

Train Model on IBM

Date	14 - November - 2022
Team ID	PNT2022TMID14329
Project Name	Car Resale value Prediction

1. Training the ML Model in IBM Watson Studio:

The screenshot displays the IBM Watson Studio dashboard with a dark theme. At the top, there are three main navigation sections: 'Take a tutorial' (with a link to 'Step through implementing a Data fabric use case in a sample project'), 'Work with data' (with a link to 'Create a project for your team to prepare data, find insights, or build models'), and 'Learn what's new' (with a link to 'Stay current with new features, enhancements, and other changes.'). Below these, the dashboard is divided into several panels. On the left, a 'Quick start' panel lists five tasks: 'Create data pipelines with DataStage', 'Build customer profiles with IBM Match 360 with Watson', 'Catalog and govern data with Watson Knowledge Catalog', 'Build and manage ML models with Watson Studio', and 'Query data anywhere with Watson Query'. The main area features a 'Projects' panel showing a project named 'car resale value prediction-Deployment' with a status of 'Nov 14, 2022 12:18 PM'. To the right of the projects panel is a 'New in gallery' section for a 'SAMPLE PROJECT' titled 'AI governance', which includes a description of the project's goal. Further right, a 'Notifications' panel shows two 'Online deployment ready' messages. The first notification states 'The online deployment Model Building in space models is ready to accept requests' and is dated 'Yesterday at 10:26 PM'. The second notification states 'The online deployment newdeployment in space models is ready to accept requests' and is dated 'Nov 14, 2022 12:50 PM'. On the far right, a 'Deployments' panel shows a deployment named 'models' with a status of 'Nov 14, 2022 12:48 PM'. At the bottom left, a 'What's new' section mentions 'New Runtime 2022 release for Python 3.10'. A 'Feedback' button is visible on the right side of the dashboard.

Take a tutorial
Step through implementing a Data fabric use case in a sample project.

Work with data
Create a project for your team to prepare data, find insights, or build models.

Learn what's new
Stay current with new features, enhancements, and other changes.

Quick start

- Create data pipelines with DataStage
- Build customer profiles with IBM Match 360 with Watson
- Catalog and govern data with Watson Knowledge Catalog
- Build and manage ML models with Watson Studio
- Query data anywhere with Watson Query

What's new
New Runtime 2022 release for Python 3.10

Projects

- car resale value prediction-Deployment
Nov 14, 2022 12:18 PM

New in gallery

SAMPLE PROJECT

AI governance

Tutorials in this project: Build and deploy a machine learning model to predict which applicants qualify for mortgages; Test and validate the model for fairness, accuracy, trustworthiness, and readiness for production.

Notifications

- Online deployment ready
The online deployment Model Building in space models is ready to accept requests
Yesterday at 10:26 PM
- Online deployment ready
The online deployment newdeployment in space models is ready to accept requests
Nov 14, 2022 12:50 PM

Deployments

- models
Nov 14, 2022 12:48 PM

Feedback

2. Model for Vehicle performance has been created using Jupyter Notebook.

The screenshot displays the 'Assets' tab in the Azure Machine Learning interface for a project named 'car resale value prediction-Deplo...'. The interface includes a top navigation bar with 'Overview', 'Assets', 'Jobs', and 'Manage' tabs. Below the navigation bar, there is a search bar labeled 'Find assets' and buttons for 'Import assets' and 'New asset'. A left sidebar shows 'Asset types' with 'Data' (3 items) and 'Notebooks' (2 items). The main area, titled 'All assets', contains a table with the following data:

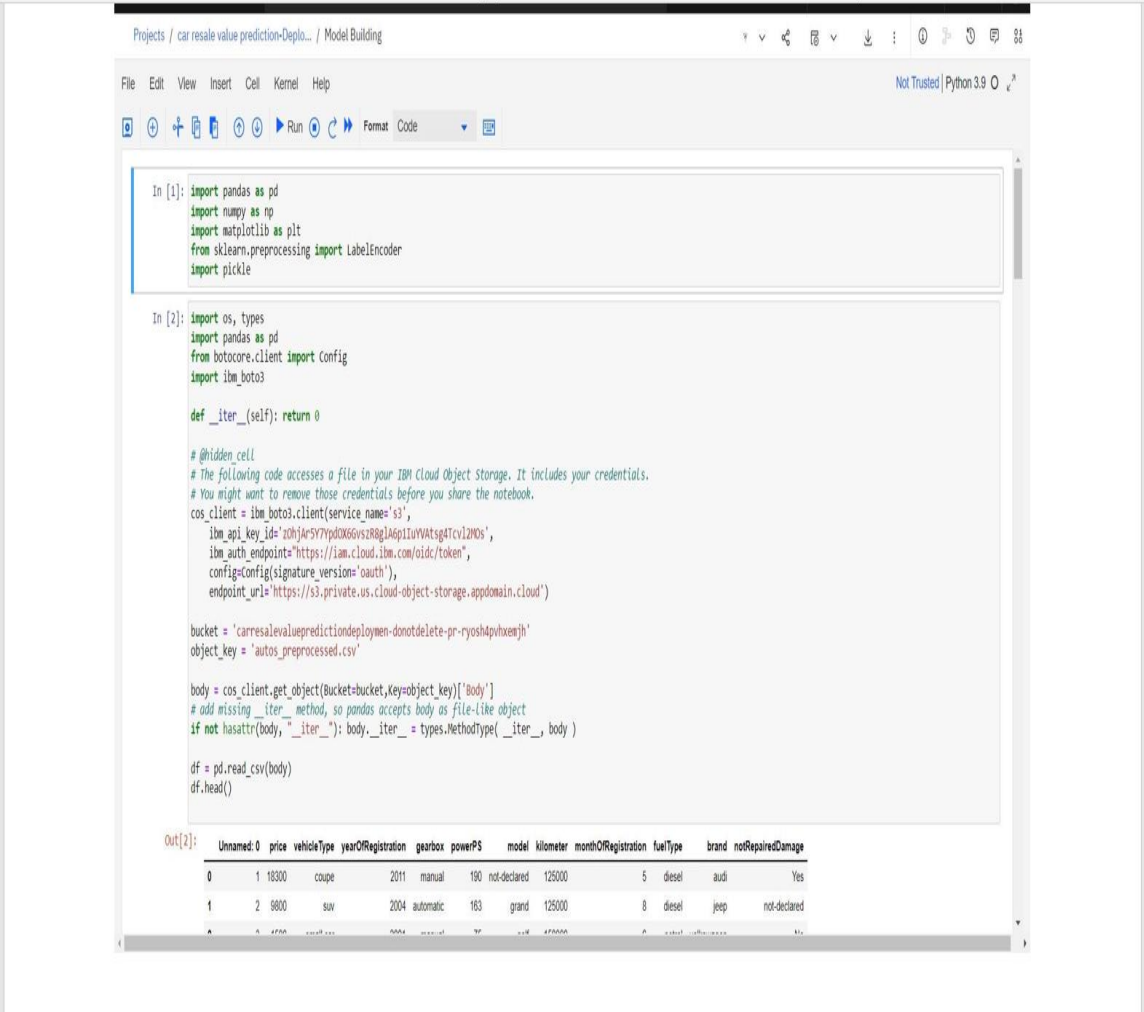
Name	Last modified
Model Building Notebook	21 hours ago Modified by you
autos_preprocessed.csv	3 days ago Modified by you
autos.csv	3 days ago Modified by you
Churn Modelling Deployment (1) Notebook	4 days ago Modified by you
Churn_Modelling.csv	4 days ago Modified by you

At the bottom of the table, it indicates 'Items per page: 20' and '1-5 of 5 items'. On the right side, there is a 'Data in this project' section with a placeholder for uploading data files.

Dataset: Autos.csv

Autos_Preprocessed.csv

Churn_Modeling.css



```
In [1]: import pandas as pd
import numpy as np
import matplotlib as plt
from sklearn.preprocessing import LabelEncoder
import pickle

In [2]: import os, types
import pandas as pd
from boto3.client import Config
import 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 = boto3.client(service_name='s3',
                           ibm_api_key_id='20hj4r5V77pD0X6GvsZ88gIA6p1UuVWAtsg4Tcvl2W0s',
                           ibm_auth_endpoint='https://iam.cloud.ibm.com/oidc/token',
                           config=Config(signature_version='oauth'),
                           endpoint_url='https://s3.private.us.cloud-object-storage.appdomain.cloud')

bucket = 'carresalevaluepredictiondeployment-donotdelete-pr-ryosh4pvhxenj'
object_key = 'autos_preprocessed.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 = pd.read_csv(body)
df.head()
```

Out[2]:

	Unnamed: 0	price	vehicleType	yearOfRegistration	gearbox	powerPS	model	kilometer	monthOfRegistration	fuelType	brand	notRepairedDamage
0	1	18300	coupe	2011	manual	190	not-declared	125000	5	diesel	audi	Yes
1	2	9800	suv	2004	automatic	183	grand	125000	8	diesel	jeep	not-declared

3. Model for Car Resale Model has been created using Jupyter Notebook and Deployed under “models” space.

Deployments /

models

Overview

Assets

Deployments

Jobs

Manage

▽

Q

Search

Name	Type	Status	Asset	Last modified	↓
Model Building	Online	Deployed	Model Building	20 hours ago KARTHIKEYAN H (You)	
newdeployment	Online	Deployed	Churn_modeling	4 days ago KARTHIKEYAN H (You)	

Items per page: 20

1-2 of 2 items

1 of 1 pages

Deployments / models / Model Building /

Model Building

API reference

Test

Direct link

Endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/19a1e3eb-f54b-4289-848d-9b646b59f914/predictions?version=

Bearer <token>

IAM

Code snippets

cURL

Java

JavaScript

Python

Scala

```
import requests

# NOTE: you must manually set API_KEY below using information retrieved from your IBM Cloud account.
API_KEY = "<your API key>"
token_response = requests.post('https://iam.cloud.ibm.com/identity/token', data={"apikey":
API_KEY, "grant_type": 'urn:ibm:params:oauth:grant-type:apikey'})
mltoken = token_response.json()["access_token"]

header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}

# NOTE: manually define and pass the array(s) of values to be scored in the next line
payload_scoring = {"input_data": [{"fields": [array_of_input_fields], "values": [array_of_values_to_be_scored, another_array_of_value

response_scoring = requests.post('https://us-south.ml.cloud.ibm.com/ml/v4/deployments/19a1e3eb-f54b-4289-848d-9b646b59f914/prediction
headers={'Authorization': 'Bearer ' + mltoken})
```

Model Building

Created

Nov 17, 2022, 10:26 PM

Updated

Nov 17, 2022, 10:26 PM

Deployment ID

19a1e3eb-f54b-4289-848d-9064...

Software specification

runtime-22.1-py3.9

Copies

1

Serving name

No serving name.

Description

No description provided.

Tags

Add tags to make assets easier to find.

Associated asset

Model Building

11f603fb-8bf7-42d5-8e67-56ea7...

Model ID

11f603fb-8bf7-42d5-8e67-56ea7...