

IBM WATSON MODEL DEVELOPMENT SEQUENCE

Date	18 November 2022
Team ID	PNT2022TMID18994
Project Name	Project - Real Time Communication System Powered by AI for Specially Abled
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Team Member	Oruganti Mahesh Babu
	Mukesh.M
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IBM CLOUD LOGIN

The screenshot displays the IBM Cloud Dashboard. At the top, the 'Dashboard' title is on the left, and navigation links for 'Edit dashboard', 'Upgrade account', and 'Create resource' are on the right. The main content area is titled 'For you' and features a horizontal scrollable list of cards. The first card, 'Build', is highlighted in blue and describes exploring IBM Cloud with easy starter tutorials. Subsequent cards include 'Set up your IBM Cloud account' (10 min), 'Build a web app with Watson Speech to Text' (15 min), 'Get Started with Watson Studio' (2 hr), and 'Build a Virtual Private Cloud (VPC)' (7 min). A 'Create' card is partially visible on the right. Below this section, there are three panels: 'User access' with a 'Manage users' link, 'News' with a 'View all' link and a headline about IBM Storage's price guarantee, and 'Planned maintenance' with a 'View all' link. The bottom of the image shows a Windows taskbar with a search bar, various application icons, and system status information including the time (21:24) and date (10-11-2022).

Dashboard ▾ Edit dashboard ↗ Upgrade account Create resource +

For you Select an option ▾

Build
Explore IBM Cloud with this selection of easy starter tutorials and services.

Set up your IBM Cloud account
Learn how to set up your IBM Cloud account, manage your account settings, organize resources, and control access to those resources.
Getting started 10 min

Build a web app with Watson Speech to Text
Deploy a conversational interface compatible with any application, device, or channel.
Getting started 15 min

Get Started with Watson Studio
Get started with using AI and Cloud Object Storage in 15 minutes.
Popular 2 hr

Build a Virtual Private Cloud (VPC)
Upgrade to a paid account to create your own protected space in the IBM Cloud.
Getting started 7 min

Create
Deploy available on IBM Cloud.
Getting started

User access Manage users
Enter email addresses below to jump directly into the invite user setup:

News View all
All About IBM Storage's Price and Supply Guarantee
IBM Tech Now: November 7, 2022

Planned maintenance View all

Type here to search

21:24
10-11-2022

WATSON STUDIO FOR ML

Resource list /

Watson Machine Learning-iy


Active cpdaas

Details Actions...

Manage

Plan


Connections



Watson Machine Learning in Cloud Pak for Data

Use Watson Machine Learning on Cloud Pak for Data to put AI models to work. Deploy, monitor, and update models to get the insights you need from your data modeling.

Launch in IBM Cloud Pak for Data



IBM Watson Machine Learning in Cloud Pak for Data

IBM Cloud Pak for Data Unifying platform

IBM Cloud Base cloud infrastructure

IBM Watson Machine Learning is part of IBM Cloud Pak for Data and serves as the data science capability of the data fabric architecture.

Helpful links

Documentation

Learn about the tools and capabilities you

Learning path

Check out sample projects, notebooks, and

Videos

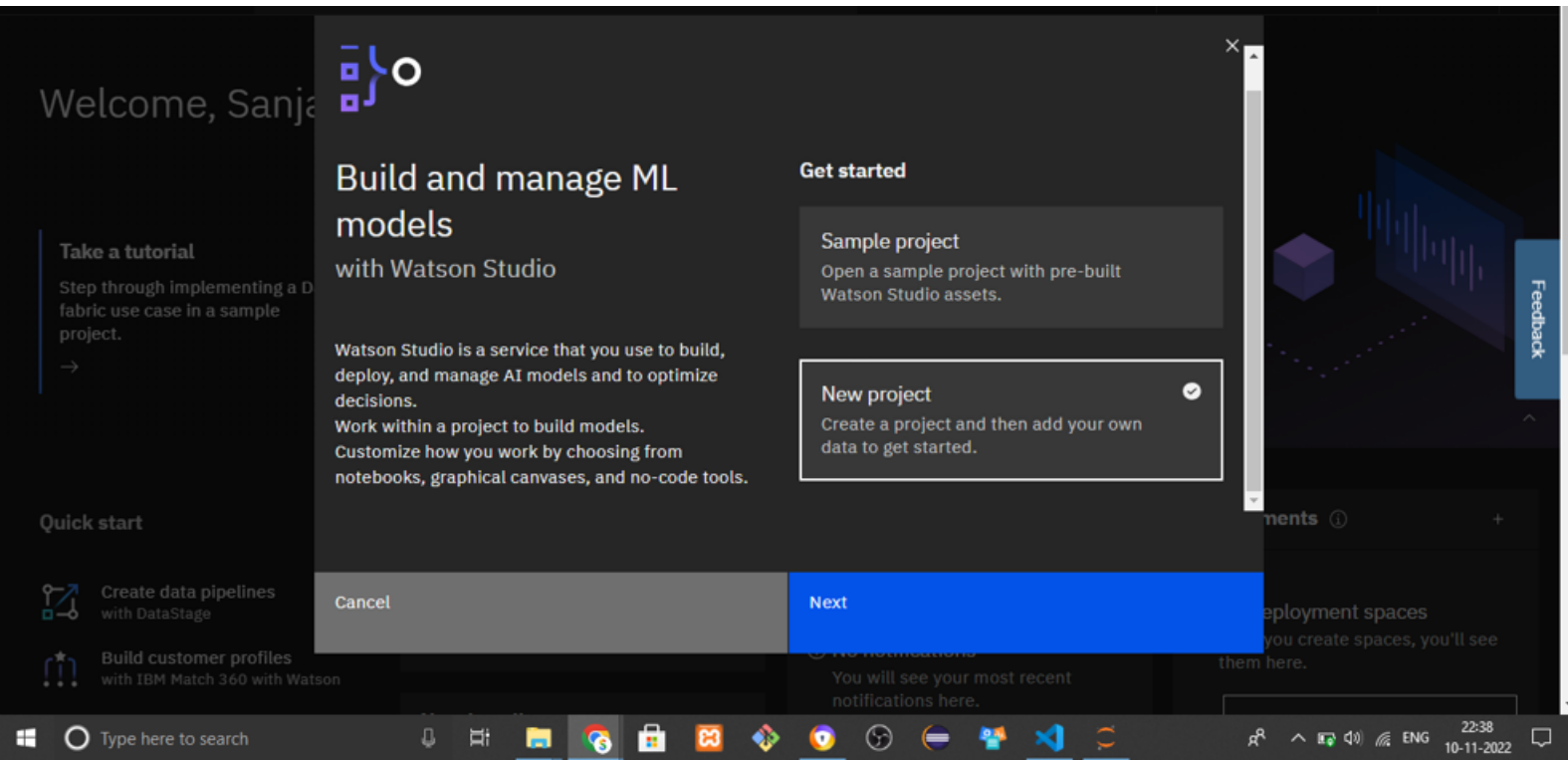
Watch videos to learn about Watson

https://dataplatform.cloud.ibm.com/registration/steptwo?apps=watson_machine_learning&sync_account_id=eac4242ca7ea43918d2fe8c6433f6a098&redirectIfAccountExists=True&S_PKG=ov70815&uucid=0040c3bca900ede1&cm_mmca1=000038LA...

Type here to search

22:38 10-11-2022

CREATING NEW PROJECT



NEW PROJECT DESCRIPTION

New project

Define details

Name

Real Time Communication For Specially Abled People

Description

The project deals on building an application which helps the specially challenged people to communicate between them and the common people. Communication between a person with hearing/speech impairment and a normal person has always been a challenging task. This application tries to reduce the barrier of communication by

Storage

Cloud Object Storage-sm

Choose project options

☐ Restrict who can be a collaborator ⓘ

☐ Mark as sensitive ⓘ

Cancel

Create

LINKING CLOUD OBJECT SERVICE

Services catalog /

Cloud Object Storage

Author: IBM • Date of last update: Jul 6, 2022 • [Docs](#) • [API Docs](#)

Create About

workloads.

Configure your resource

Service name

Cloud Object Storage-mv

Select a resource group

Default

Tags

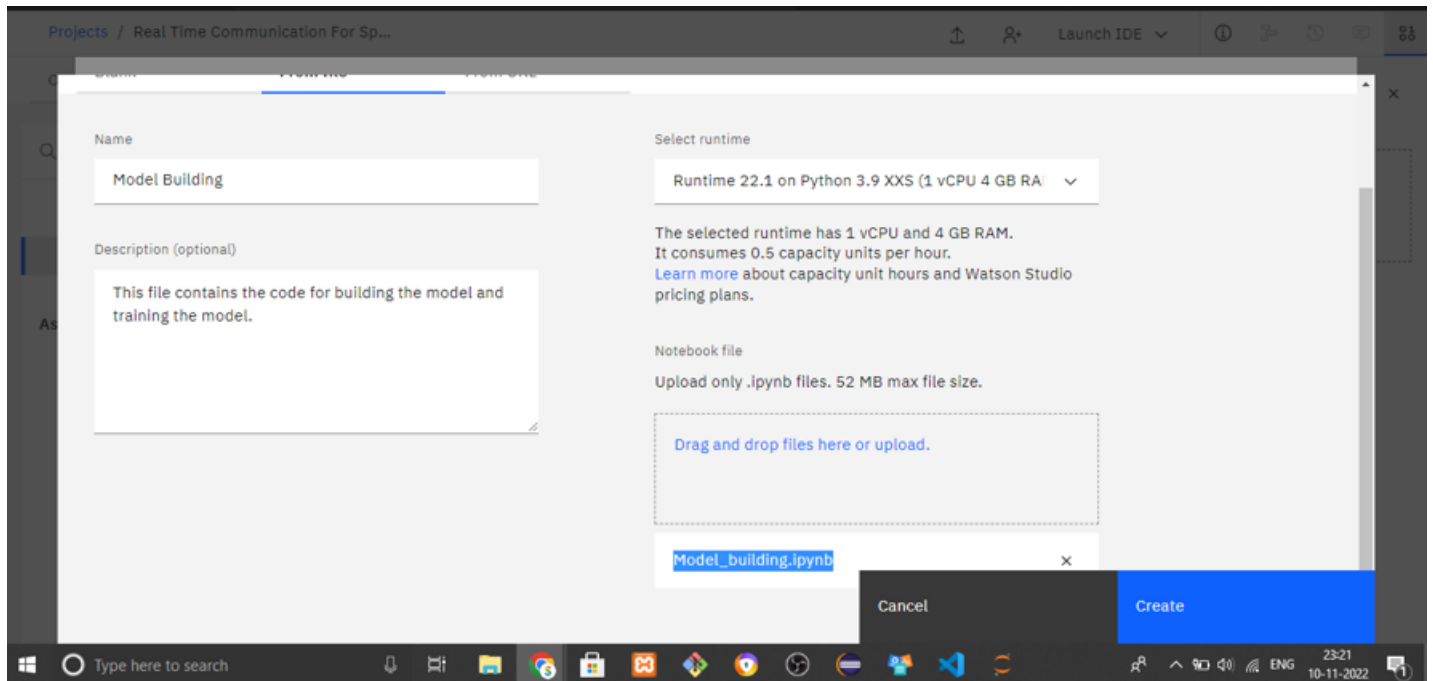
Examples: env:dev, version-1

Creating...

[View terms](#)

18:06
11-11-2022

UPLOADING THE PYTHON FILES



LINKING WATSON MACHINE LEARNING

The screenshot shows the IBM Watson Machine Learning service catalog page. The page is titled "Watson Machine Learning" and includes a "Create" button. The "Summary" section on the right lists the following details:

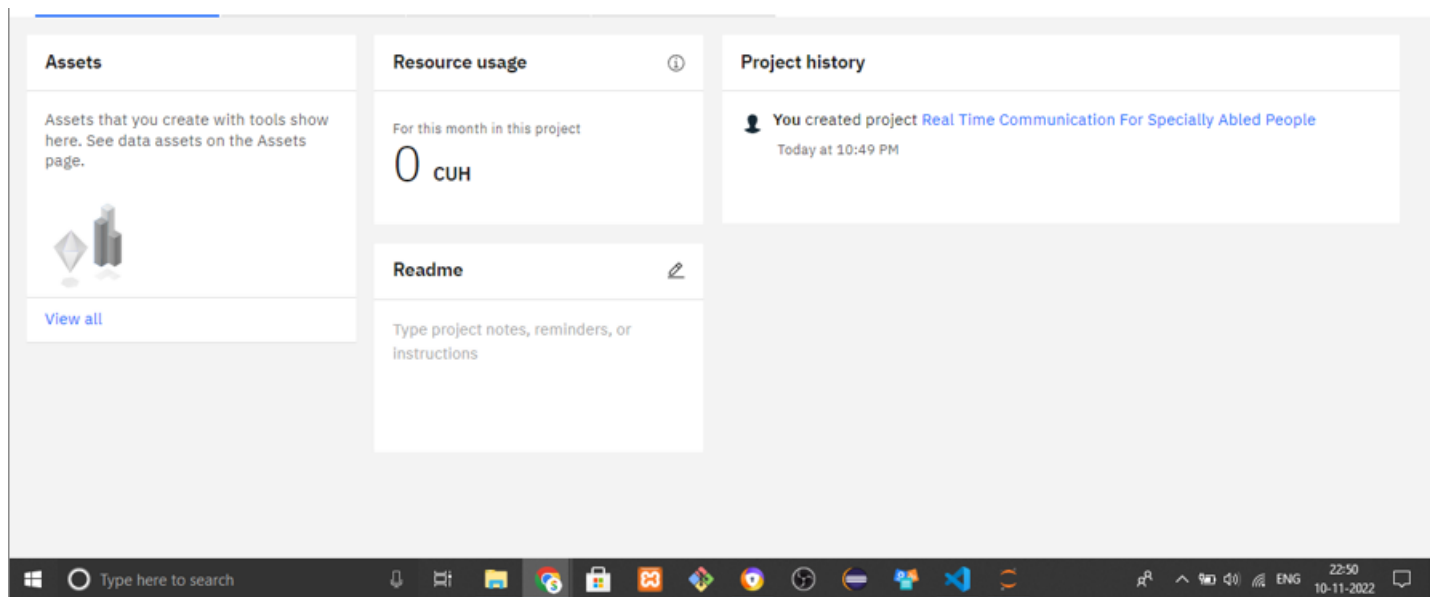
- Region: Dallas
- Plan: Lite
- Service name: Watson Machine Learning-ut
- Resource group: Default

The "Pricing plan" section shows a table with the following data:

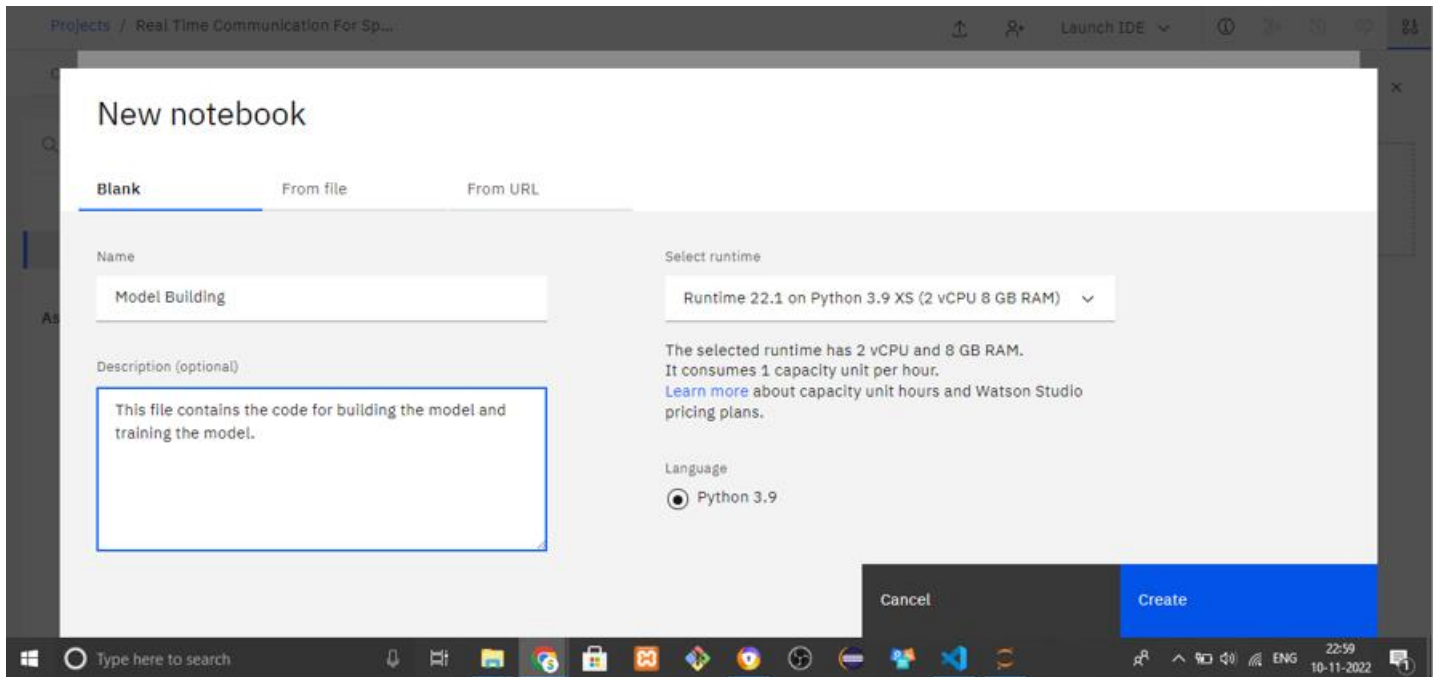
Plan	Features	Pricing
Lite	Service Instance 20 capacity unit-hours (CUH) included:	Free

The page also includes a "Select a region" dropdown menu with "Dallas" selected. The bottom of the page shows the Windows taskbar with the time 17:39 and date 11-11-2022.

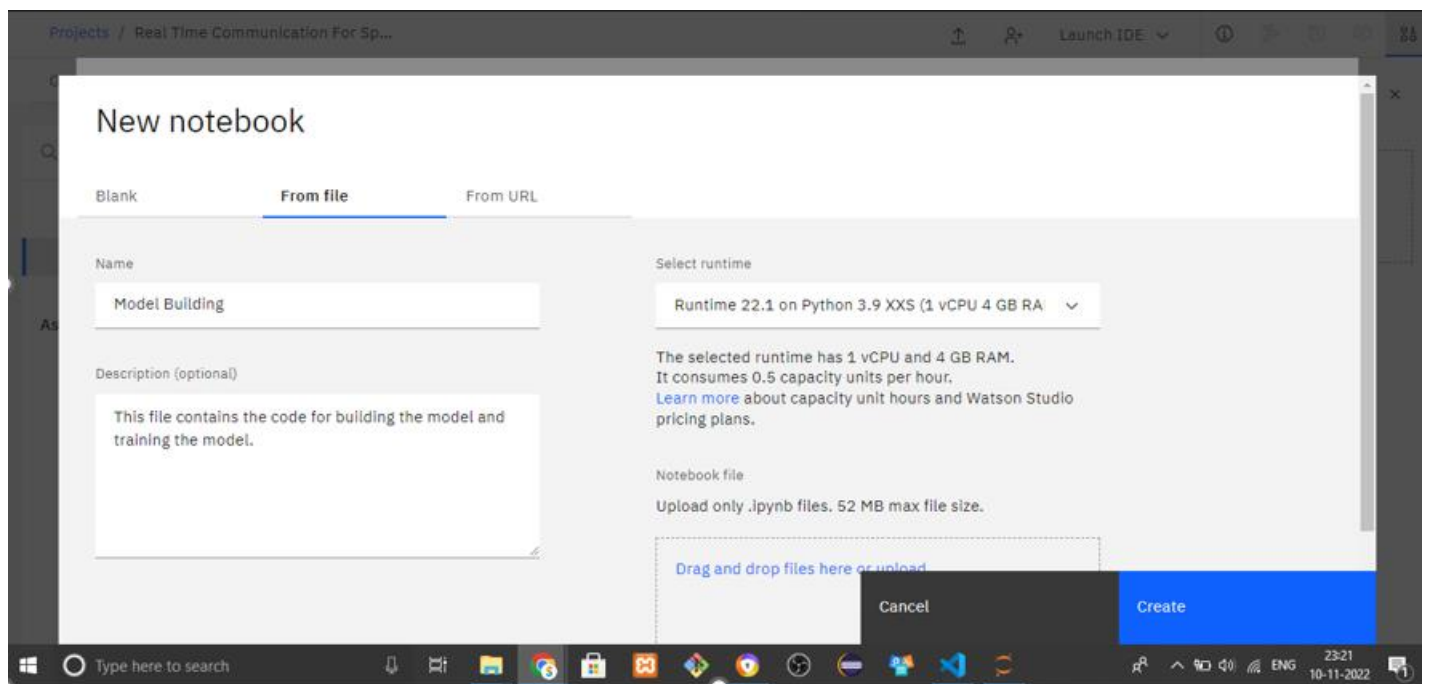
ADDING ASSETS TO PROJECT



CREATING JUPYTER EDITOR



UPLOADING JUPYTER FILE ON EDITOR



ADDING STREAMING BODY

The screenshot displays a Jupyter Notebook environment within a web browser. The notebook is titled "Projects / Real Time Communication for sp... / Model Building". The code in the cell is as follows:

```
In [100]:
import os, types
import pandas as pd
from botocore.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='aqprHZFuH38ECUn869hHk4qyvS_IKJfrZAMUJJQ-mQKx',
                              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 = 'realtimecommunicationforspecially-donotdelete-pr-rfqndcvwch6fu'
object_key = 'Dataset.zip'

streaming_body_4 = cos_client.get_object(Bucket=bucket, Key=object_key)['Body']

# Your data file was loaded into a botocore.response.StreamingBody object.
# Please read the documentation of ibm_boto3 and pandas to learn more about the possibilities to load the data.
# ibm_boto3 documentation: https://ibm.github.io/ibm-cos-sdk-python/
# pandas documentation: http://pandas.pydata.org/
```

On the right side of the interface, there is a "Data" panel with a "Files" tab. It contains the text: "Upload one file at a time. All file types accepted. 5 GB max file size." Below this, there is a dashed box with the text: "Drag and drop files here or upload." Underneath, two files are listed: "1.png" and "Dataset.zip", each with an "Insert to code" button.

The bottom of the image shows a Windows taskbar with the search bar, task view button, and several application icons. The system clock in the bottom right corner shows the time as 23:46 on 11-11-2022.

MODEL FITTING

```
File Edit View Insert Cell Kernel Help Not Trusted | Python 3.9
In [14]: model.add(Dense(units=512, activation='relu'))
In [15]: model.add(Dense(units=9, activation='softmax'))
In [16]: model.compile(loss='categorical_crossentropy', optimizer='adam', metrics=['accuracy'])
In [17]: model.fit_generator(x_train, steps_per_epoch=24, epochs=10, validation_data=x_test, validation_steps=40)

/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: UserWarning: "Model.fit_generator" is deprecated and will be removed in a future version. Please use "Model.fit", which supports generators.
    """Entry point for launching an IPython kernel.

Epoch 1/10
24/24 [=====] - 17s 666ms/step - loss: 1.9786 - accuracy: 0.5628
Epoch 2/10
24/24 [=====] - 16s 662ms/step - loss: 1.4525 - accuracy: 0.6621
Epoch 3/10
24/24 [=====] - 16s 676ms/step - loss: 0.9580 - accuracy: 0.6842
Epoch 4/10
24/24 [=====] - 16s 675ms/step - loss: 0.7876 - accuracy: 0.7248
Epoch 5/10
24/24 [=====] - 16s 659ms/step - loss: 0.6183 - accuracy: 0.7488
Epoch 6/10
24/24 [=====] - 16s 663ms/step - loss: 0.5085 - accuracy: 0.8054
Epoch 7/10
24/24 [=====] - 17s 679ms/step - loss: 0.4164 - accuracy: 0.8904
Epoch 8/10
24/24 [=====] - 18s 723ms/step - loss: 0.3488 - accuracy: 0.8994
Epoch 9/10
24/24 [=====] - 16s 659ms/step - loss: 0.2641 - accuracy: 0.9536
Epoch 10/10
24/24 [=====] - 16s 664ms/step - loss: 0.1676 - accuracy: 0.9672

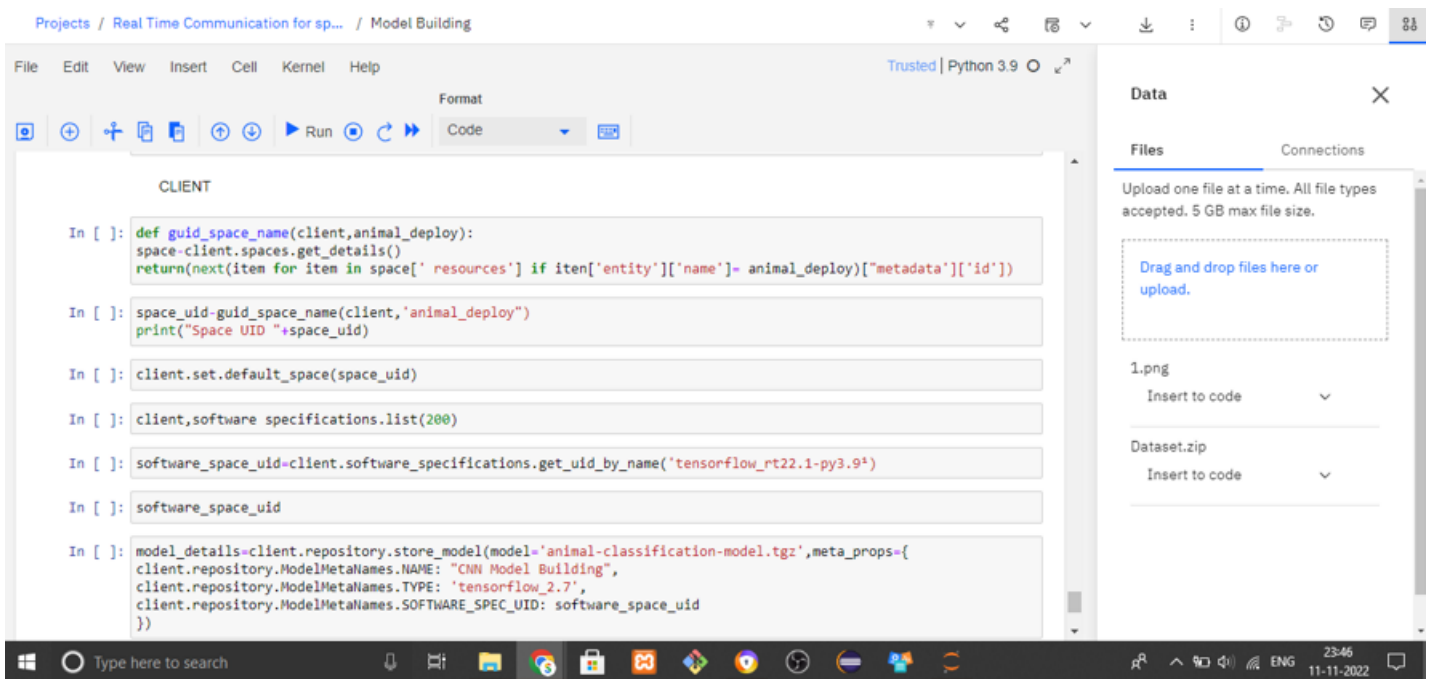
Out[17]: <keras.callbacks.History at 0x7f8d786377d0>

In [18]: model.save("RSL.h5")

In [ ]:
```

MODEL FITTING

CLIENT SOFTWARE



Spyder (Python 3.9)

File Edit Search Source Run Debug Consoles Projects Tools View Help

C:\Users\ELCOT\jupyter\untitled2.py

```
1 import cv2 #importing opencv Library this i to open camera and take the video
2 import numpy as np # to convert image to array and expand dimensions
3 from tensorflow.keras.models import load_model # to Load the saved model
4 from tensorflow.keras.preprocessing import image # to preprocess the image
5 model = load_model("dataset.h5") # we are loading the saved moodek
6 video = cv2.VideoCapture(0) # two parameters 1, bool 0 or 1, frame
7 index = ["A","B","C","D","E"]
8 index=['A','B','C','D','E','I']
9 #from playsound import playsound
10 while(1):
11     success,frame = video.read()
12     cv2.imwrite("image.jpg",frame)
13     img = image.load_img("image.jpg",target_size = (64,64))
14     x = image.img_to_array(img)
15     x = np.expand_dims(x,axis = 0)
16     pred = np.argmax(model.predict(x),axis=1)
17     p = index [pred[0]]
18     print("detected animal is: "+ str(p))
19     #playsound("animal"+str(str(index [p])+"is detected"))
20     cv2.putText (frame, "predicted animal is "+str(p), (100, 100), cv2. FONT_HERSHEY_SIMPLEX,
21                 (0,0,0), 4)
22     cv2.imshow("showcasewindow", frame)
23
24     if cv2.waitKey(1) & 0xFF == ord('a'):
25         break
26 video.release()
27 cv2.destroyAllWindows()
```

Source Console Object

Usage

Here you can get help of any object by pressing **Ctrl+I** in front of it, either on the Editor or the Console.

Help can also be shown automatically after writing a left parenthesis next to an object. You can activate this behavior in *Preferences > Help*.

New to Spyder? Read our [tutorial](#)

Help Variable Explorer Plots Files

Console 1/A x

In [3]: |

DEPLOYING JUPYTER

IPython console History

LSP Python: ready conda (Python 3.9.7) Line 8, Col 29 UTF-8 CRLF RW Mem 61%

Type here to search

01:12 11-11-2022