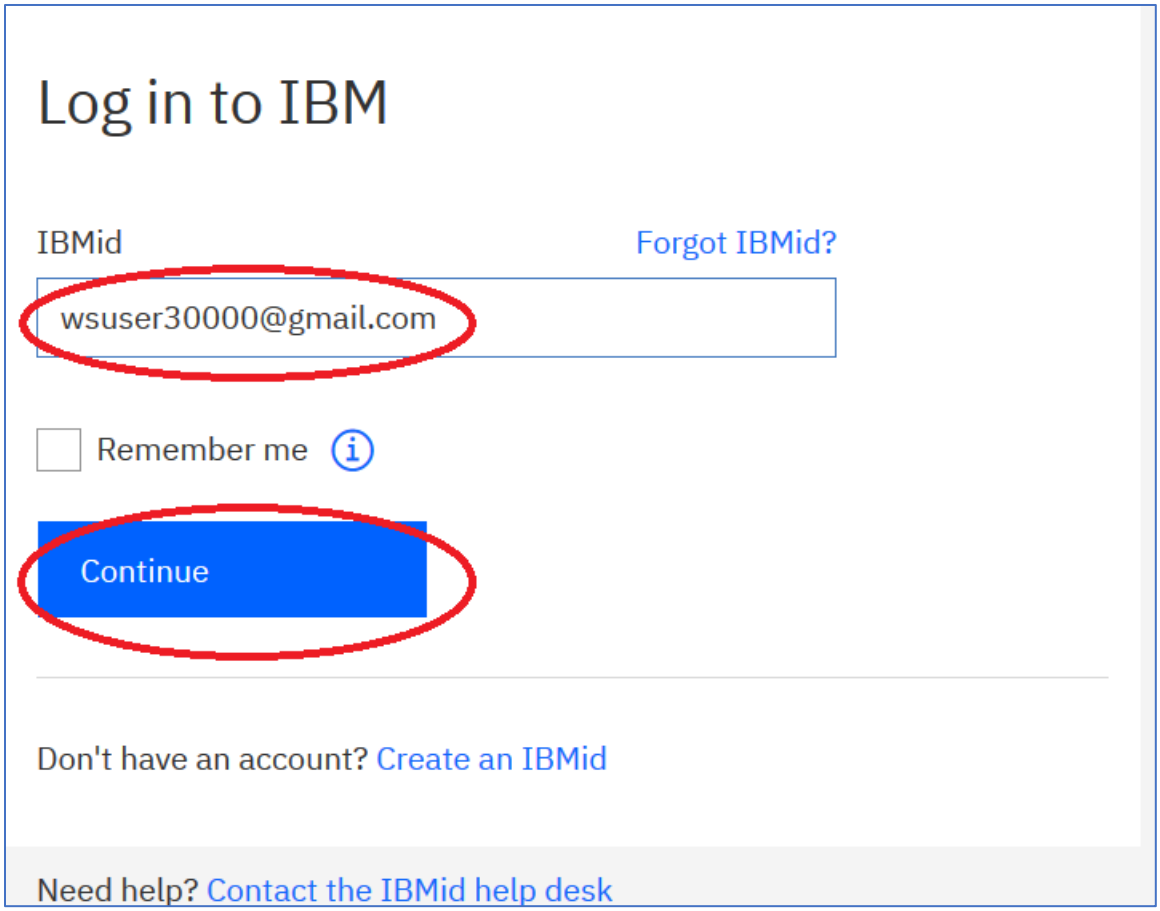
1. Create a project
2. Create an object storage instance and associate it with the project
3. Associate an existing Watson Machine Learning service instance with the project
4. Add a collaborator to the project
5. Research topics by searching for a notebook in the Gallery

Create a Project

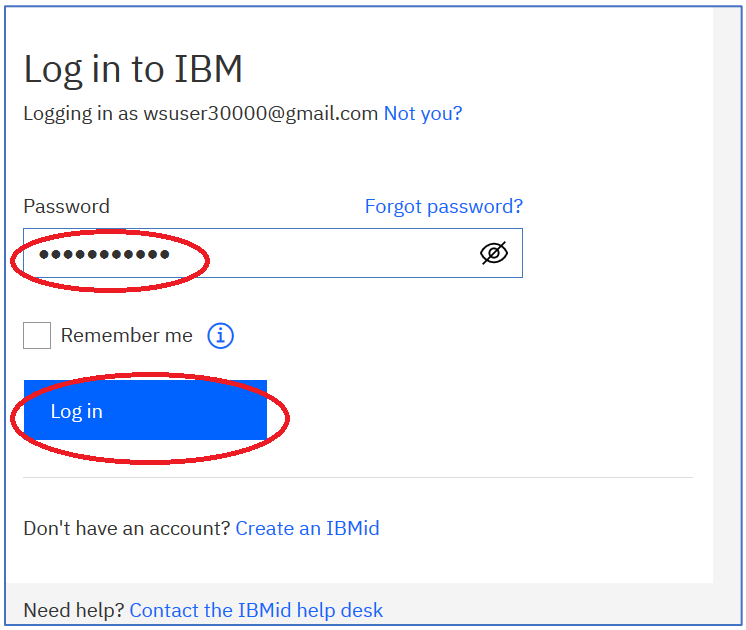
1. Log into your Watson Studio account by typing in the url **datascience.ibm.com** in your Firefox or Chrome browser.
2. Click on **Sign into Watson Studio Cloud** (not Cloud sign-up/log-in)



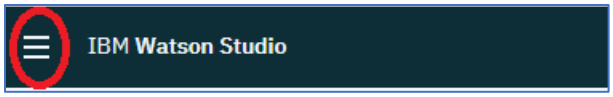
3. Enter your Watson Studio user id and click **Continue.**



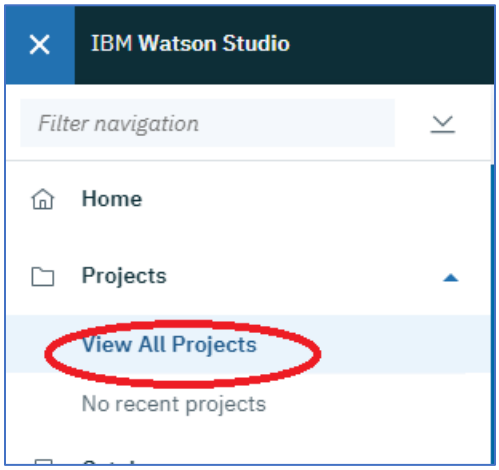
4. Enter your **Password** and click **Log in**.



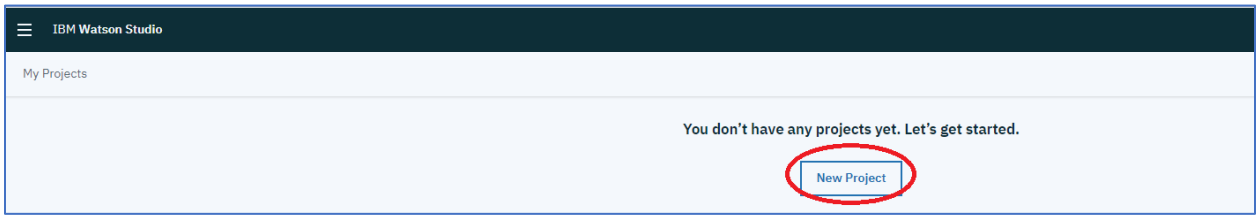
5. Click on the hamburger icon .



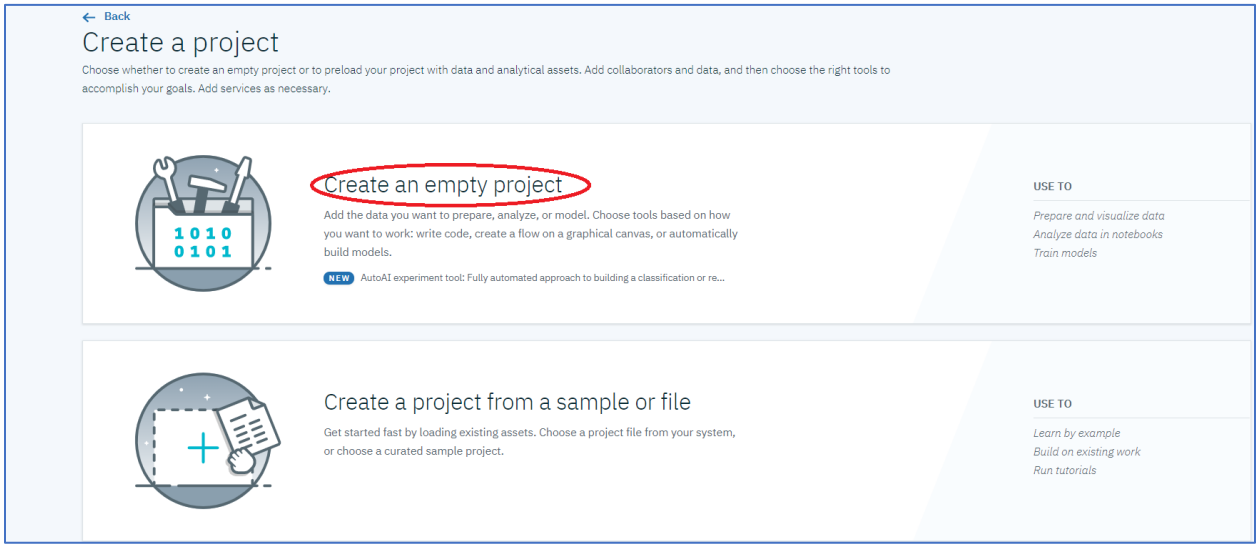
6. Click on **View All Projects**



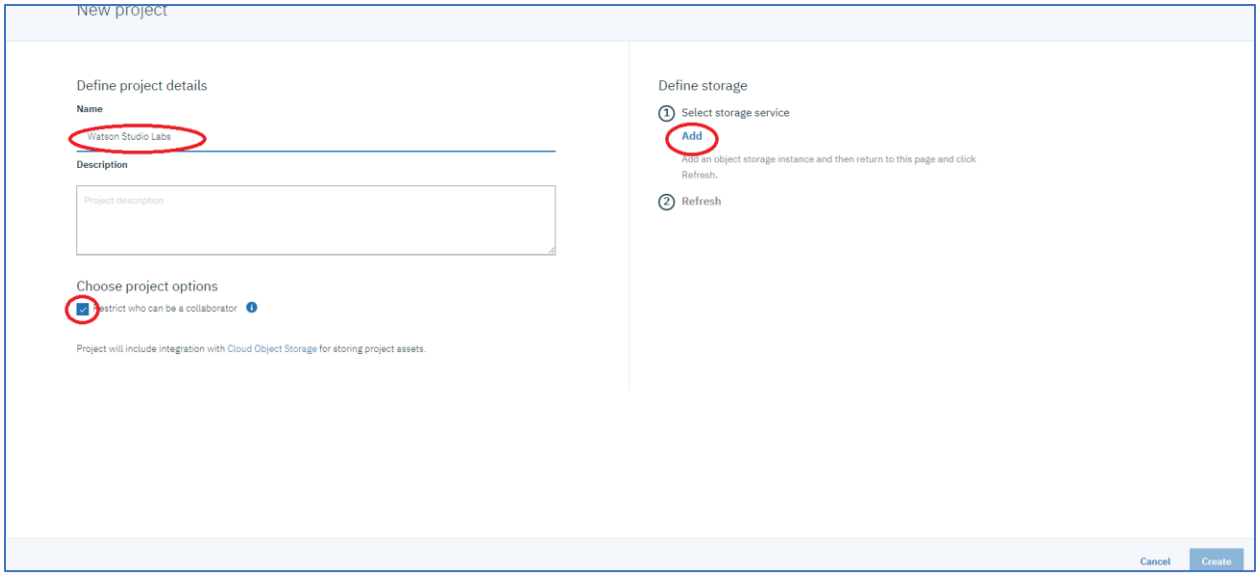
7. Click on **New Project**.



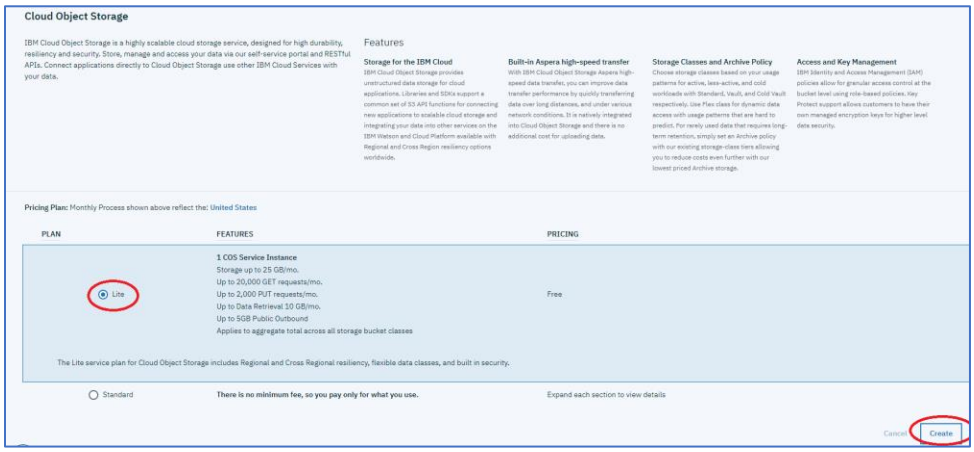
8. Click on Create an empty project.



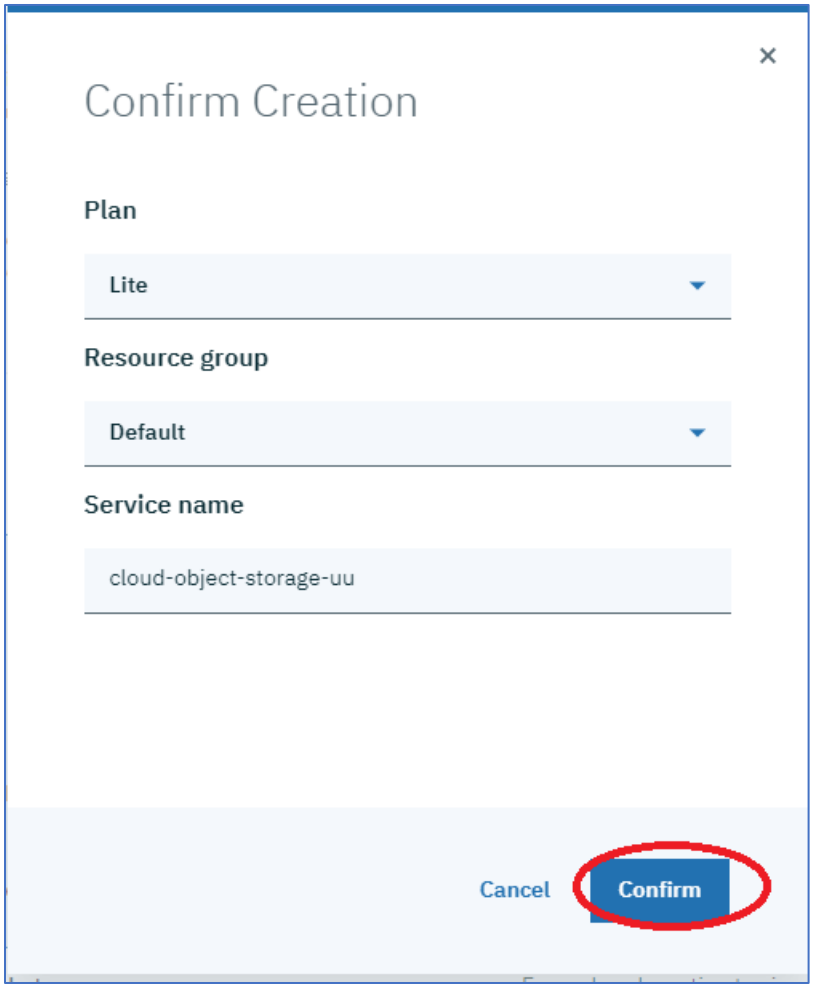
9. Enter "Watson Studio Labs" for the **Name,** optionally enter a **Description,** check **Restrict who can be a collaborator** (if it's unchecked), and in **Define Storage** click on **Add** to add an object storage instance.



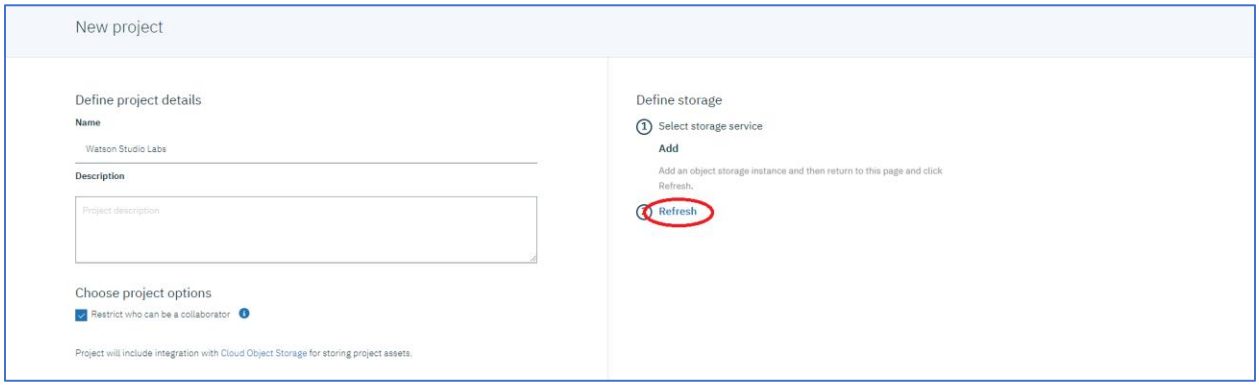
10. Click on **Lite,** and then click on **Create**



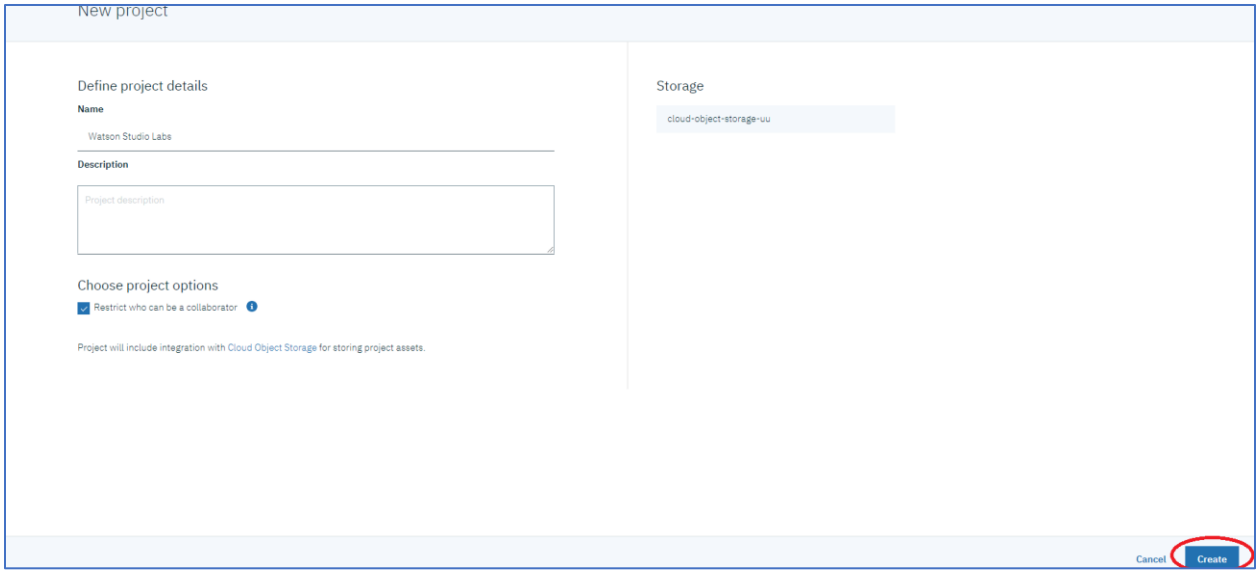
11. Click **Confirm**.



12. Click **Refresh**.

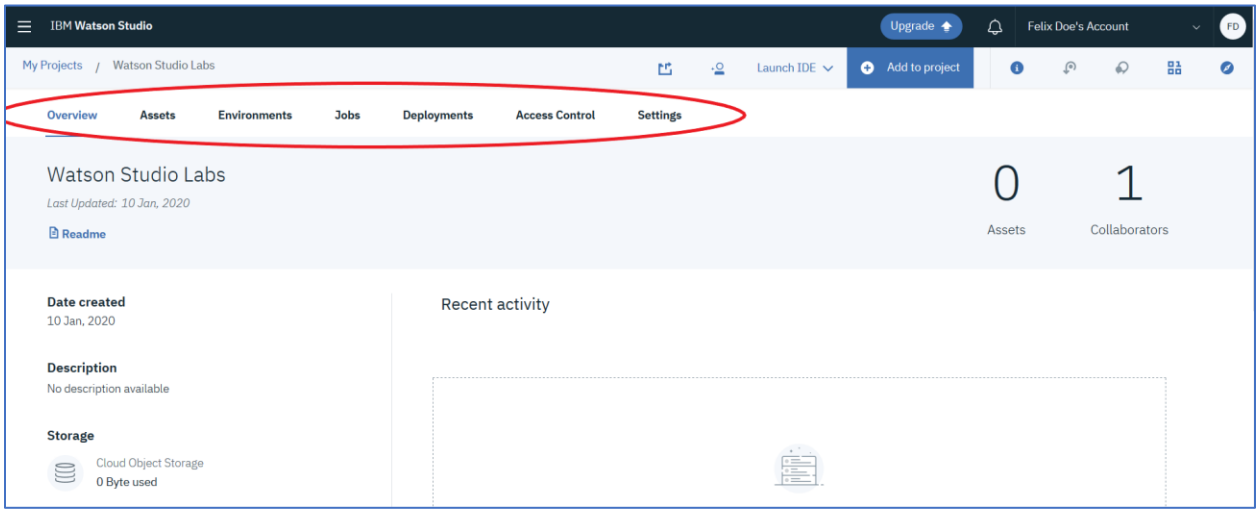


13. Click **Create**.



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

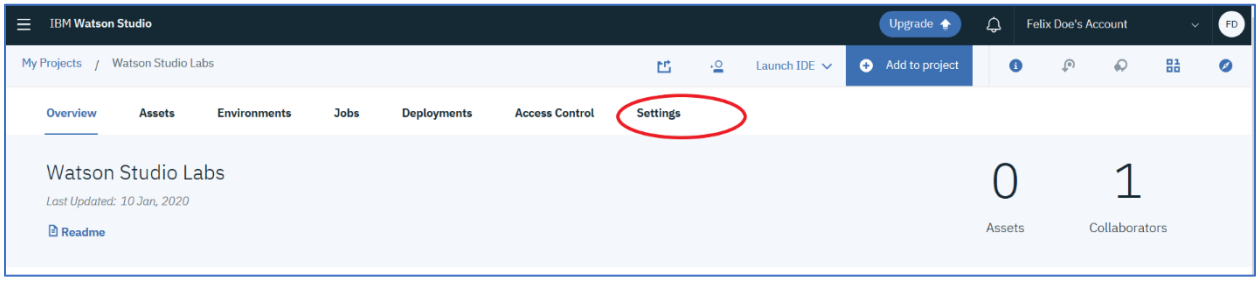
- **a. Assets Page –** Analytics and Data assets can be added to the project from this page.
- **b. Environments Page -** Provides information on the current notebook environments that are defined, lists the active notebook environments currently running, and enables users to create custom notebook environments.
- **c. Jobs Page –** Provides the interface to the job subsystem. This replaces the separate UIs to set up and run jobs for Notebooks and the Data Refinery. This is a new feature in Watson Studio Cloud version.
- **d. Deployments Page –** Lists the deployed models
- **e. Access Control –** Lists the project collaborators and enables users to add/remove collaborators.
- **f. Settings –** Enables users to view and set project attributes.



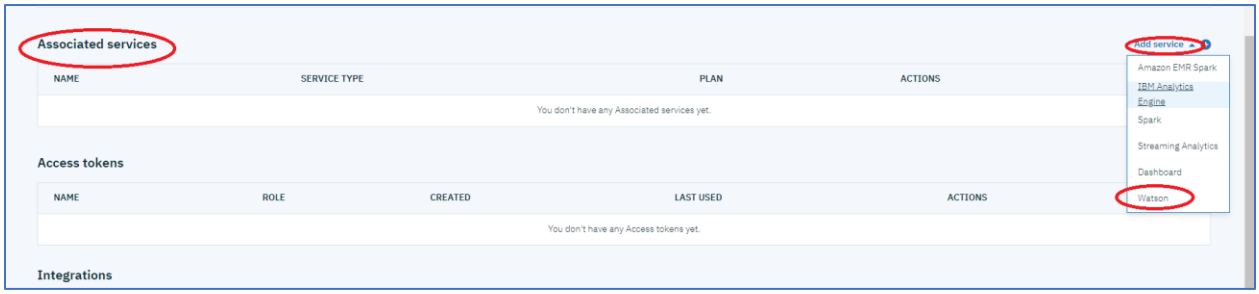
Associate a Watson Machine Learning Service to the Project

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

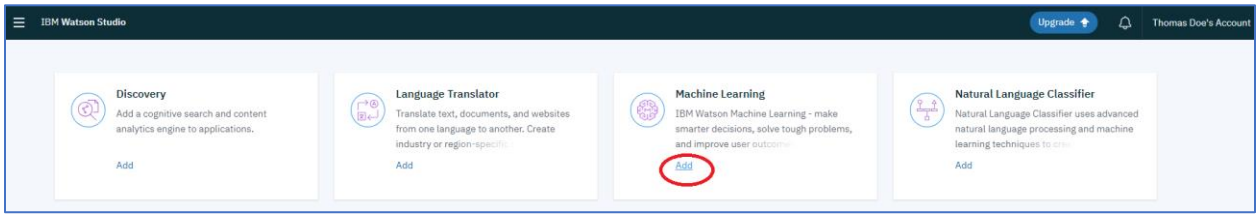
1. Click on **Settings** to navigate to the Project **Settings** page.



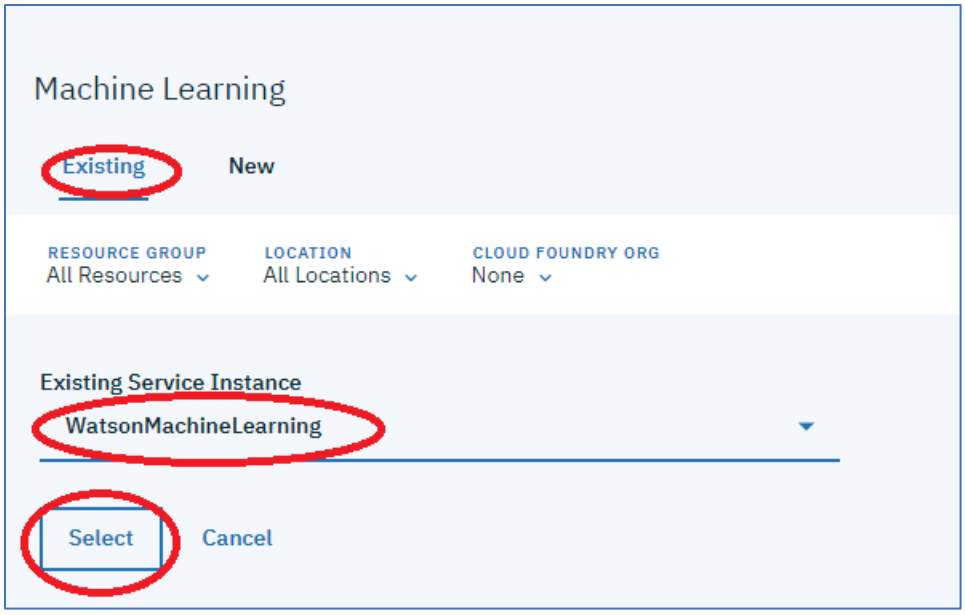
2. Scroll down to **Associated Services,** click on **Add service,** click on **Watson**.



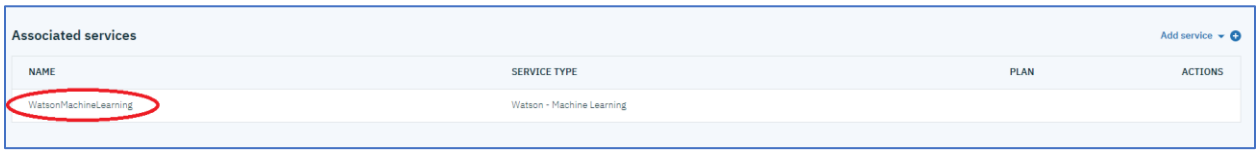
3. Click on **Add** in the **Machine Learning** tile.



4. Newer Watson Studio accounts come with the WatsonMachineLearning instance already created. Select **Existing**, select **WatsonMachineLearning** for the **Existing Service Instance**, and click on **Select**. If you don't have an existing service, click on New and follow the instructions to create a Lite Watson Machine Learning service.



5. The **WatsonMachineLearning** service is associated with the project.



Add a Project Collaborator

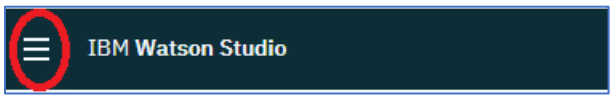
Colleagues can gain access to a project's data and analytic assets by being made a collaborator. Permissions are based on the assigned role. The roles are administrator, editor, and viewer.

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.

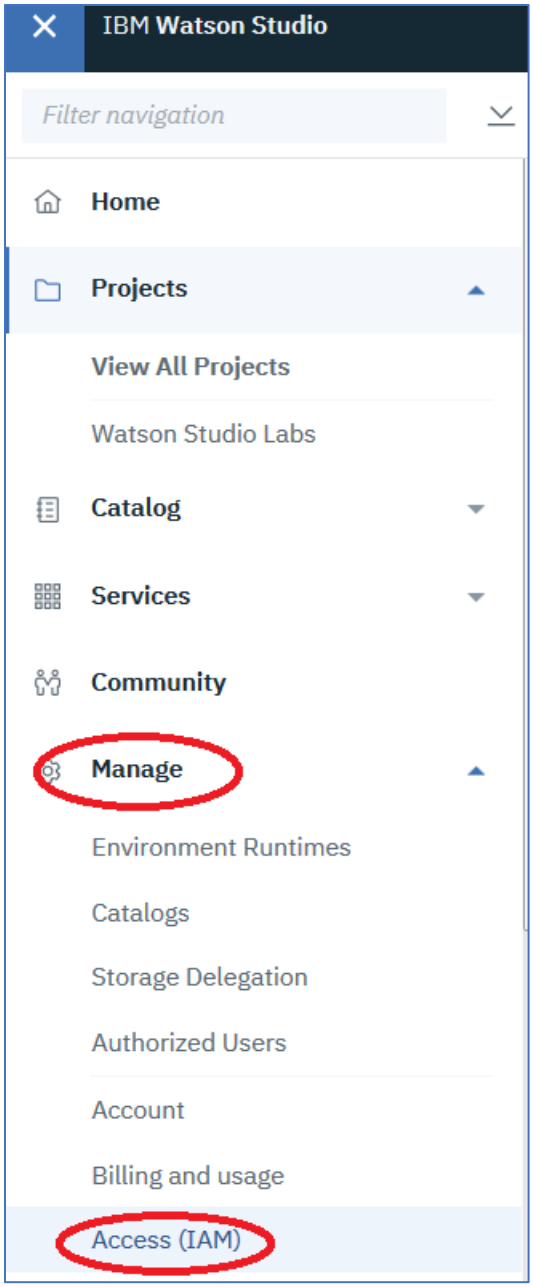
We will add two collaborators. One to demonstrate project collaboration, the second to demonstrate catalog collaboration.

Step 1 – Add Collaborator to the IBM Account

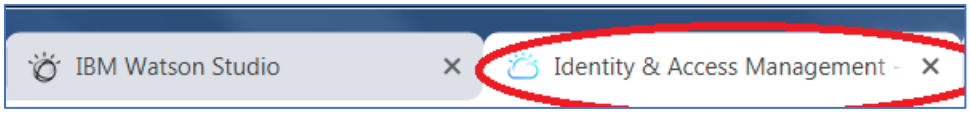
1. Click on the hamburger icon

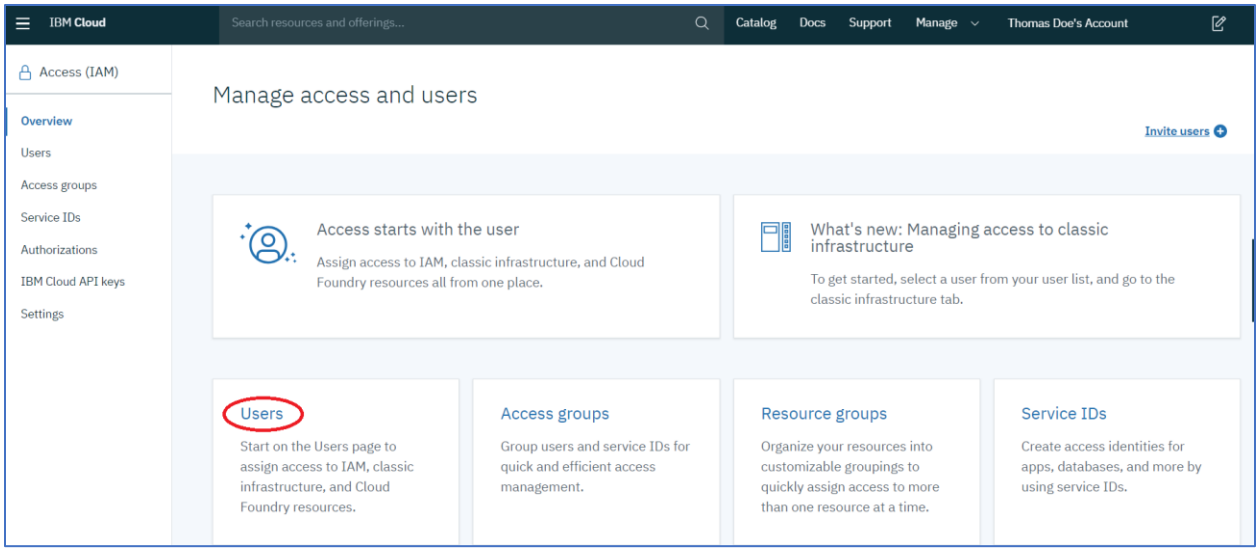


2. Click on **Manage** and then click on **Access (IAM)**

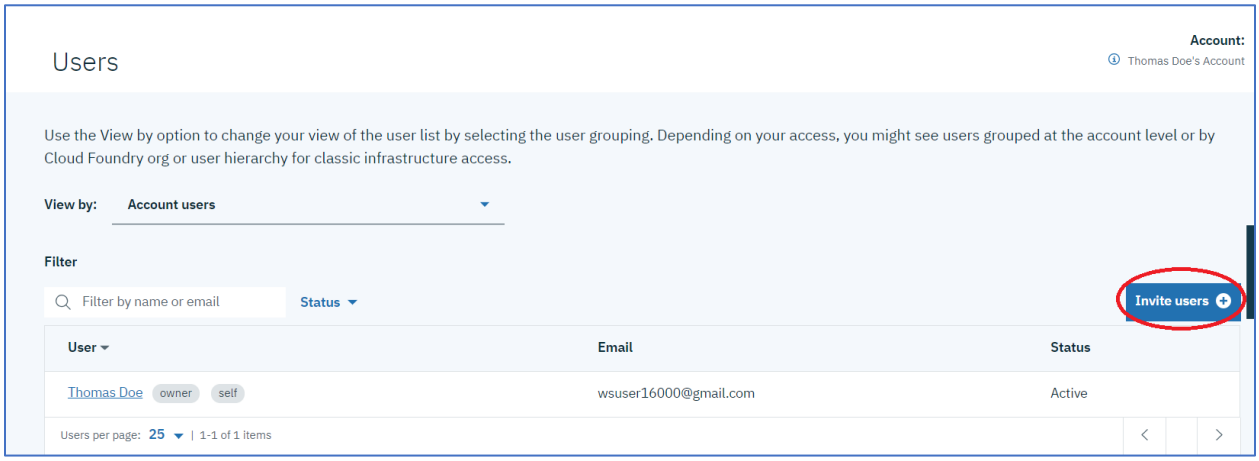


3. An **Identity and Access Management (IAM)** browser tab is created providing the IBM Cloud user interface to the IAM subsystem. Click on **Users**.

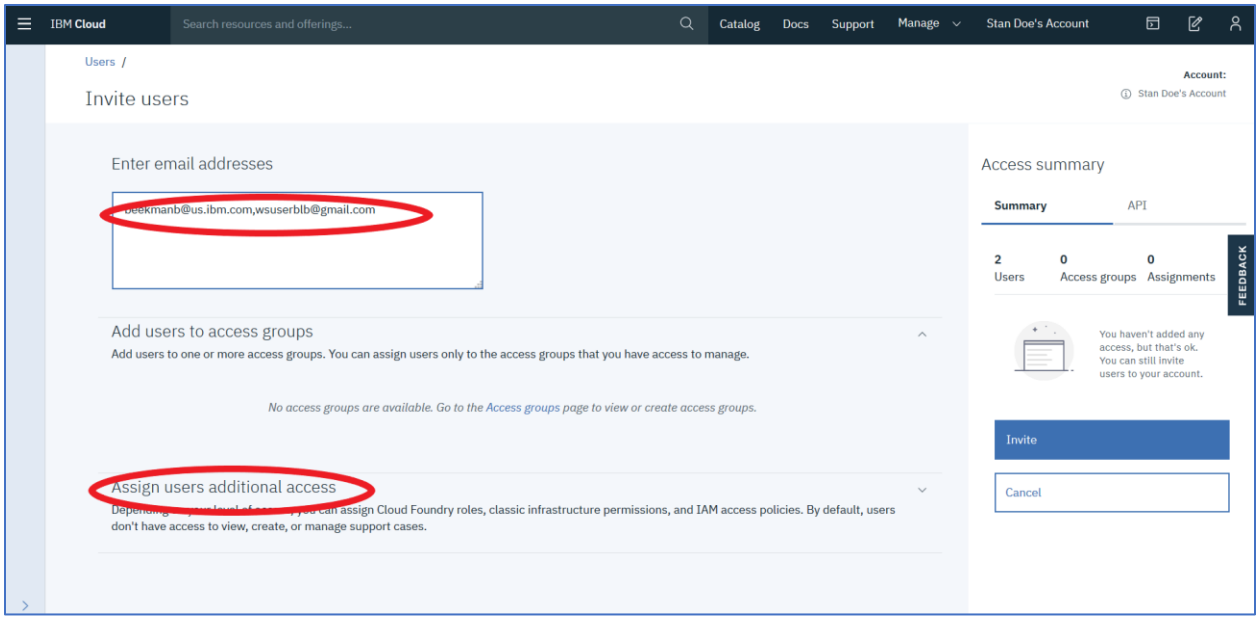




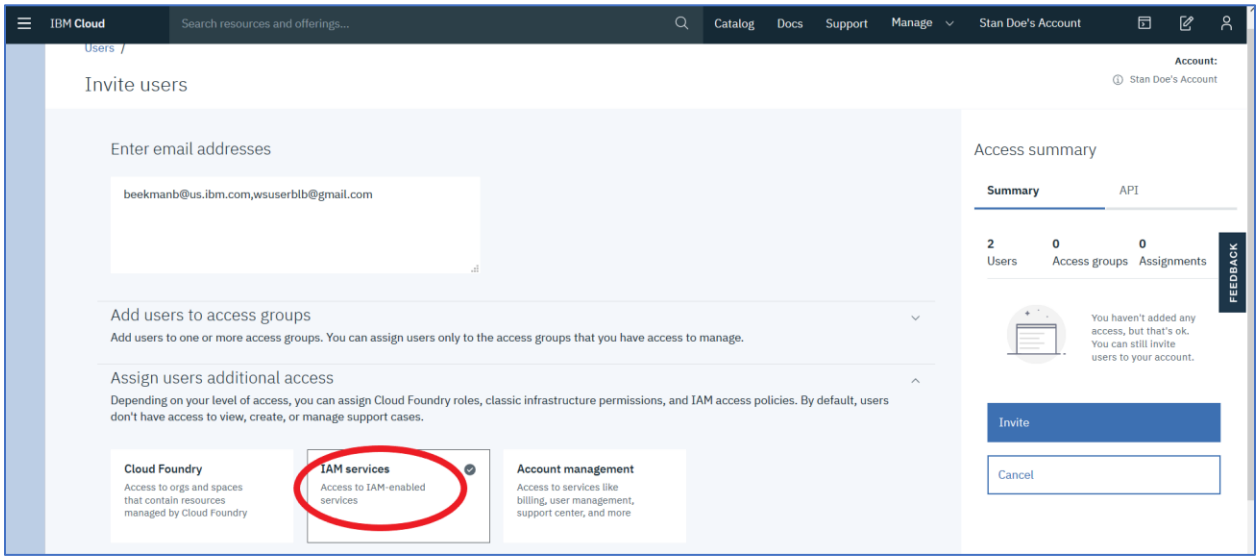
4. Click on **Invite Users**.



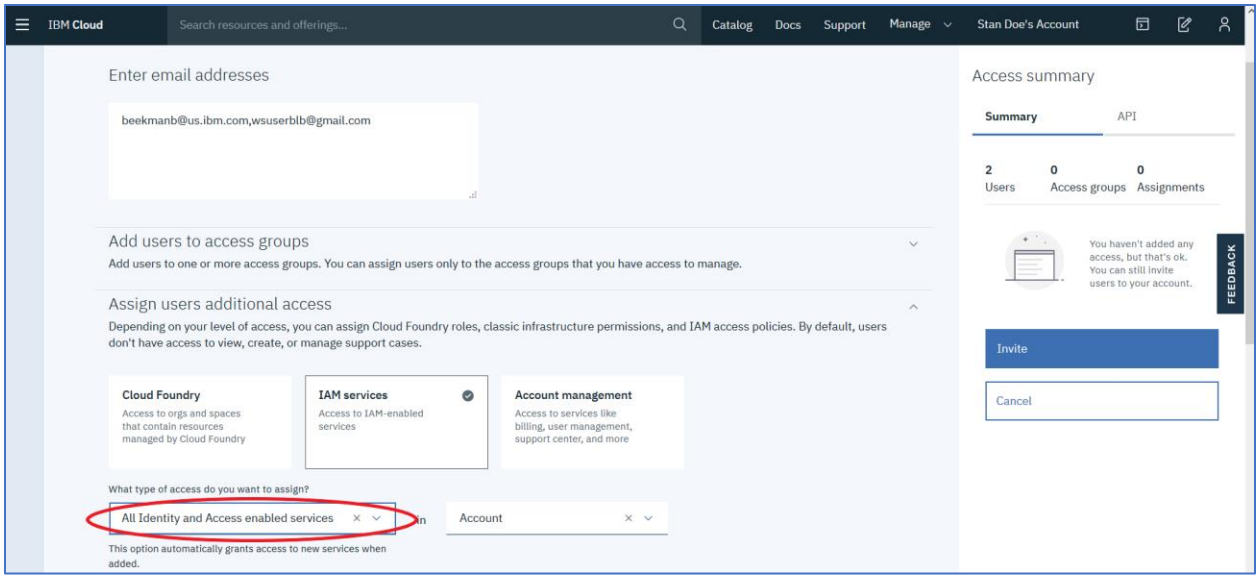
5. For **E-mail address**, enter **beekmanb@us.ibm.com, wsuserblb@gmail.com**, and click on **Assign users additional access**.



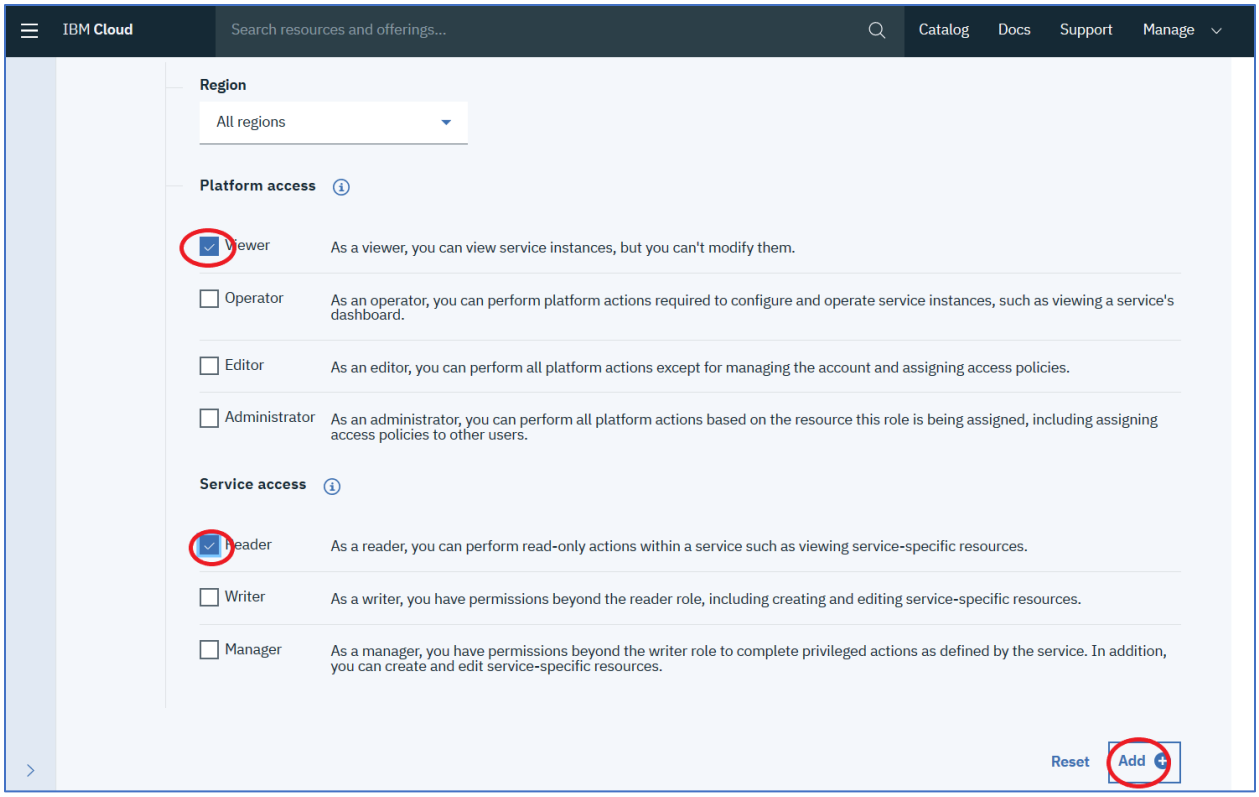
6. Click on **IAM services**.



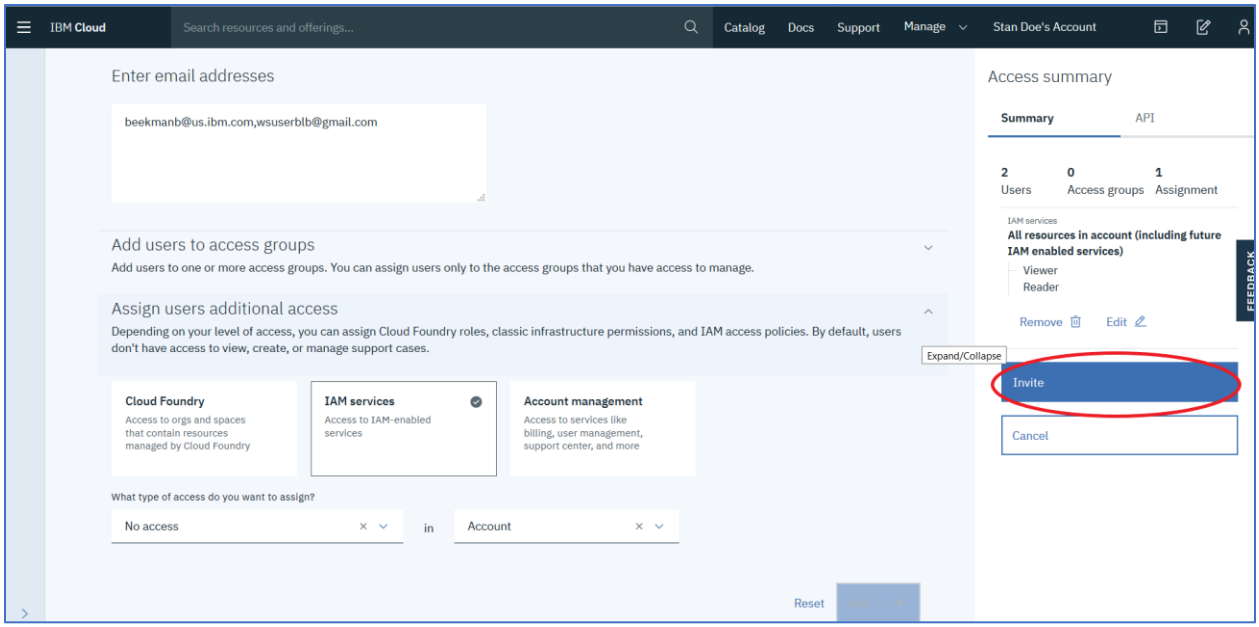
7. Click on **All Identity and Access enabled services**.



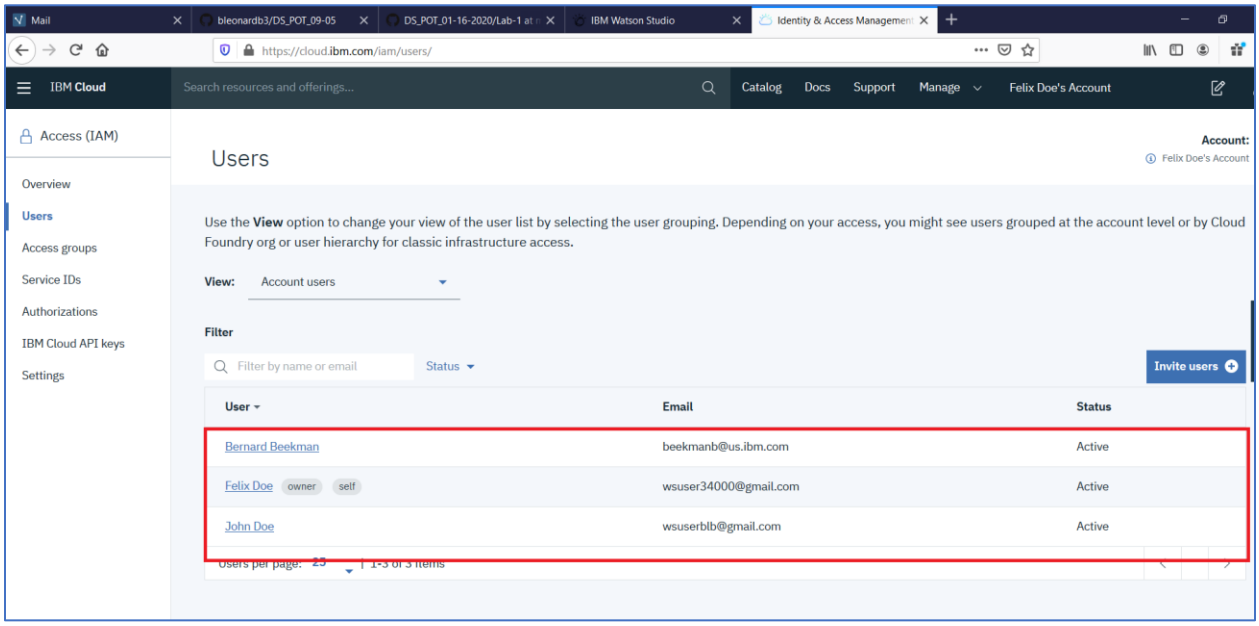
8. Scroll down click on **Viewer** under **Platform access** and **Reader** under **Service access**, and click on **Add**.



9. Click on **Invite**.



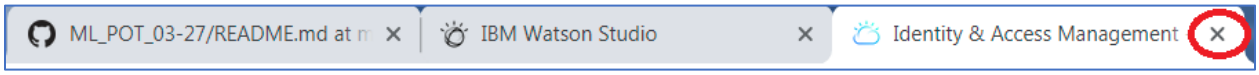
10. You should have three users in the account.



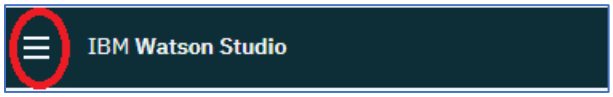
Step 2 – Add Collaborator to the Project

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

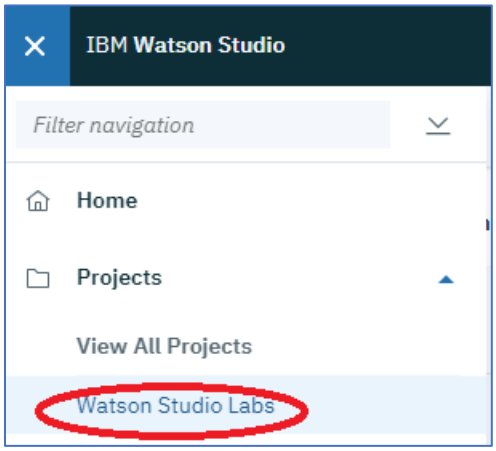
1. Close the Identity and Access Management tab.



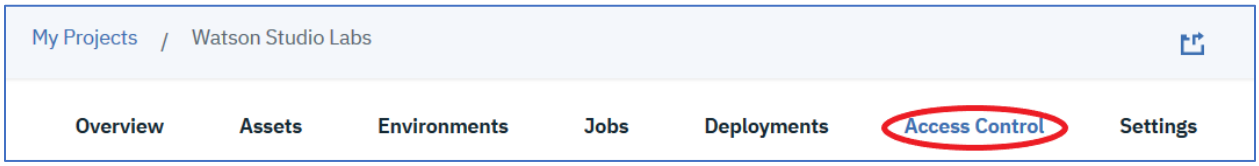
2. Click on the **IBM Watson Studio** tab. Click on the ☰ icon.



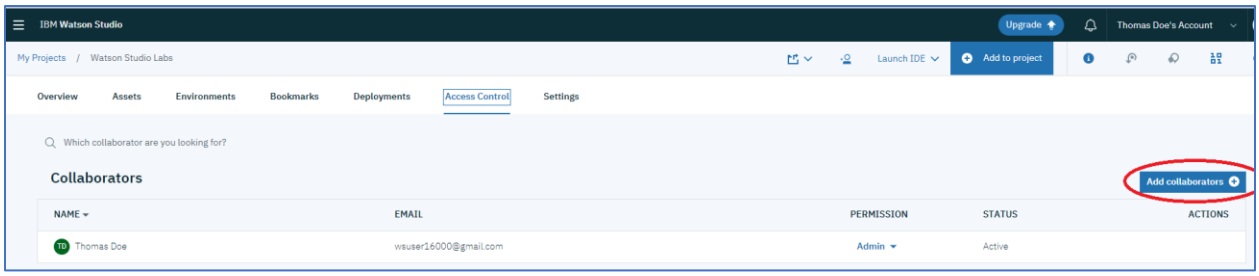
3. Click on Watson Studio Labs.



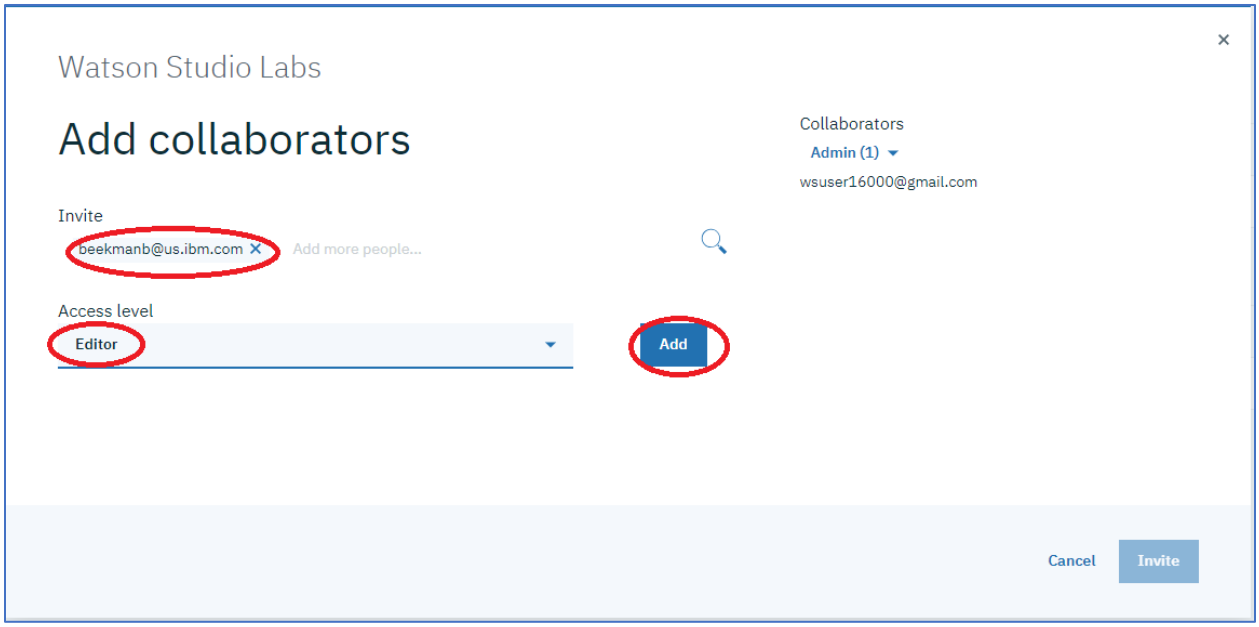
4. Click on the **Access Control** tab.



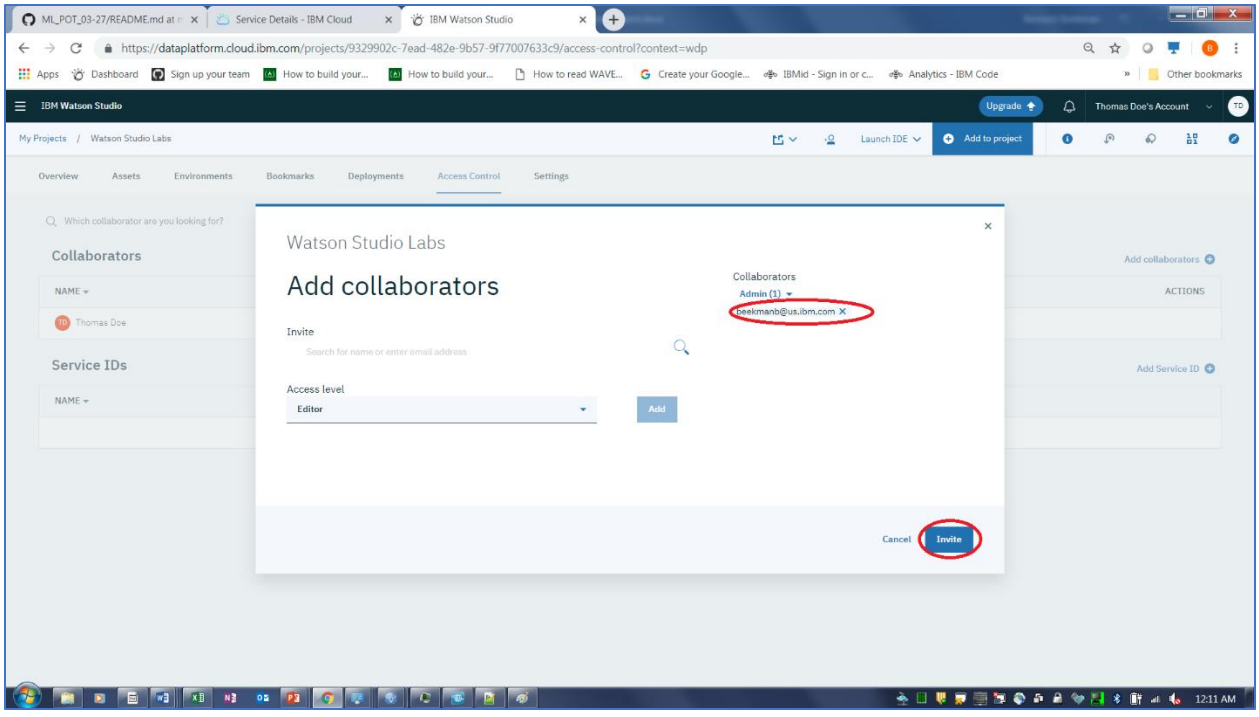
5. Click on **Add collaborators**.



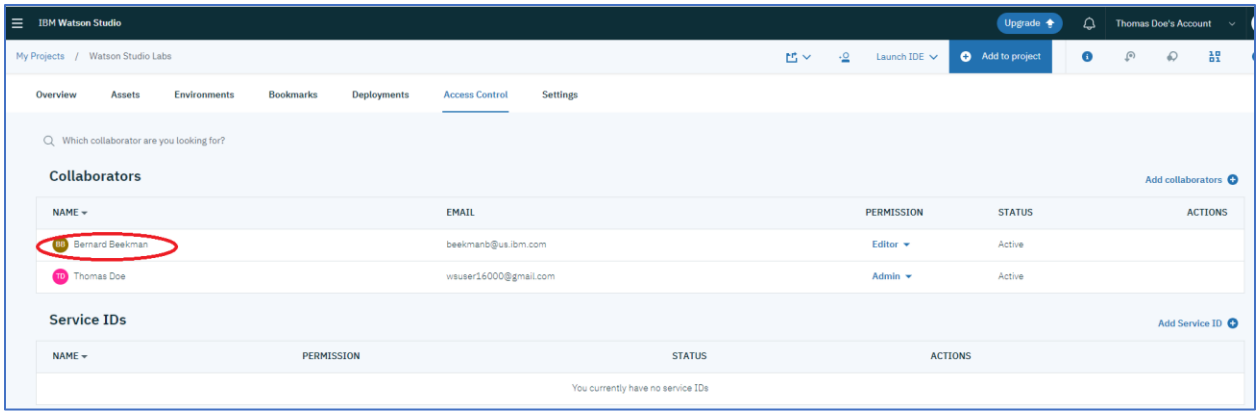
6. For **Invite**, enter **beekmanb@us.ibm.com** and press the <Enter> key, select Editor from the **Access Level** dropdown, and click on **Add**.



7. The collaborator is added to the list of Collaborators on the right-hand side. Click on **Invite**.



8. The collaborator is added.

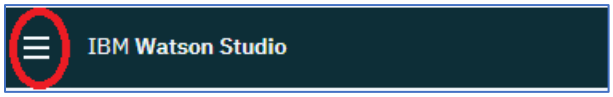


Research Topics

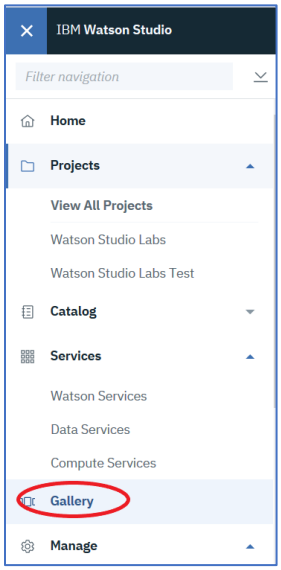
As you work on a data analysis project, you may need to do some research to help find a solution. Watson Studio provides a built-in capability, accessed via the **Gallery** option, that contains sample notebooks, and sample datasets. These are curated on a regular basis to provide up-to-date materials.

For the lab exercise, assume that you are interested in learning how to use the Watson Machine Learning api to save and deploy a machine learning 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.**

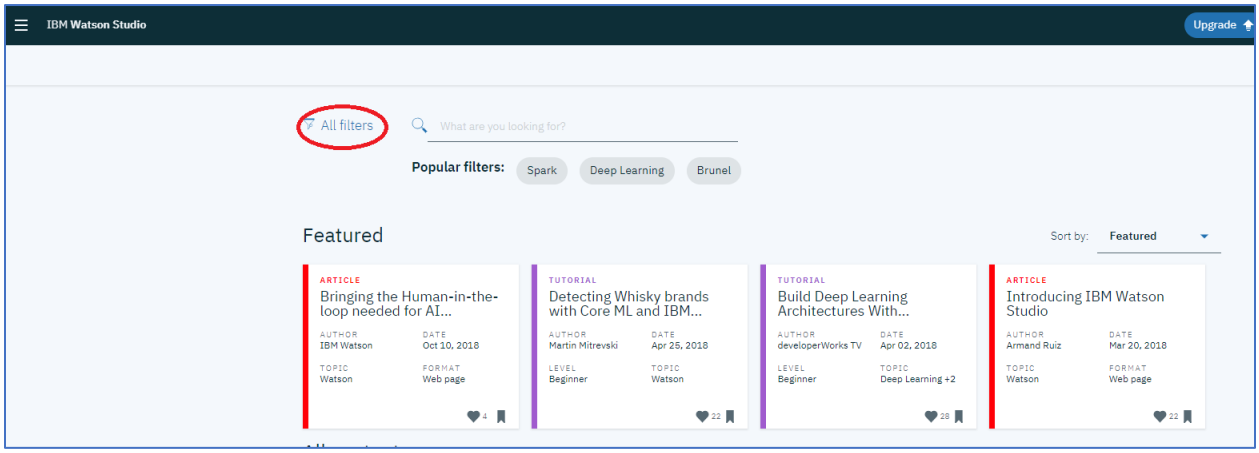
1. Click on the ☰ icon.



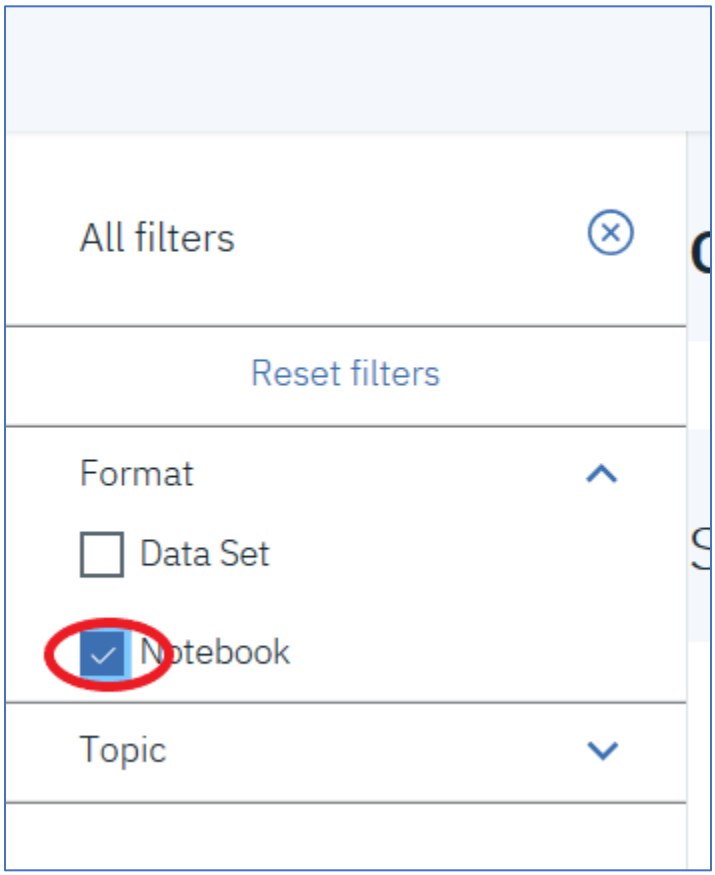
2. Click on **Gallery**.



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

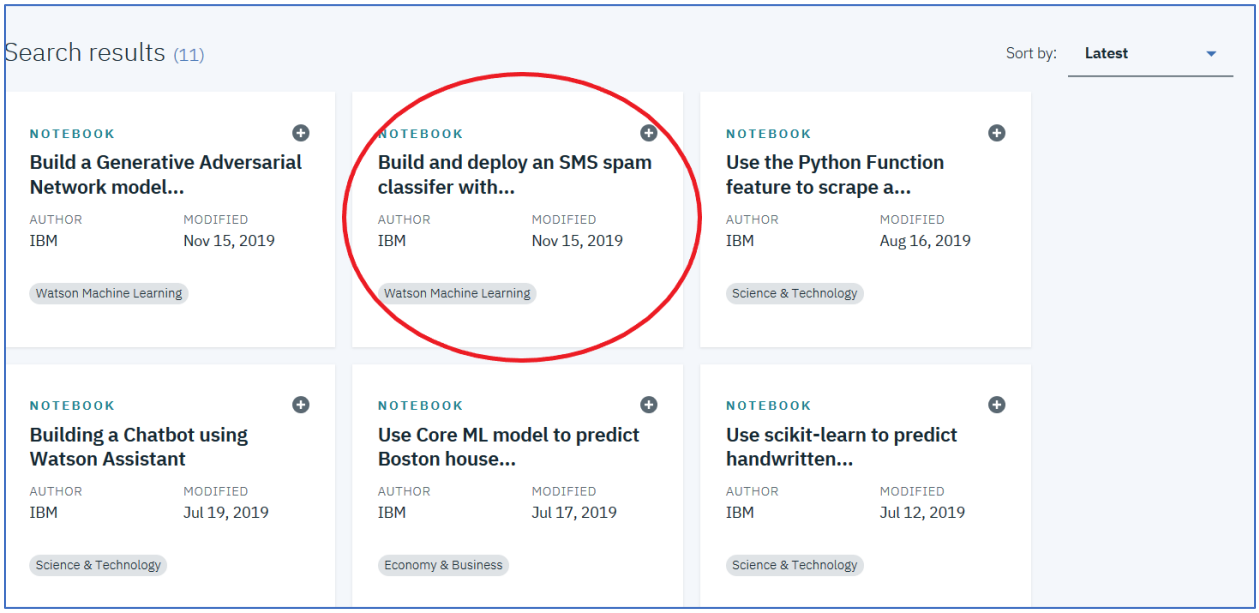


4. Click on **Notebook**.

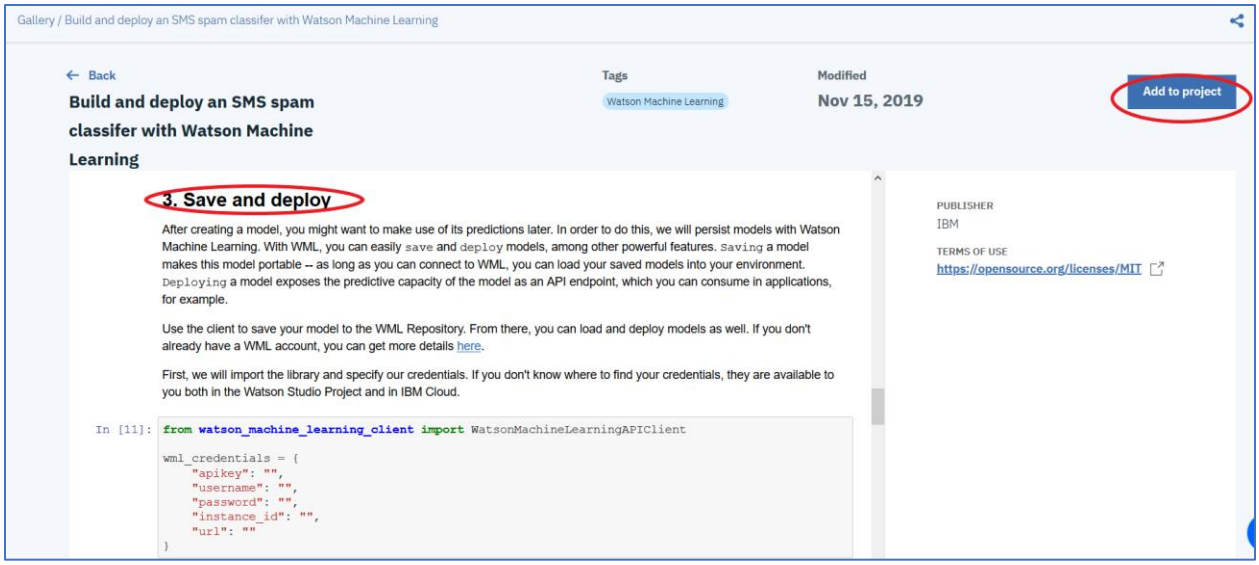


5. Enter **Watson Machine Learning** in the **Search** area. Click on the **Sort by** dropdown and change it to **Latest** to get the most up-to-date information.

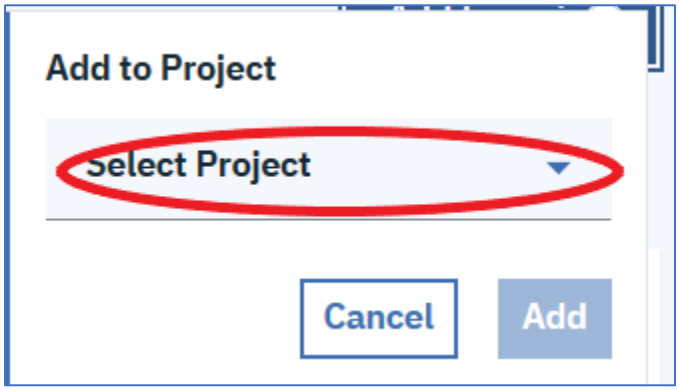
6. The Gallery view is updated. Locate the Gallery Card "Build and deploy an SMS Spam classifier with …". Hover the mouse over the card. The descriptive text refers to the Watson Machine Learning api. This notebook appears to be a good candidate for having code demonstrating the use of the Watson Machine Learning api. Click on the **Gallery Card.**



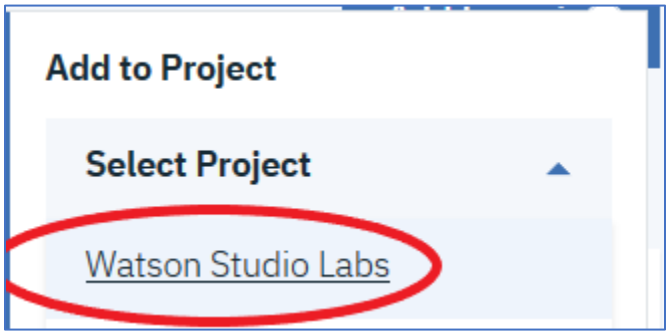
7. Review the notebook documentation. Scroll down to the "**3. Save and deploy**" section of the notebook. This shows the procedure to use the Watson Machine Learning client to save and deploy a machine learning model. Click on **Add to project**.



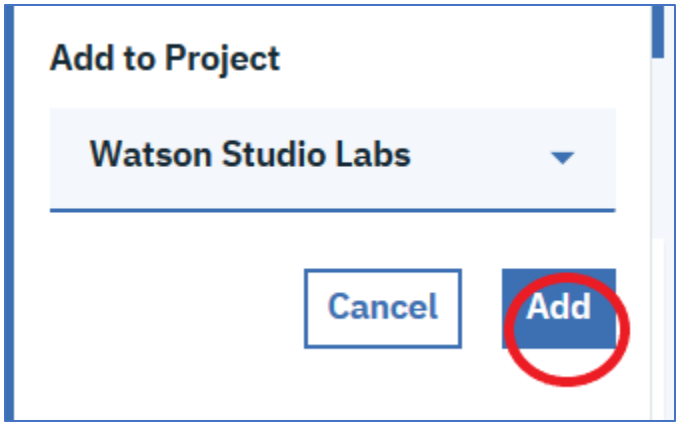
8. Click on **Select Project**.



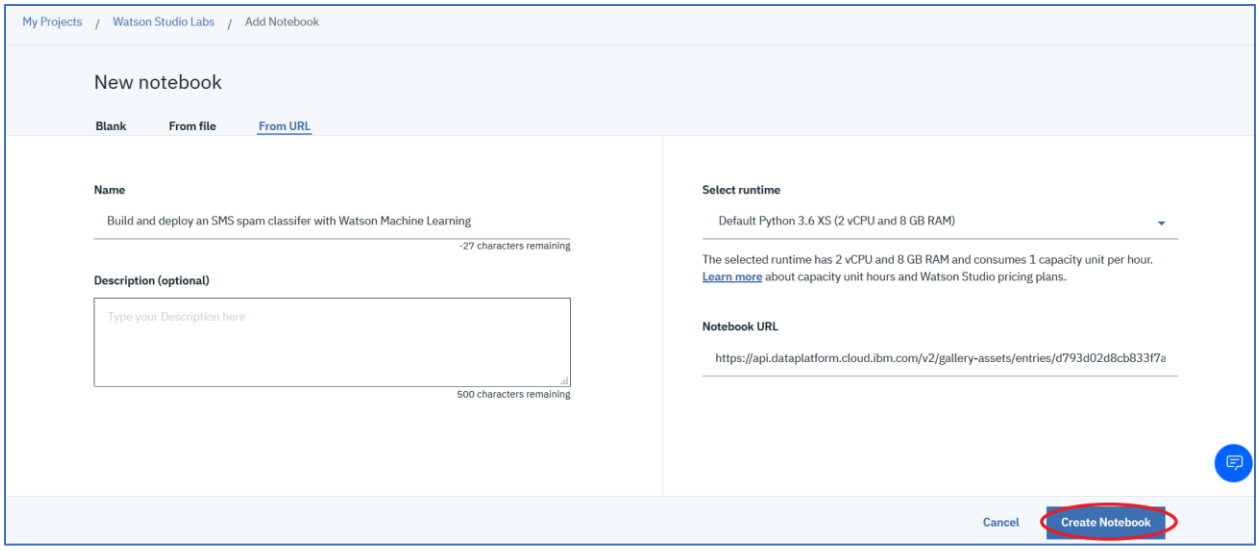
9. Click on **Watson Studio Labs**.



10. Click on **Add**.



11. The panel to create a notebook with the From URL option is displayed. Click on **Create Notebook.**



12. The notebook is loaded in editing model for you to review how the Watson Machine Learning api is used to save and deploy a model.

You have completed Lab-1!

- ✓ Created a project
- ✓ Created an object storage instance and associate it with the 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.