

# TRAIN THE ML MODEL ON IBM

The screenshot displays the IBM Watson Studio web interface. The browser tabs at the top include 'Welcome to Project!', 'IBM', 'Service Details - IBM', 'Sprint2 - IBM Watson', 'Inbox (1,871) - vasant', and 'WhatsApp'. The address bar shows the URL: `dataplatfom.cloud.ibm.com/analytcs/notebooks/v2/619087d4-24c2-4dcf-80eb-08e7f9e04cf?projectid=940785cf-d25c-4e59-b1fa-0ae0107f341&context=cpdaas`. The IBM Watson Studio header features a search bar, a 'Buy' button, and user information for 'Vasantha Devi P's Account' in 'Dallas'. The breadcrumb navigation indicates the current location: 'Projects / Water Quality Prediction / Sprint2'. The notebook interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Help) and a toolbar with icons for running, saving, and formatting. The notebook content is organized into sections: 'IMPORT THE LIBRARIES', 'UPLOADING THE DATASET', and 'READ THE DATASET'. The 'IMPORT THE LIBRARIES' section contains the following code:

```
In [ ]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from matplotlib import pyplot as pt
import seaborn as sns
import warnings
```

The 'UPLOADING THE DATASET' section contains the following code:

```
In [ ]: from google.colab import files
upload= files.upload()
```

Below the code, there is a 'Choose Files' button and a message: 'No file chosen'. A note states: 'Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.' Below this, it says 'Saving water\_dataX.csv to water\_dataX.csv'. The 'READ THE DATASET' section is currently empty. The bottom of the screen shows a Windows taskbar with the date '19-11-2022' and time '14:04'.

IBM Watson Studio interface showing a Jupyter Notebook with Python code for downloading data from IBM Cloud Object Storage.

```
In [2]: import os, types
import pandas as pd
from boto3.client import Config
import ibm_boto3

def __iter__(self): return 0

# @hidden_cell
# The following code accesses a file in your IBM Cloud Object Storage. It includes your credentials.
# You might want to remove those credentials before you share the notebook.
cos_client = ibm_boto3.client(service_name='s3',
                              ibm_api_key_id='xwzD-ey_iV0TOe-KJ8taunJCdW9whYvQn0r-fU3ses4',
                              ibm_auth_endpoint='https://iam.cloud.ibm.com/oidc/token',
                              config=Config(signature_version='oauth'),
                              endpoint_url='https://s3.private.us.cloud-object-storage.apddomain.cloud')

bucket = 'waterqualityprediction-donotdelete-pr-nlrvtjcbzpk8mx'
object_key = 'water_dataX.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)

data = pd.read_csv(body)
data.head()
```

Right sidebar (Data):

- Files: Upload one file at a time. All file types accepted. 5 GB max file size. Drag and drop files here or upload.
- water\_dataX.csv: Insert to code (pandas DataFrame, Credentials)

System tray: 27°C Mostly sunny, 14:13 19-11-2022

IBM Watson Studio interface showing the output of the Jupyter Notebook, displaying a table of water quality data.

```
In [ ]: data.head()
Out[30]:
```

	STATION CODE	LOCATIONS	STATE	Temp	D.O. (mg/l)	PH	CONDUCTIVITY (umhos/cm)	B.O.D. (mg/l)	NITRATENAN N+ NITRITENANN (mg/l)	FECAL COLIFORM (MPN/100ml)	TOTAL COLIFORM (MPN/100ml)Mean	year
0	1393	DAMANGANGA AT D/S OF MADHUBAN, DAMAN	DAMAN & DIU	30.6	6.7	7.5	203	NAN	0.1	11	27	2014
1	1399	ZUARI AT D/S OF PT. WHERE KUMBARJURIA CANAL JOL.	GOA	29.8	5.7	7.2	189	2	0.2	4953	8391	2014
2	1475	ZUARI AT PANCHAWADI	GOA	29.5	6.3	6.9	179	1.7	0.1	3243	5330	2014
3	3181	RIVER ZUARI AT BORIM BRIDGE	GOA	29.7	5.8	6.9	64	3.8	0.5	5382	8443	2014
4	3182	RIVER ZUARI AT MARCAIM JETTY	GOA	29.5	5.8	7.3	83	1.9	0.4	3428	5500	2014

HANDLING MISSING VALUES

Right sidebar (Data):

- Files: Upload one file at a time. All file types accepted. 5 GB max file size. Drag and drop files here or upload.
- water\_dataX.csv: Insert to code

System tray: 27°C Mostly sunny, 14:14 19-11-2022

cloud.ibm.com/iam/apikeys

## API keys

Create, view, and work with API keys that you have access to manage. IBM Cloud API keys are associated with a user's identity and can be used to access cloud platform and classic infrastructure APIs, depending on the access that is assigned to the user. The following table displays a list of API keys created in this account. [Learn more.](#)

Looking for more options to manage API Keys? Try [IBM Cloud® Secrets Manager](#) for creating and leasing API keys dynamically and storing them securely in your own dedicated instance.

View: My IBM Cloud API keys

API keys associated with a user's identity have the same access that the user is assigned across all accounts. To update the access for an API key, assign or remove access for the user.

Status	Name	Description	Date Created
	Keyvalue		2022-11-19 08:51 GMT

Items per page: 25 1-25 items Page 1

API key successfully created

Copy the API key or click download to save it. You won't be able to see this API key again, so you can't retrieve it later. The API key is no longer displayed after 286 seconds.

API key

.....

Copy Download

apikey.json Show all

27°C Mostly sunny

cloud.ibm.com/iam/apikeys

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Items per page: 25 1-25 items Page 1

cloud.ibm.com/cloudpaks/data/services

### IBM Cloud

Search resources and products...

## Cloud Pak for Data services

[Launch Cloud Pak for Data](#)

Name	Group	Location	Product	Status	Tags
Cloud Object Storage-wj	Default	Global	Cloud Object Storage	Active	
Watson Studio-wy	Default	Dallas	Watson Studio	Active	
Watson Machine Learning-ja	Default	Dallas	Watson Machine Learning	Active	

Items per page: 25 1-3 of 3 items 1 1 of 1 page

pythonProject.zip pythonProject.rar apikey.json Show all

27°C Mostly sunny

dataplatform.cloud.ibm.com/ml-runtime/spaces/create-space?context=cpdaas

### IBM Watson Studio

Search in your workspaces

## New deployment space

Use a space to collect assets in one place to create, run, and manage deployments

**Define details**

Name: Models

Description (Optional):

Deployment space description:

Deployment space tags (optional):

The space is being prepared...

The space "Models" is being created.

Step 1 of 1. Creating deployment space.

Close View new space

**Upload space assets (optional)**

Populate your space with assets exported from a project or space to a .zip file. You can add more assets after the space is created.

Cancel Creating

pythonProject.zip pythonProject.rar apikey.json Show all

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Welcome to Project | IBM | IBM Watson Studio | Service Details - IBM | Inbox (1,871) - vasanthi | (1) WhatsApp

← → ↻ dataplatform.cloud.ibm.com/ml-runtime/spaces/6e50cf07-8117-41db-97ee-c7062f1aac43/manage?context=cpdaas

IBM Watson Studio | Search in your workspaces | Buy | ? | 🔔 | Vasantha Devi P's Account | Dallas | VP

Deployments /

Models

Overview | Assets | Deployments | Jobs | Manage

General

Access control

Environments

Description

No description provided.

Space GUID

6e50cf07-8117-41db-97ee-c7062f1a...

Date created

Nov 19, 2022, 2:47 PM

by Vasantha Devi P (You)

Last updated

Nov 19, 2022, 2:48 PM

Deployment space tags

No tags are set to this space.

Name

Cloud Object Storage-wj

Bucket

9065c9bc-43a1-45c8-83eb-1220a25ee1fe

Machine learning service

Watson Machine Learning-ja

Danger Zone

Drop files here or browse for files to upload.

Stay on the page until upload completes. Incomplete uploads are cancelled.

pythonProject.zip | pythonProject.rar | apikey.json

Show all

27°C Mostly sunny

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ENG IN 📶 📶 📶 14:58 19-11-2022 16