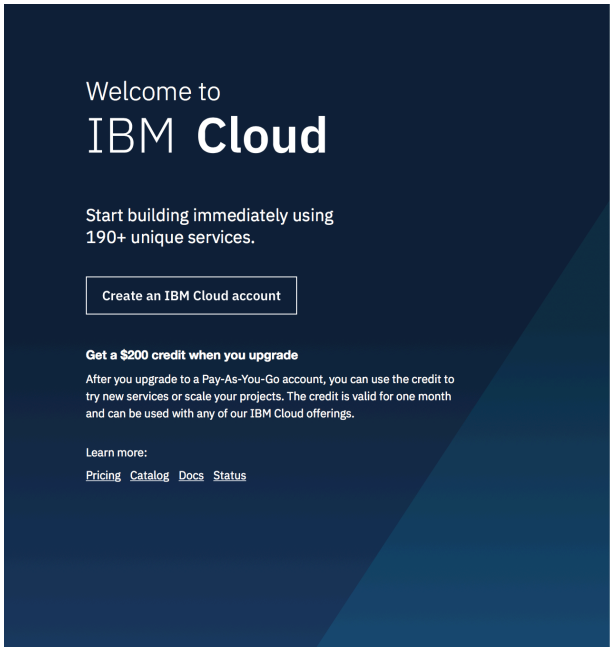
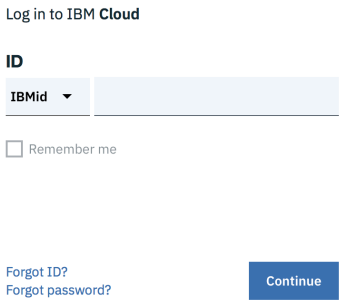
# Lab to explore the IBM Watson Studio, Machine learning and Auto AI with Sample data

In this lab, we will understand the concepts of Watson studio, machine learning and Auto AI services on the IBM Cloud platform. Please follow the below mentioned steps to see how quickly we can enable/Create the projects on Watson studio and Apply Auto AI service on top of it.

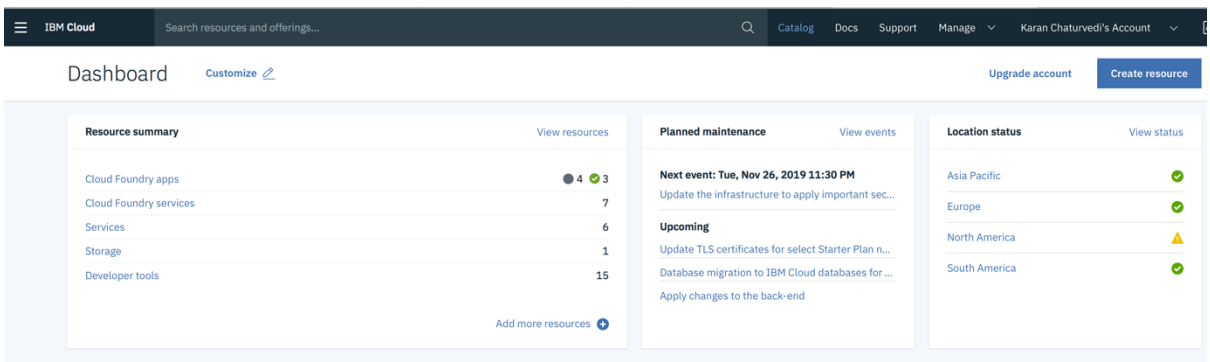
**Visit cloud.ibm.com**
**Login to IBM Cloud**

Sign up/Login to IBM Cloud Platform with your credentials and click on continue.

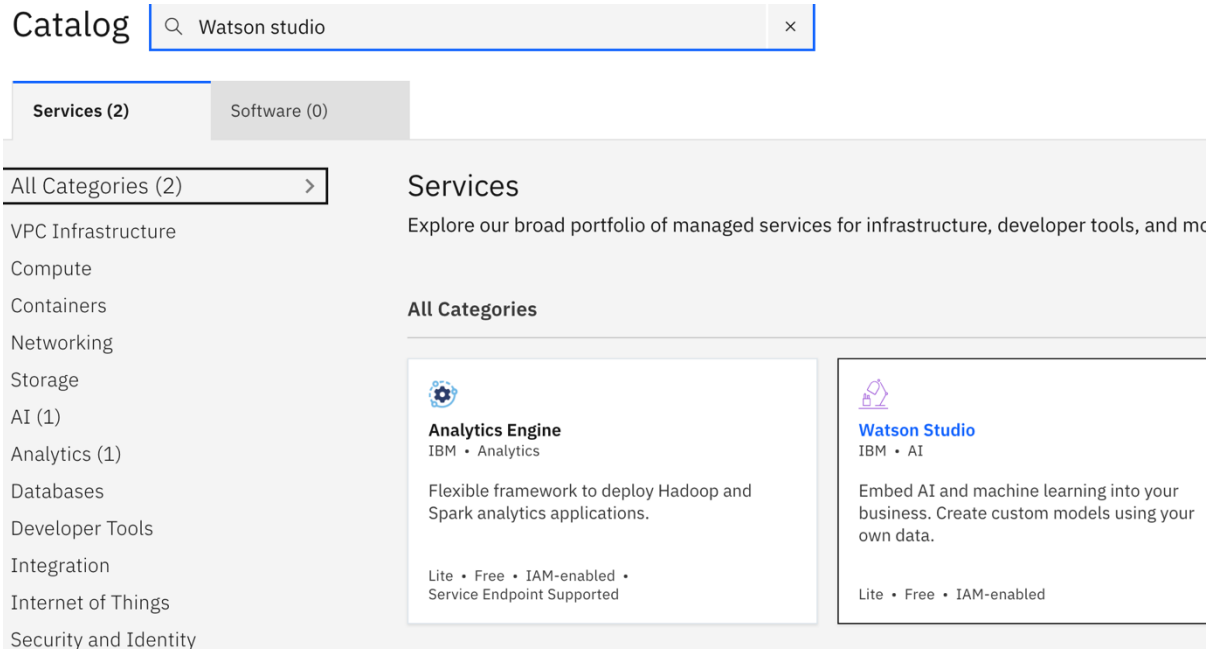


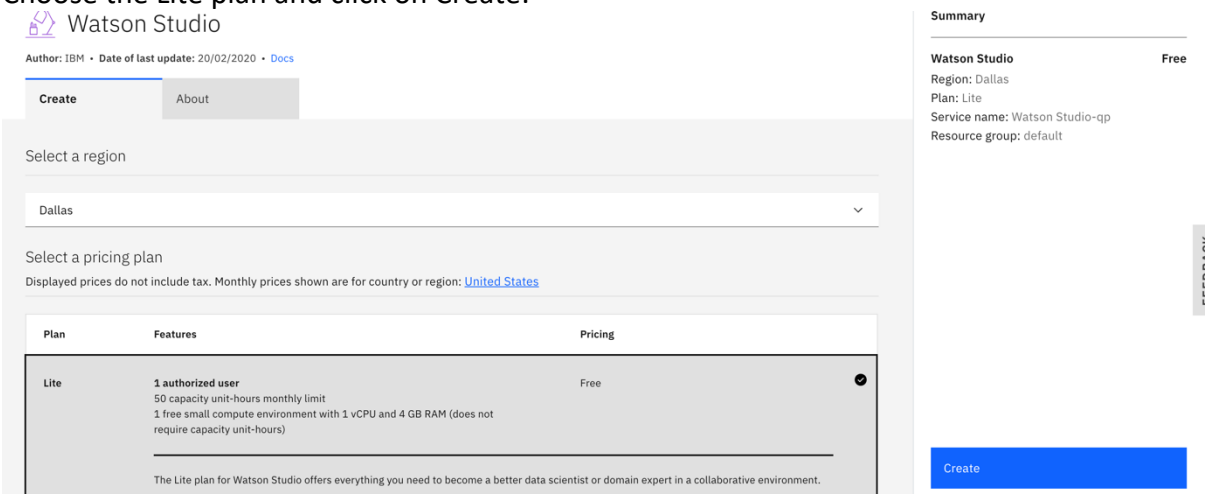

From the landing page/Dashboard Select “Catalog”




In the Catalog , Search for “Watson Studio” service and Select:

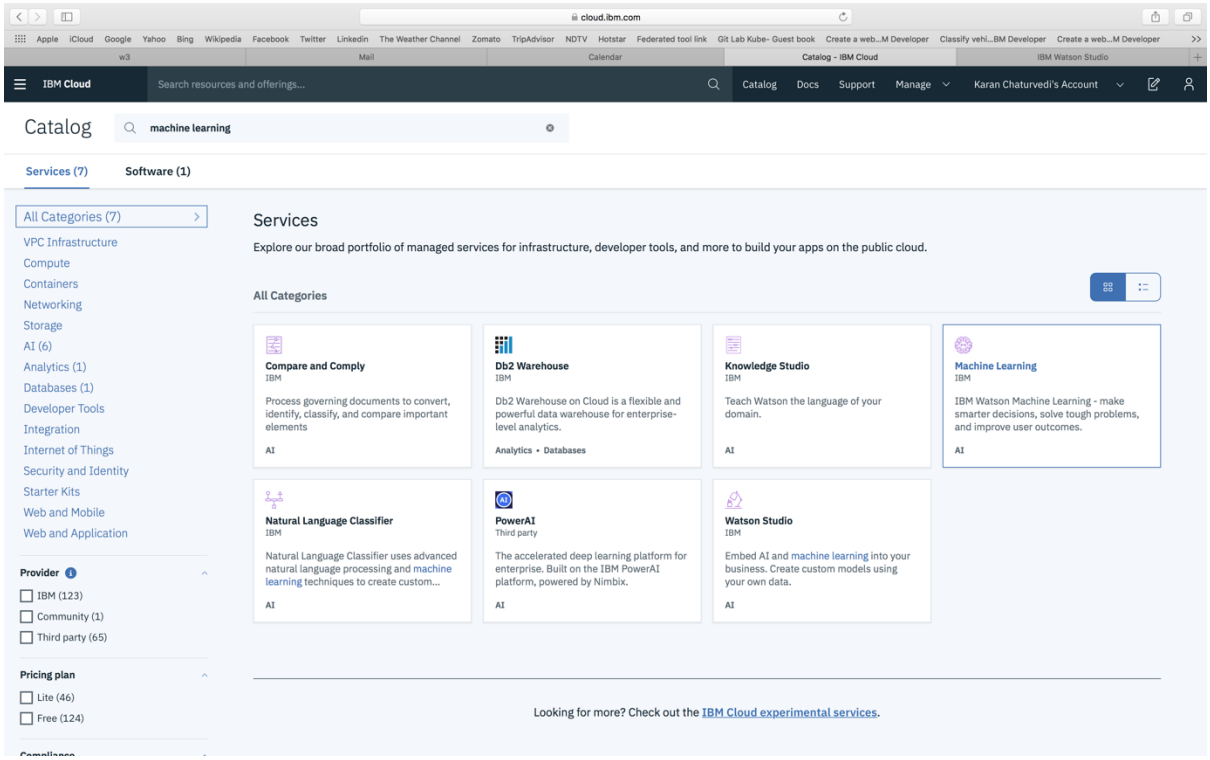



Choose the Lite plan and click on Create:

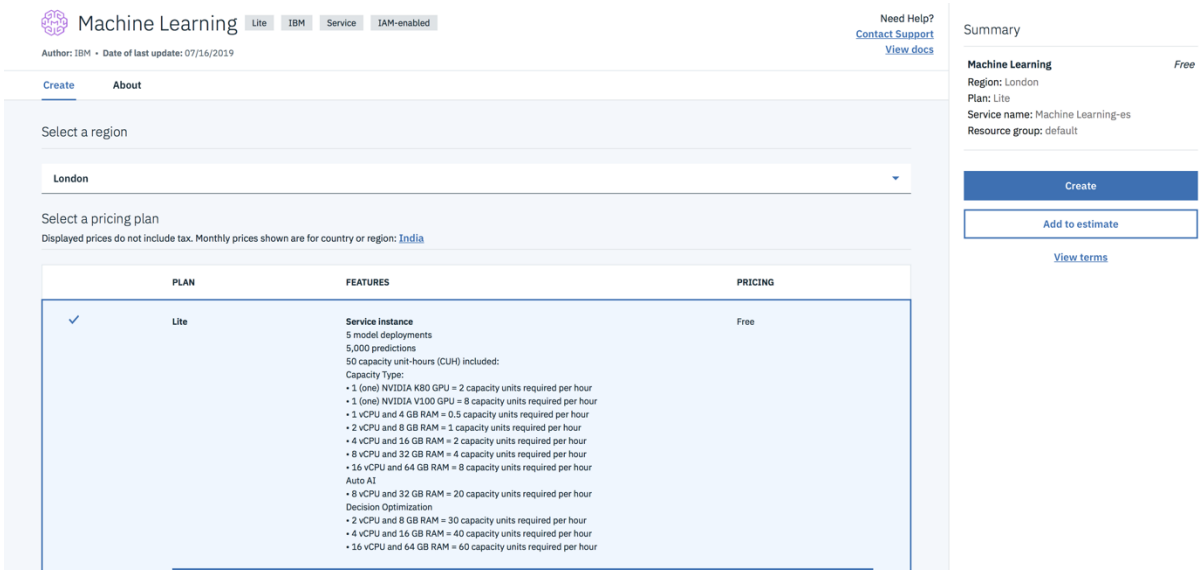



Allow few minutes for the Watson Studio development environment to be provisioned.

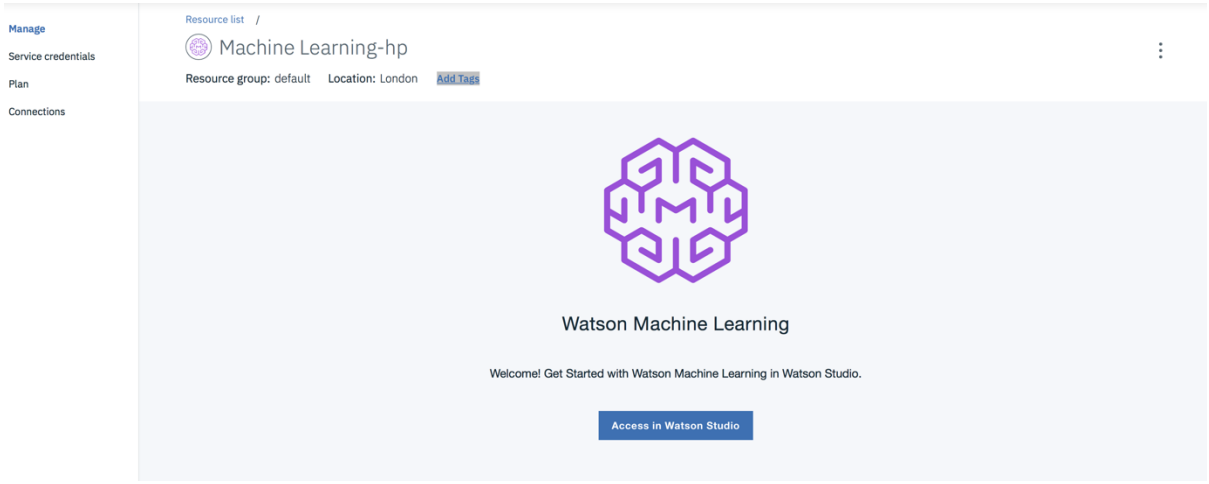
Go back to  Catalog, Search for Machine learning service and Select



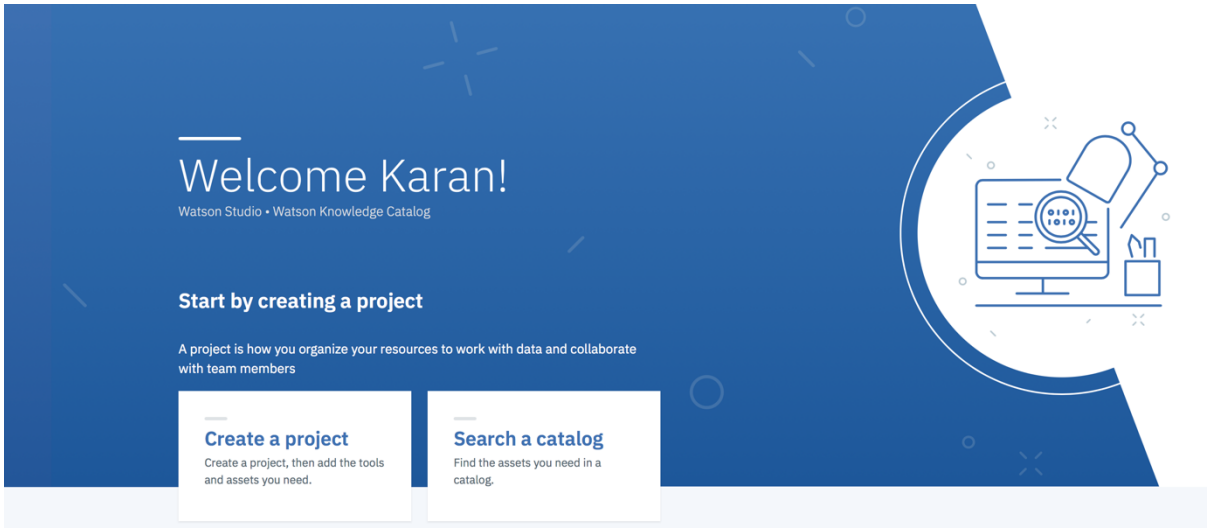

Choose the Lite plan, and click on create



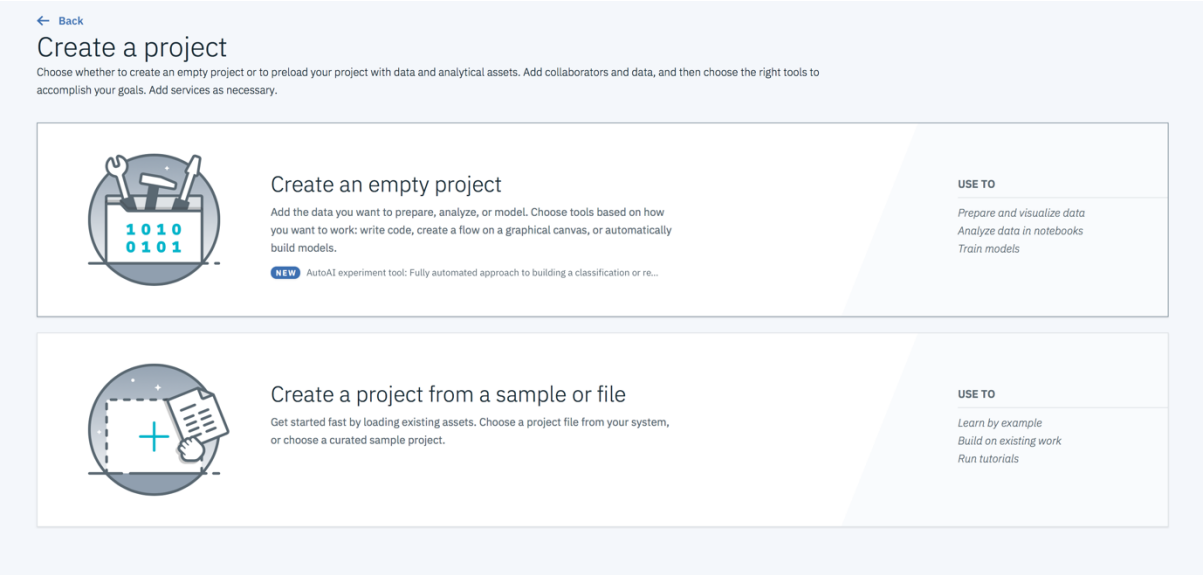
Click on “Access in Watson Studio” to create a machine learning service through Watson studio




Select “ Create a project”

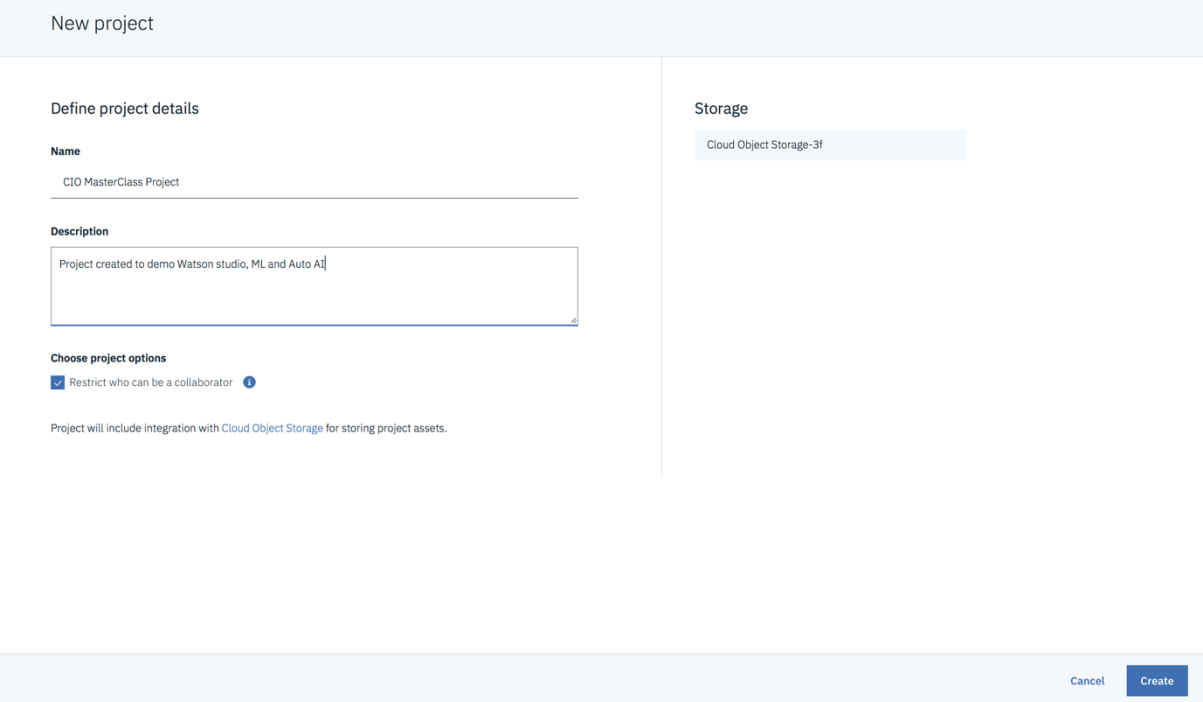


Select “Create an empty project”



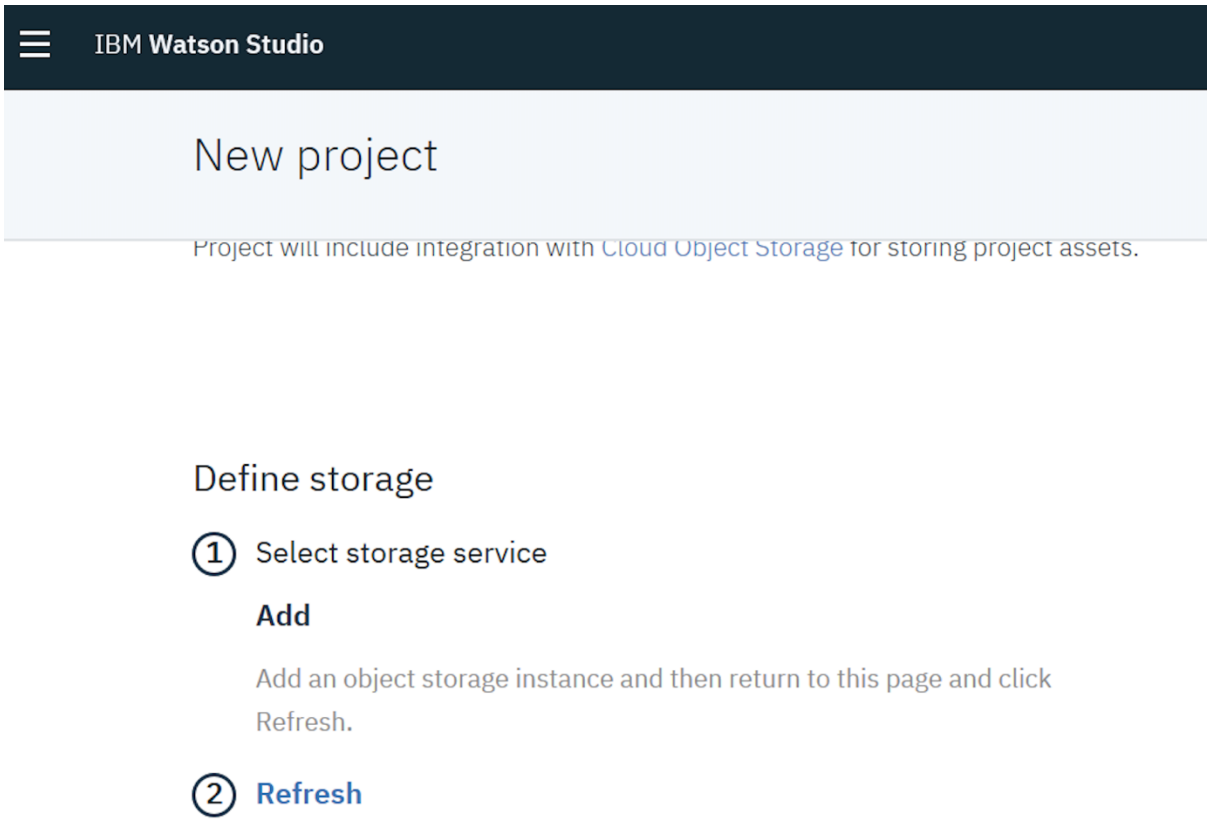

In the new project section, Please furnish the unique name of the project, its description and proceed to add storage …

**Please note, we will have to attach an object storage here itself**.

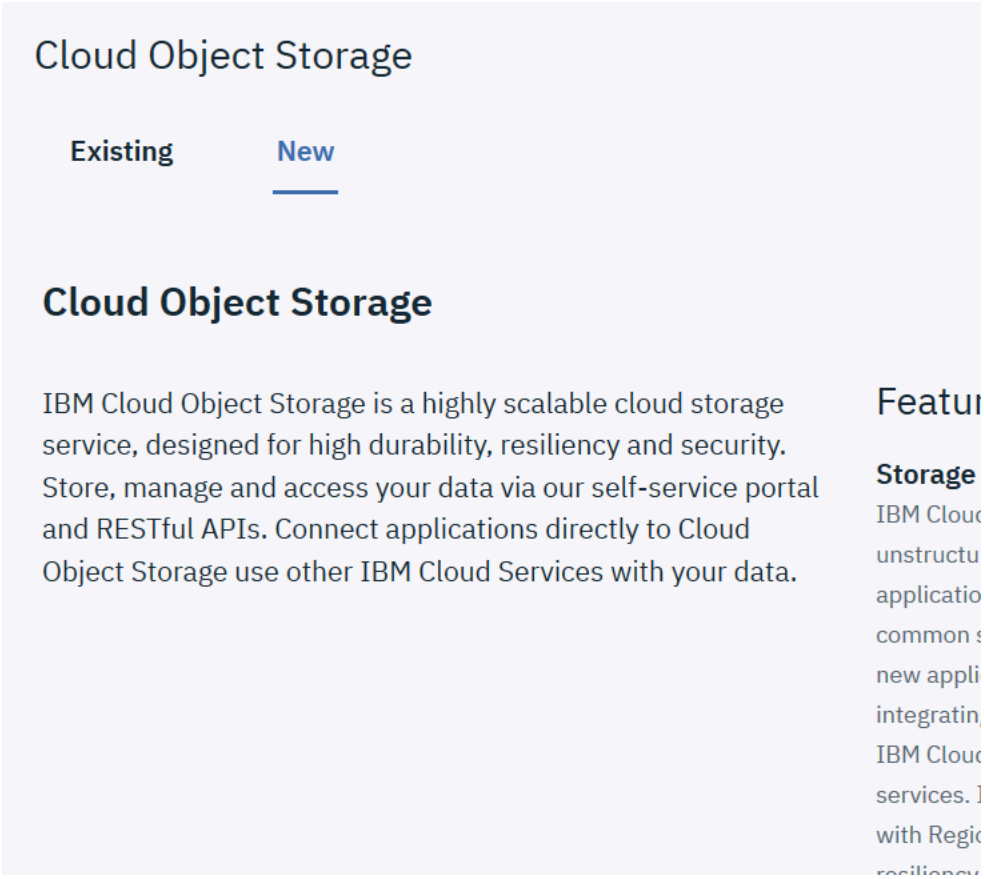



Follow the steps below to add Storage:

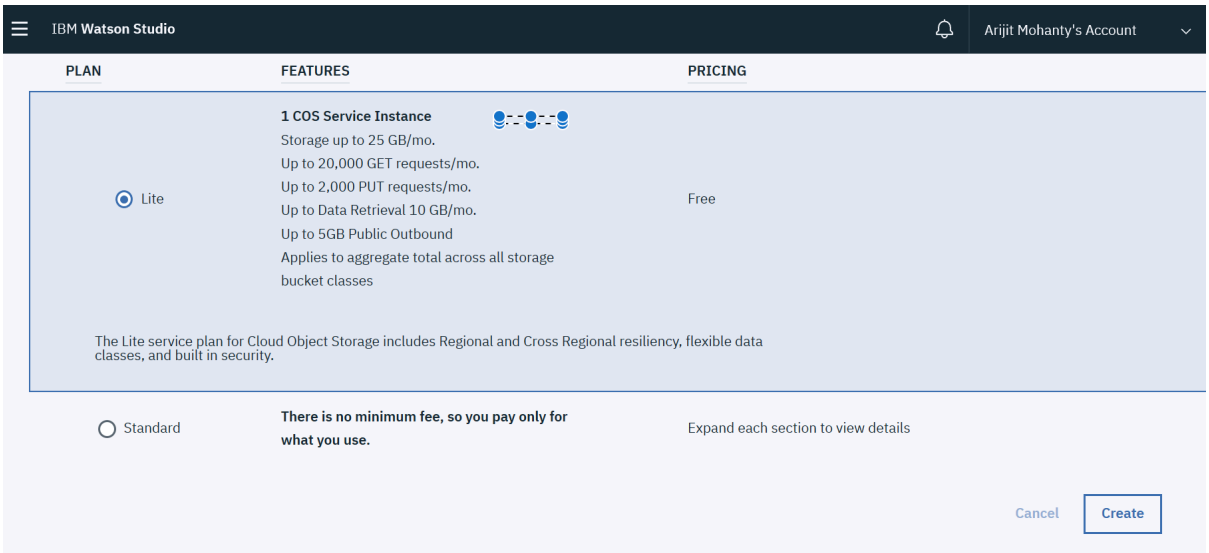
(i) Add storage:



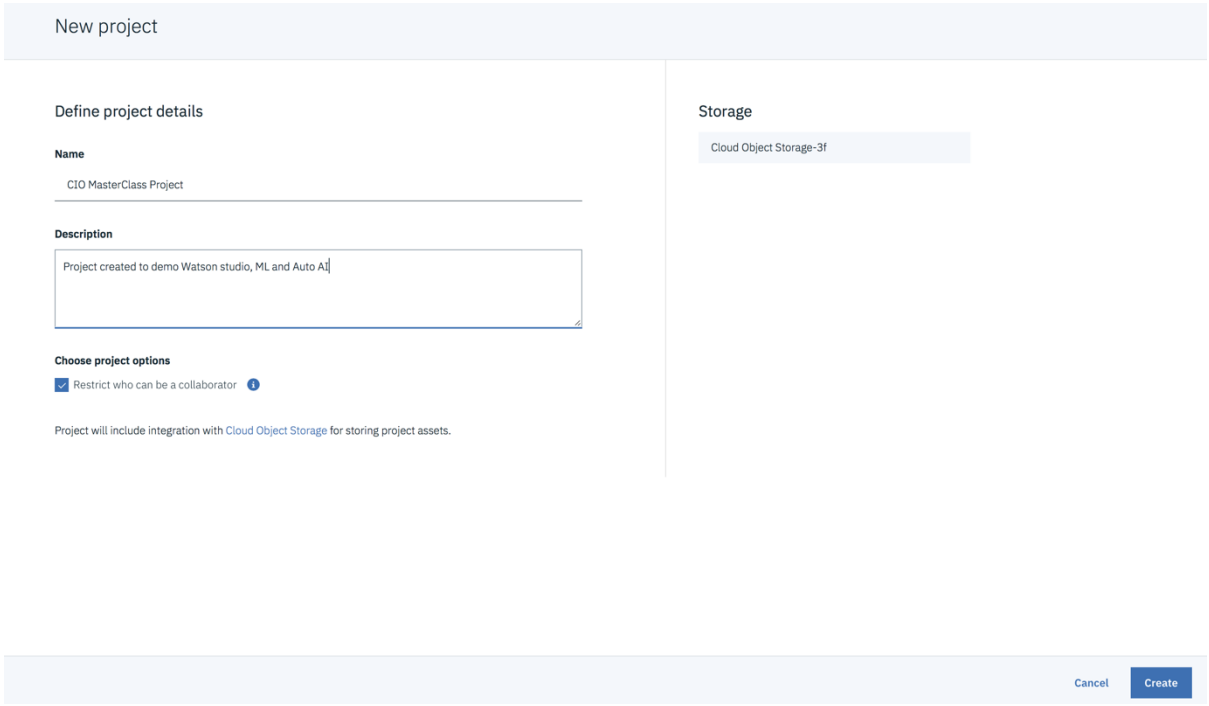

(ii) Select New



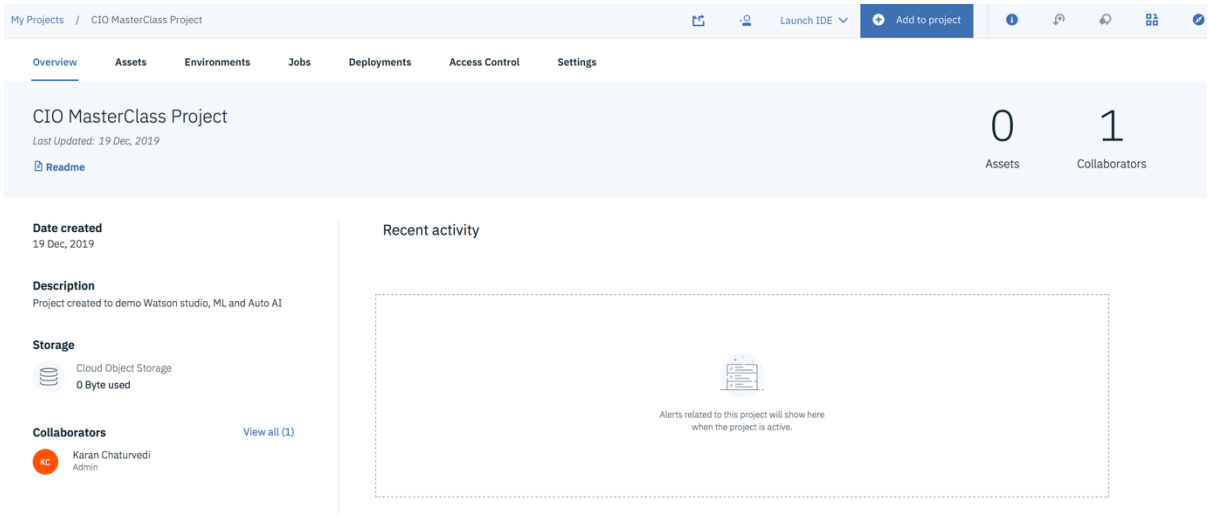

(iii) Create Storage



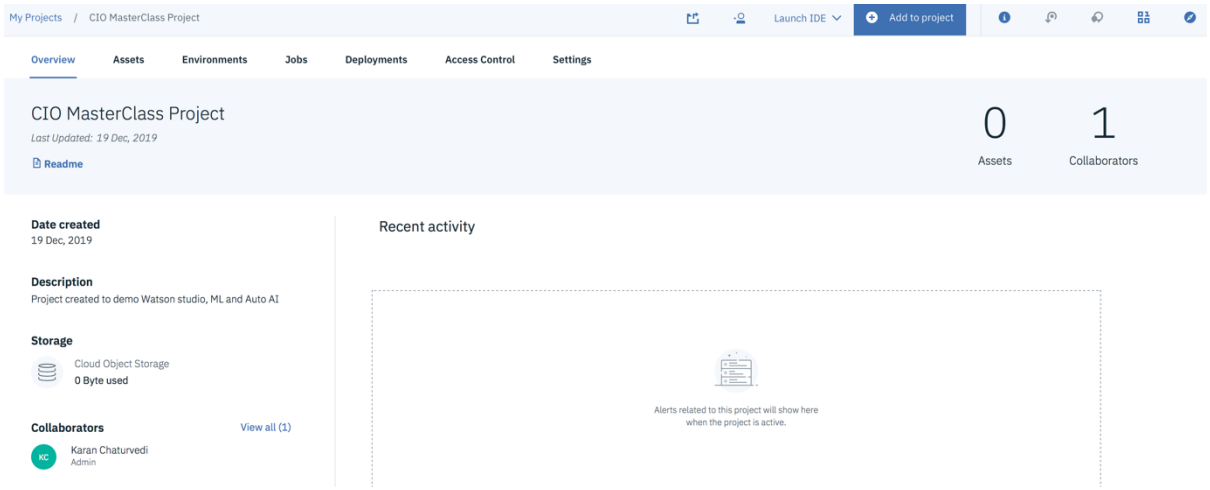
Complete the project creation, by selecting create: (If storage is not reflecting, try reload)



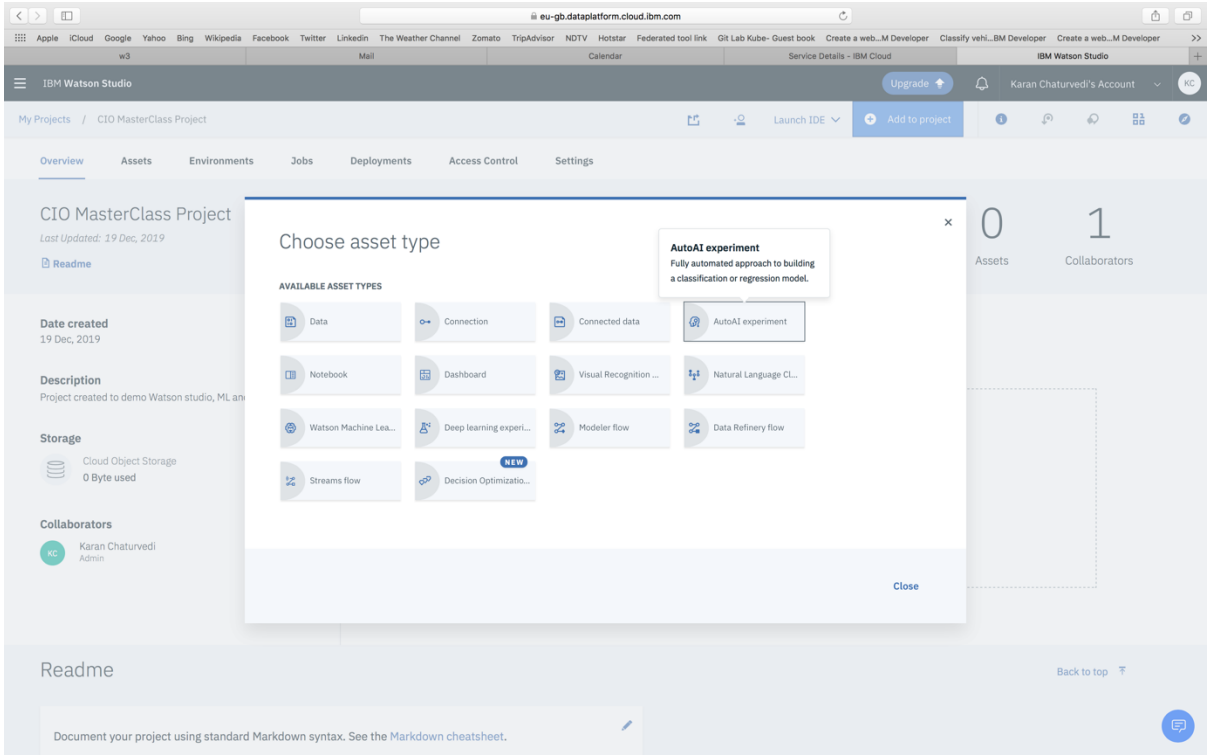

Below screenshot shows the dashboard.



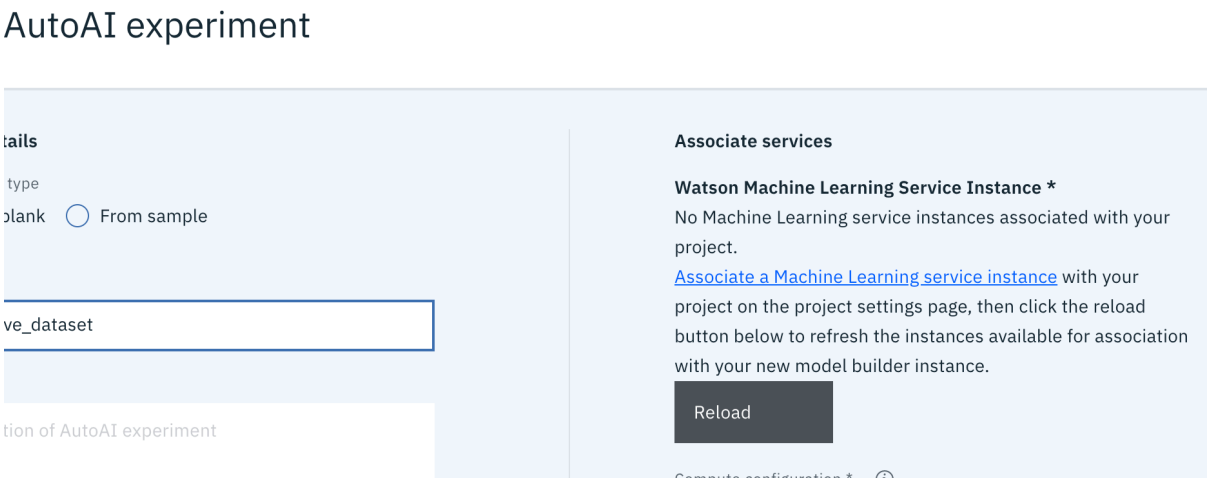

Select “+Add to project” to add AutoAI experiment .



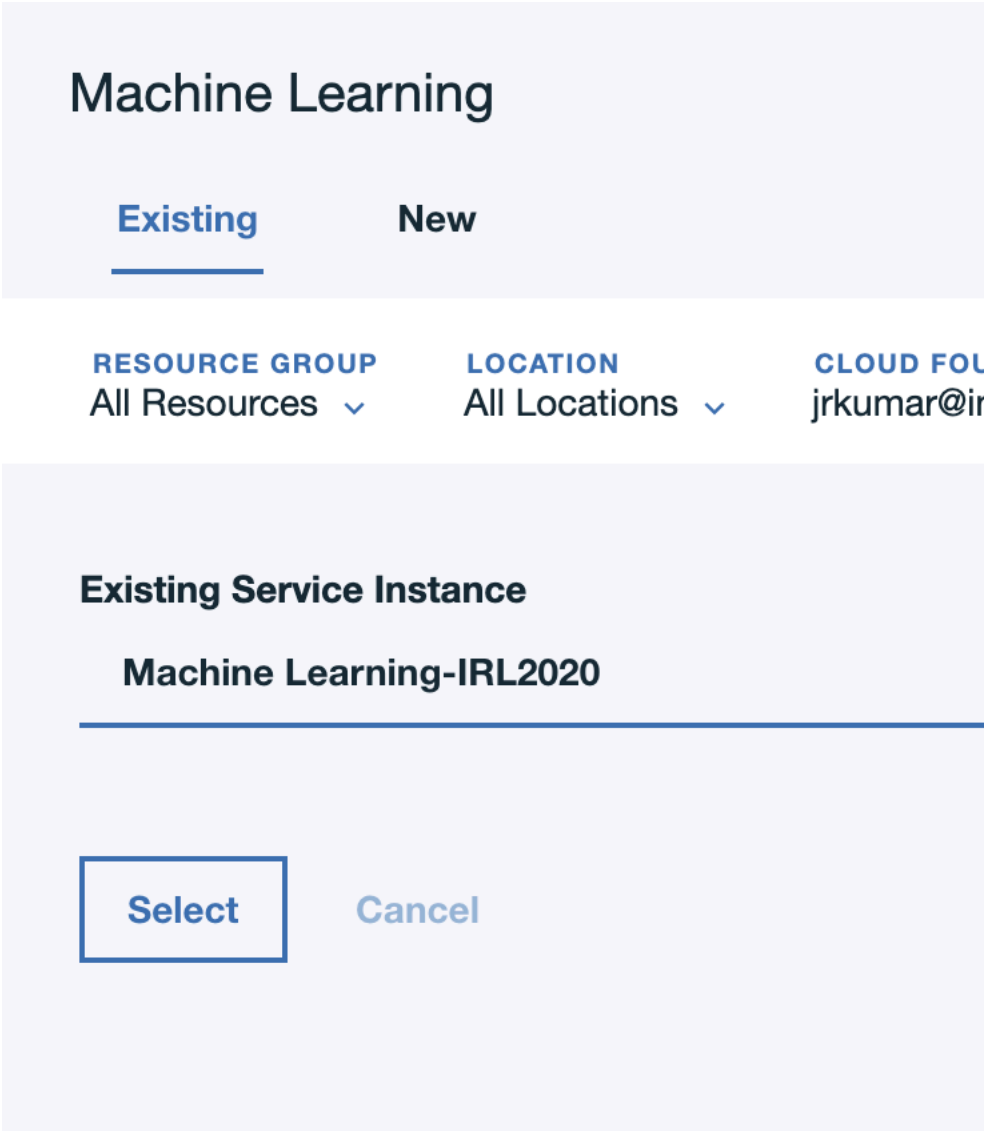

Select AutoAI Experiment.



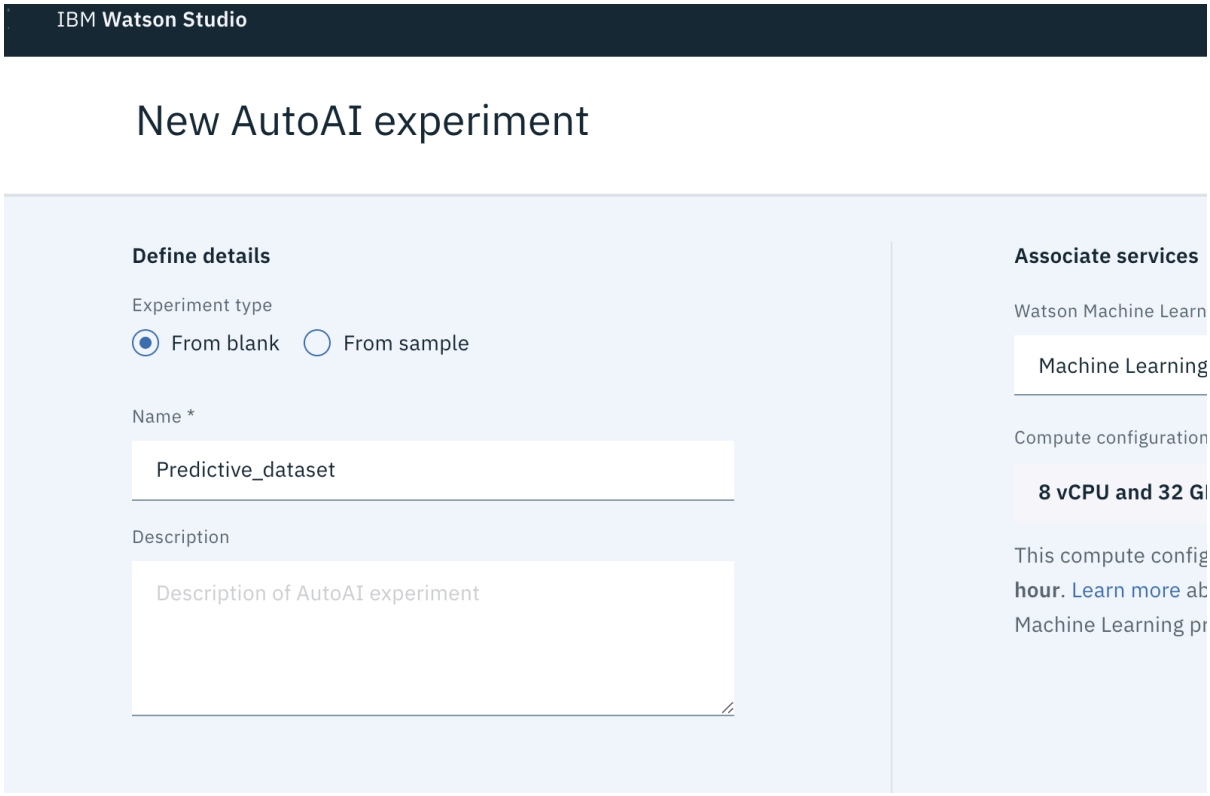
Under the Associated services tab, Select the ML service created earlier . If it is not visible, try  “Associate a Machine Learning Service Instance” and then “reload” option again.




Below is the screen shot of “Associate a Machine Learning Service Instance”

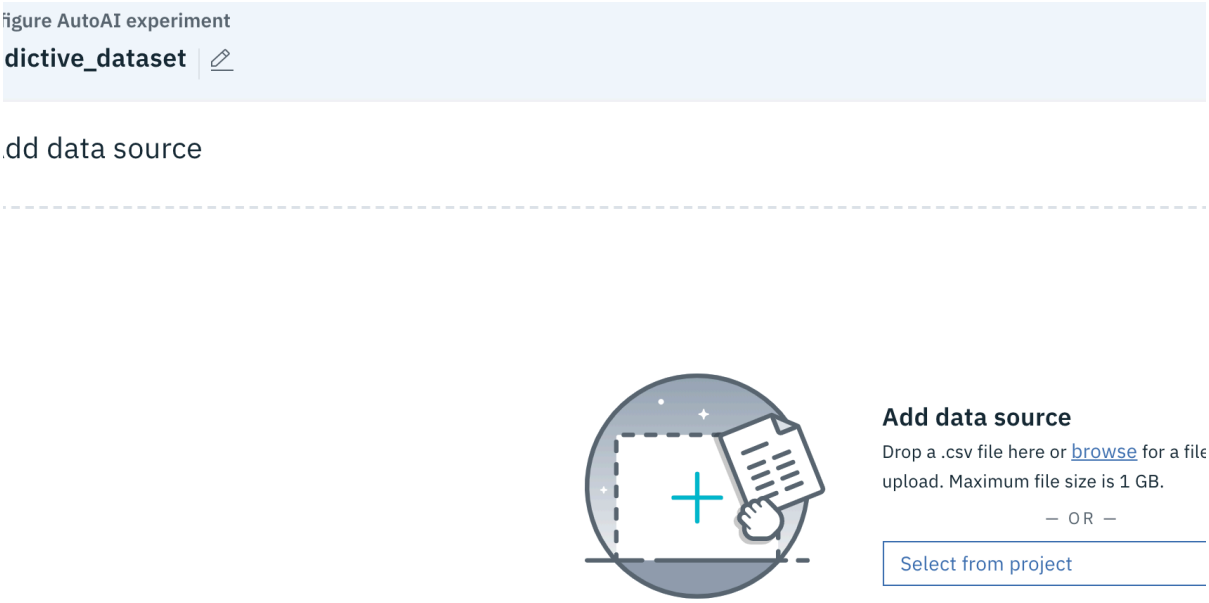



Select the provisioned Machine Learning Instance from the list and proceed further.If the Machine Learning Instance is not visible, try “Reload” option again.

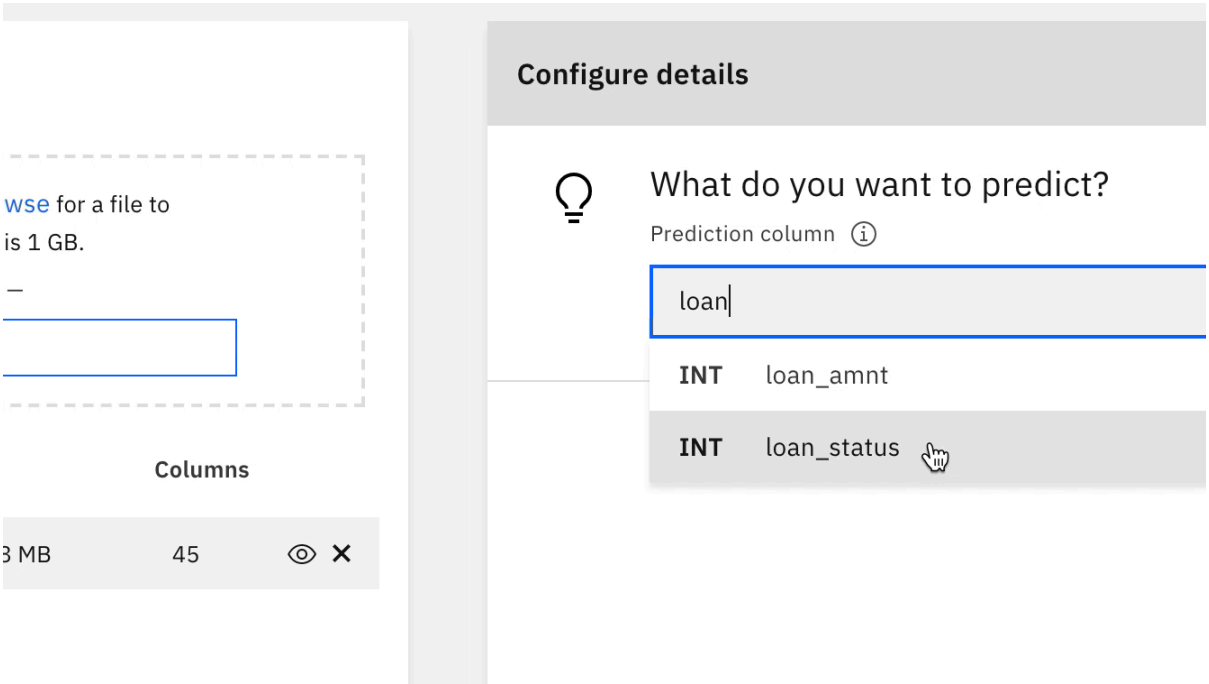



Now , Select the Blank Experiment type (“From Blank”) , Provide a name and proceed to create “AutoAI” experiment, as shown above:

Next step is to “Add the data source” . <Check with the instructors for the dataset download link> . Click on the “Browse” option to upload the provided dataset.
Data: https://github.com/IBMDevConnect/DBS2020/AI4Enterprise
File Name - Homeloan_autoAI.csv



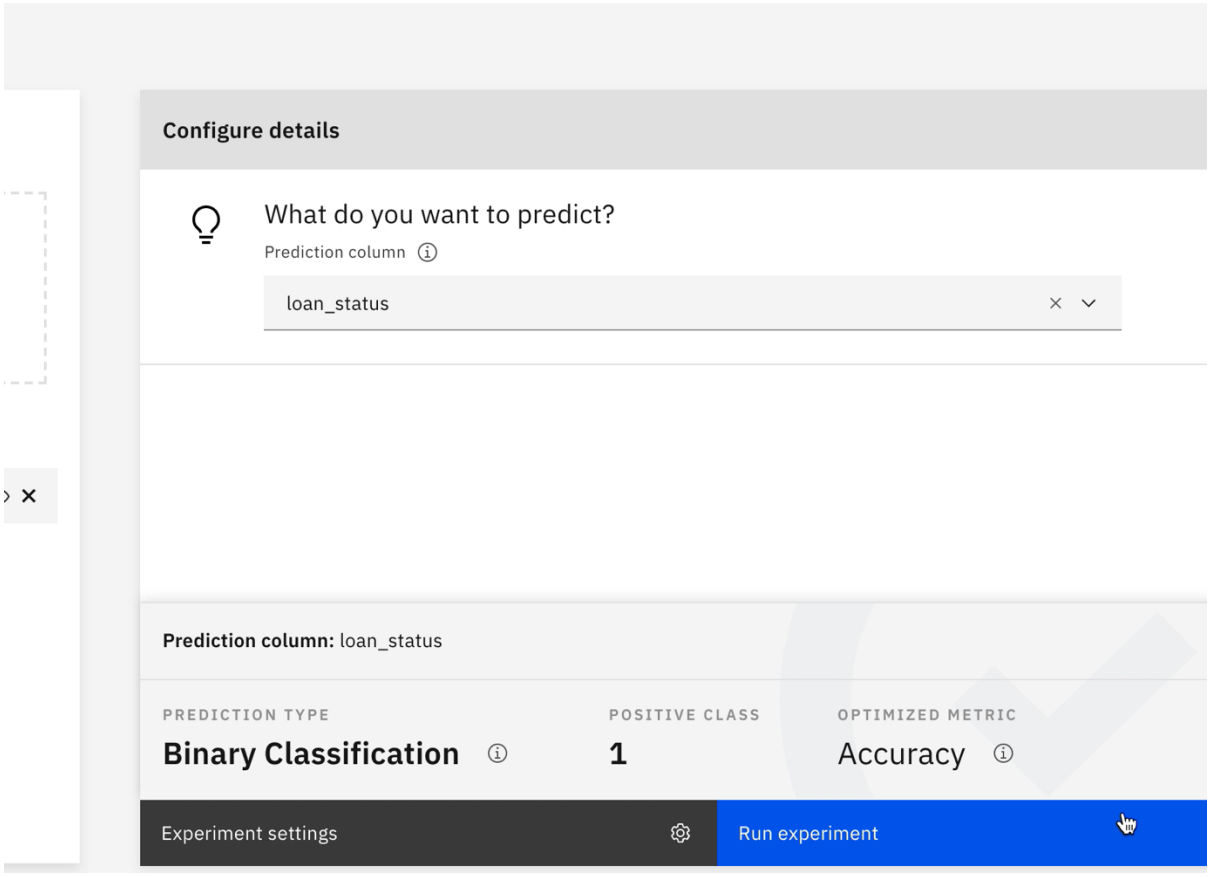

It may take couple of minutes to upload the data file.



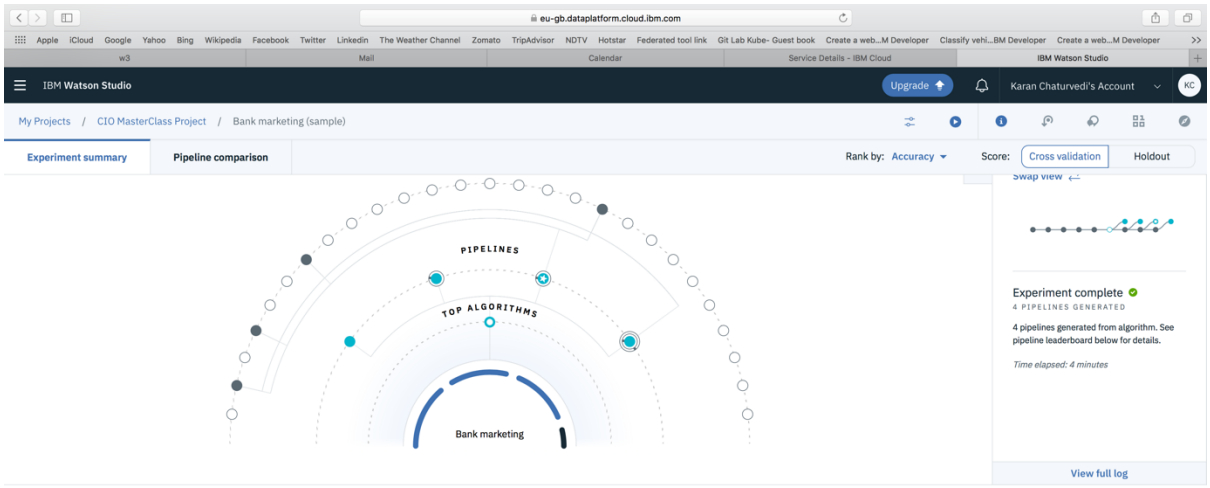

Select the column by name “loan_status” , as shown above, as the target (Prediction) column.

Next step is to Run the AutoAI experiment to train and create the ML Model.

Click on “Run experiment”




At this stage, the ML Model pipeline gets started. It takes around 2 minutes to get the first pipeline completed. Scan through the process to understand how AutoAI functions.



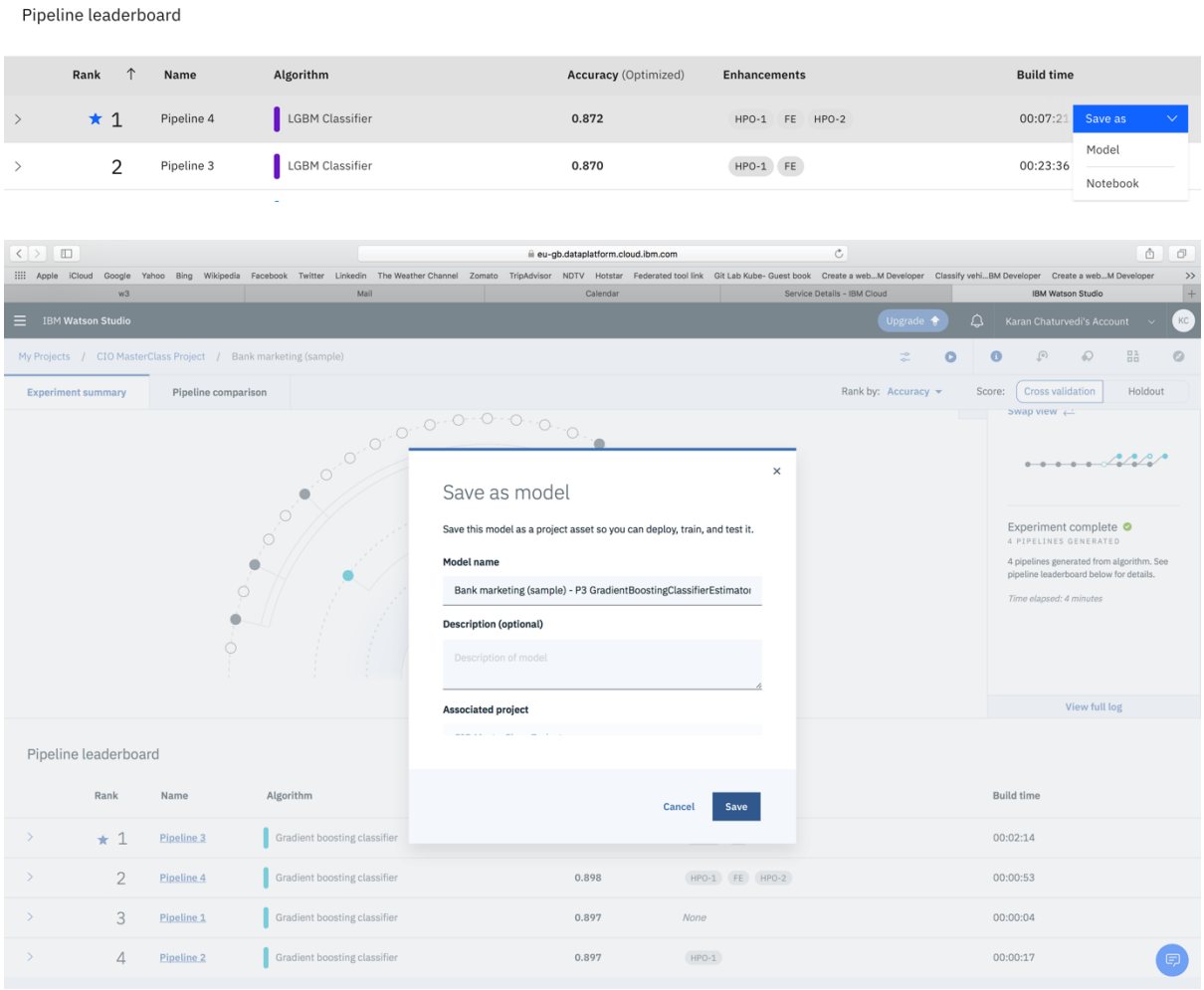

## Pipeline leaderboard

| | Rank | Name | Algorithm | Accuracy | Enhancements | Build time | |
|---|---|---|---|---|---|---|---|
| > | ★ 1 | Pipeline 3 | Gradient boosting classifier | 0.898 | HPO-1 FE | 00:02:14 | Save as |
| > | 2 | Pipeline 4 | Gradient boosting classifier | 0.898 | HPO-1 FE HPO-2 | 00:00:53 | |
| > | 3 | Pipeline 1 | Gradient boosting classifier | 0.897 | *None* | 00:00:04 | |
| > | 4 | Pipeline 2 | Gradient boosting classifier | 0.897 | HPO-1 | 00:00:17 | |

Save as
Model
Notebook

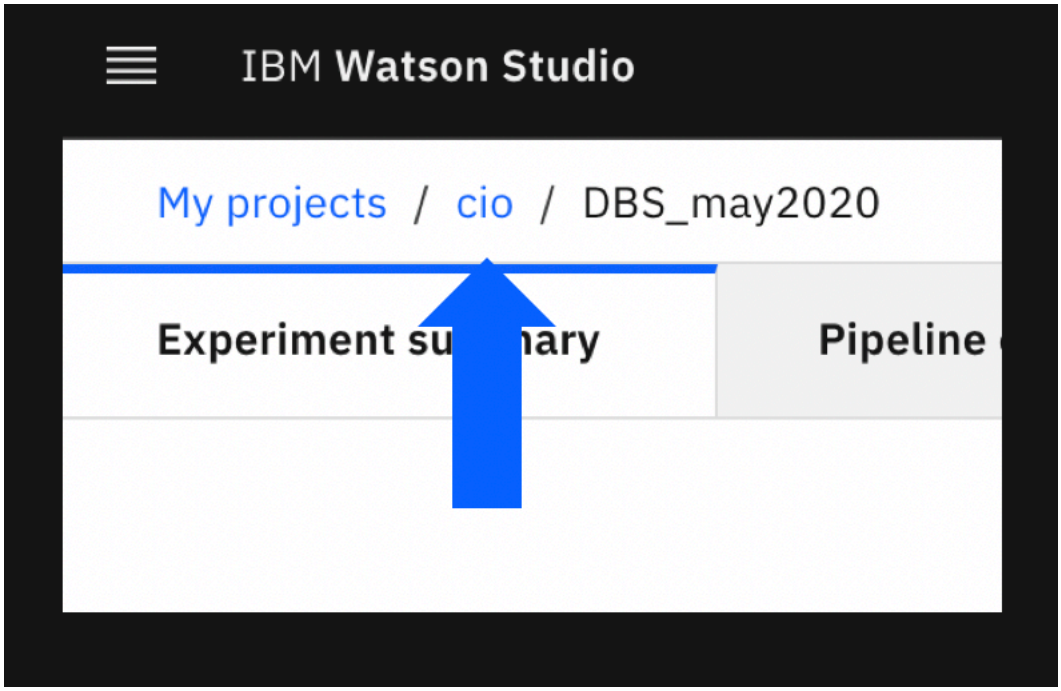
**Note: Once any one of the pipeline is created, proceed to save the Model. If you would like to select the most accurate pipeline, then wait for few more minutes for other pipeline to get completed.**

Select the most accurate pipeline and save this as a model as shown below:



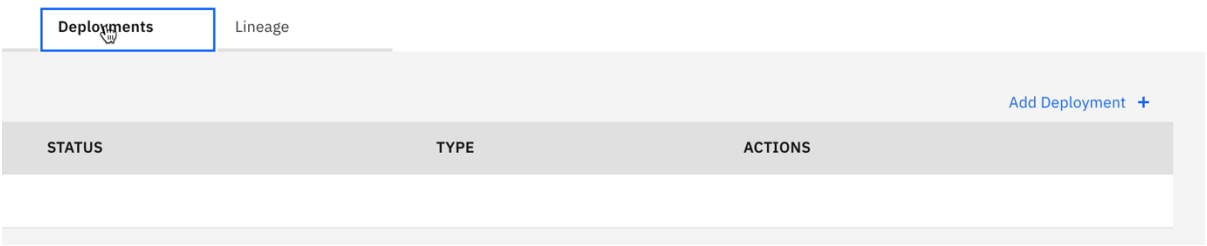

Go back to the Watson studio project and Select the saved model to deploy

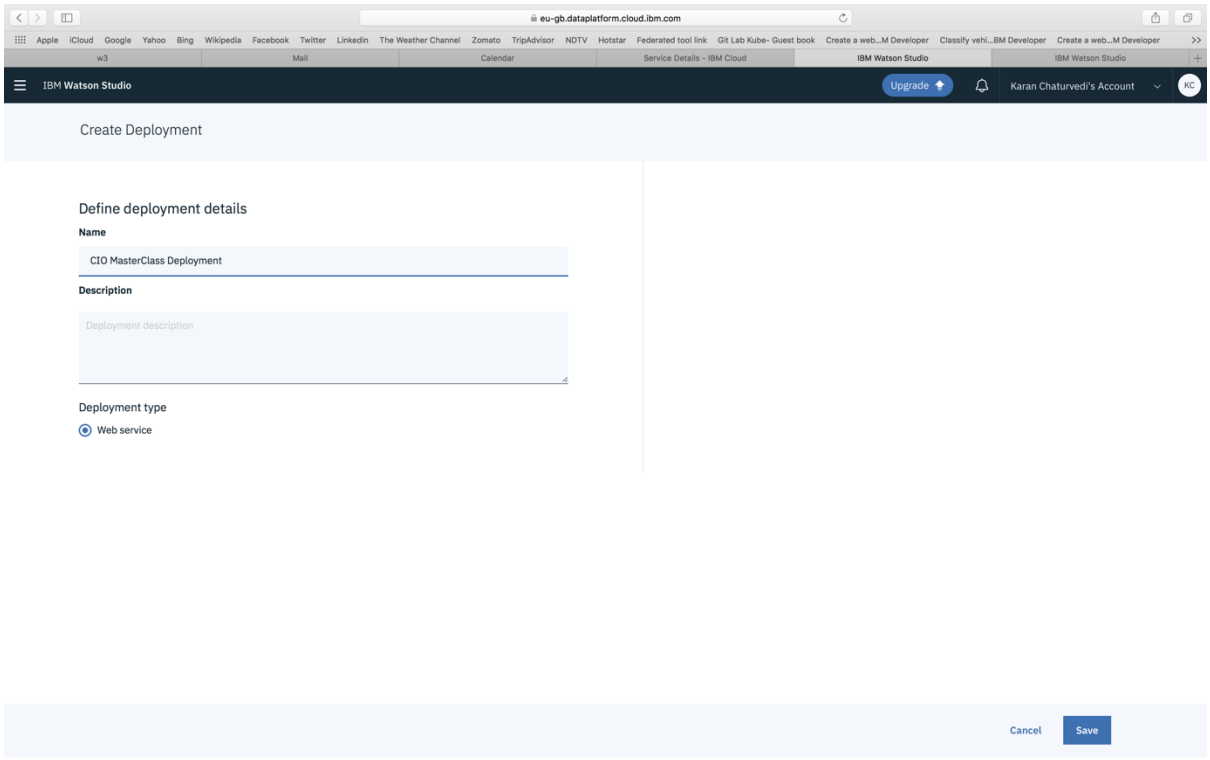
Select your project name in the top left as shown below:



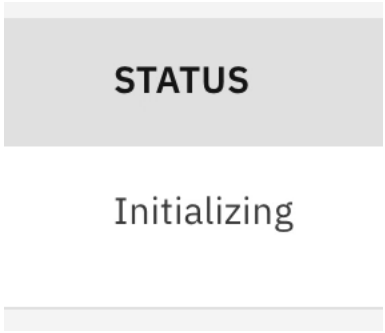

Go Under “Watson Machine Learning Models” dropdown :


Click on add deployment and select Deployment type as web service.



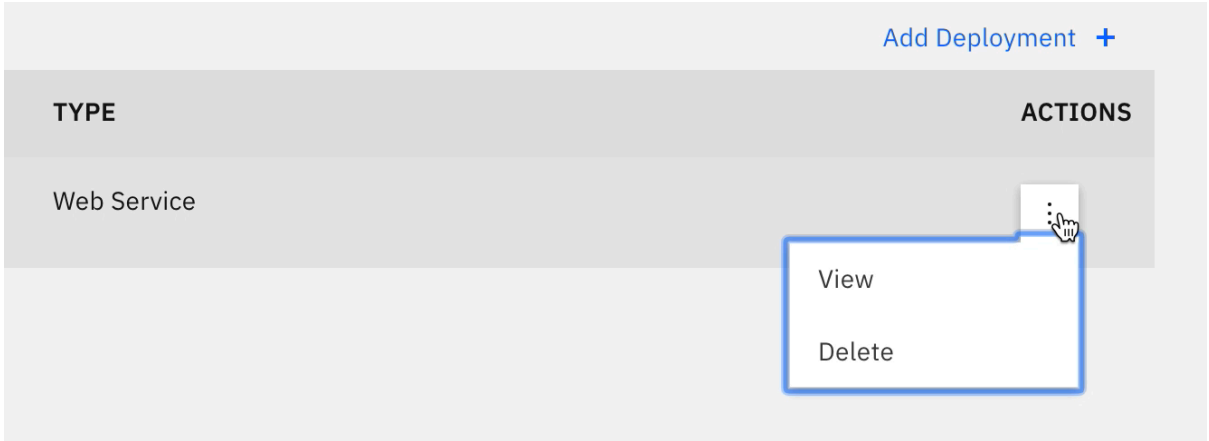


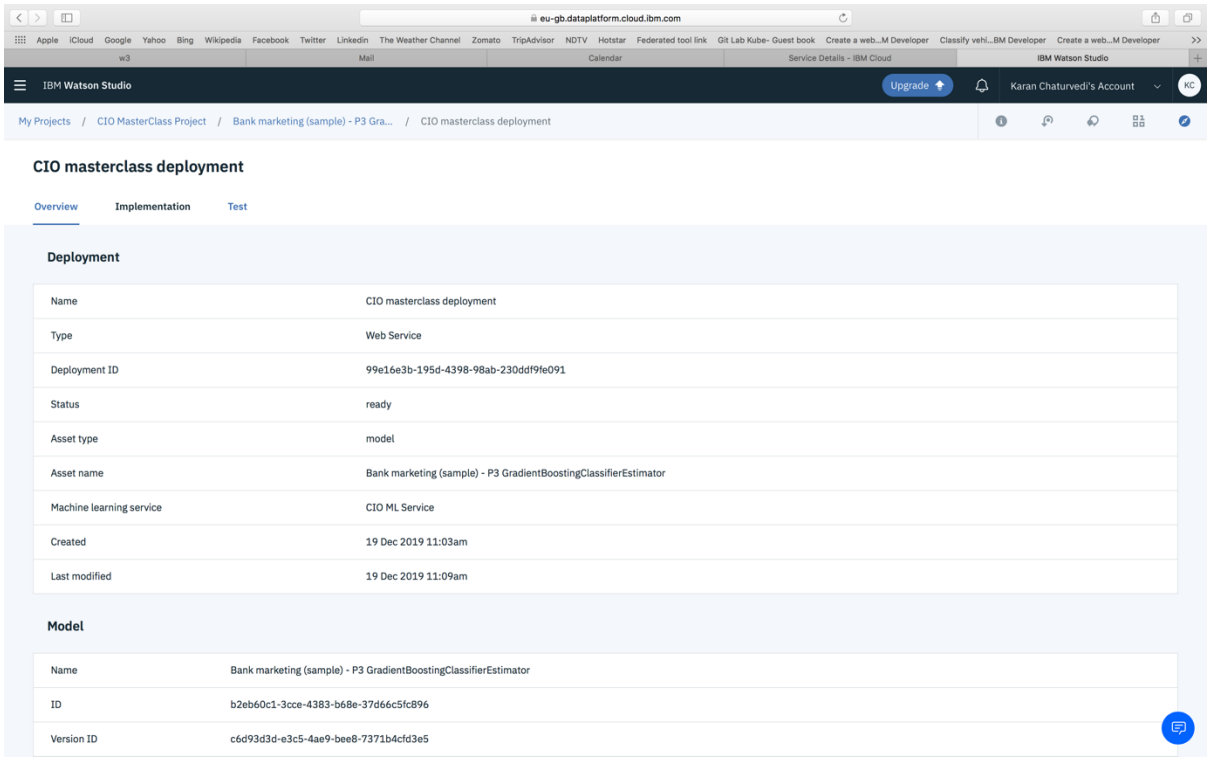

Note: Wait for couple of minutes for the status to become “Ready”



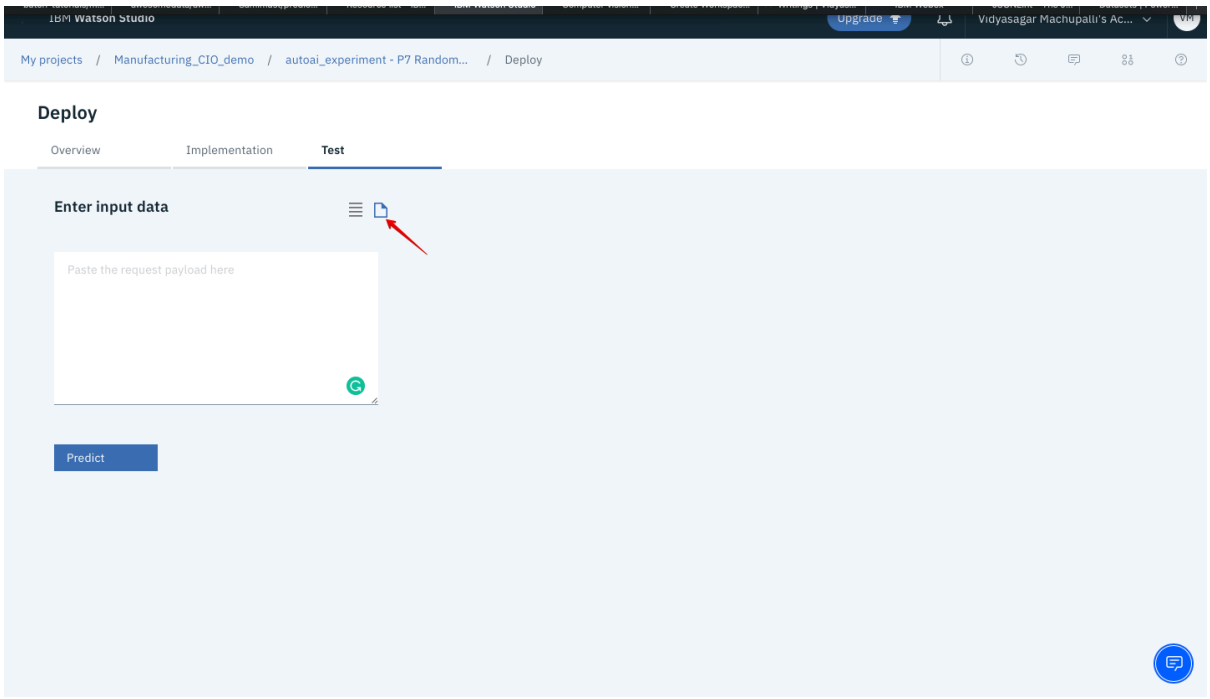

Once the Model is deployed, next step is to provide test data to validate the ML Model .

Click on “View”






To test the Model, select the test tab and select the json input option (red arrow ) as shown below:



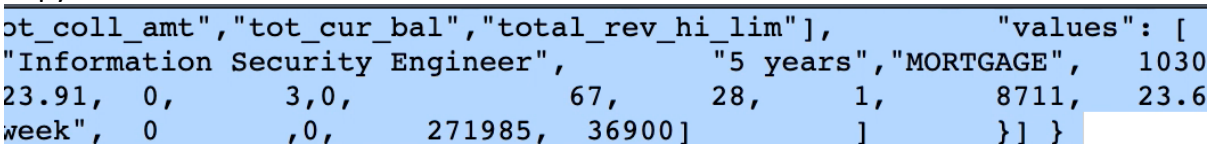

Input test data using the provided data in json format:<Check with Instructor for the json file,if the below data is not working due to syntax issue, if any>

https://github.com/IBMDevConnect/DBS2020/AI4Enterprise

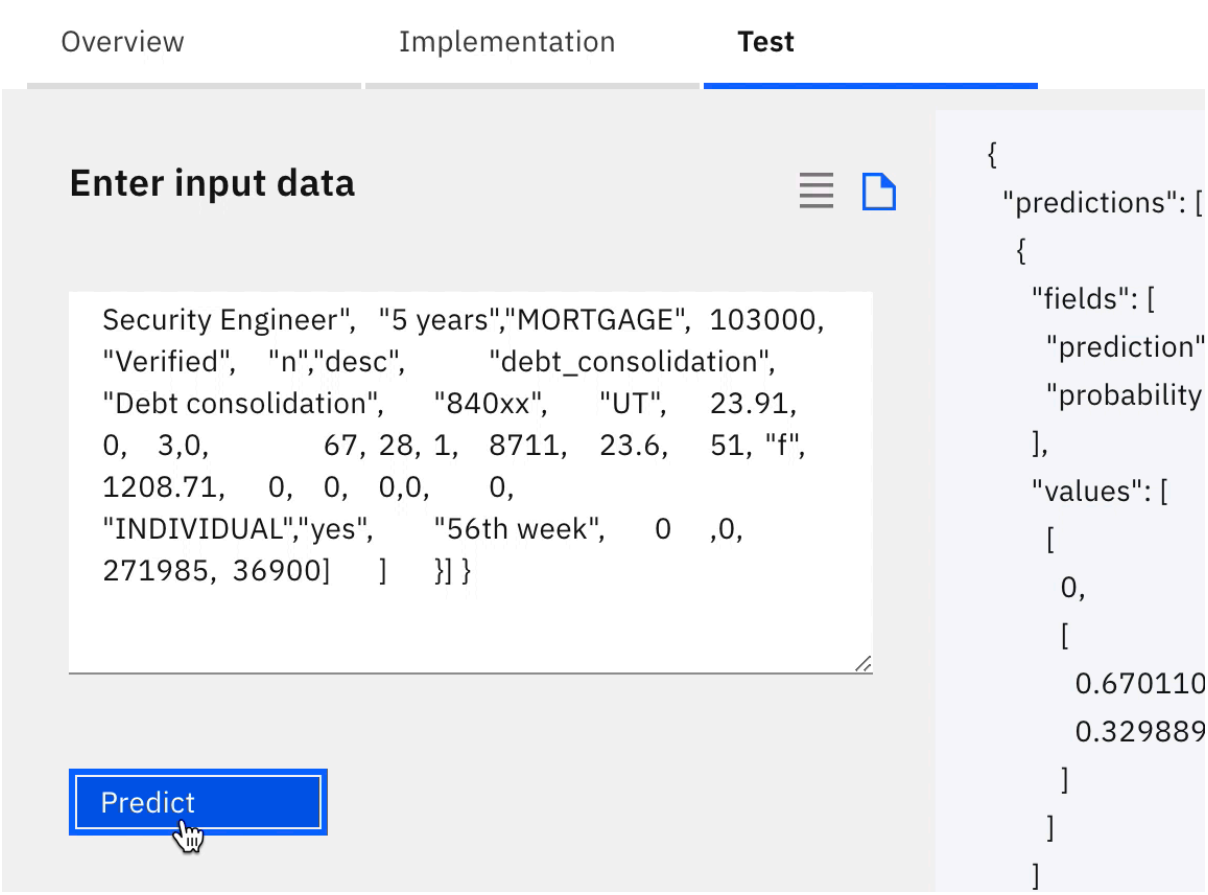
File Name - validate_data.json

Go to git and copy the json data in raw format:


Copy the content – ctrl-A




Go back to Watson Studio and paste the content . Proceed to ‘Predict”… see the response in json on the right side:




Congratulations..!!

Thank You !!