

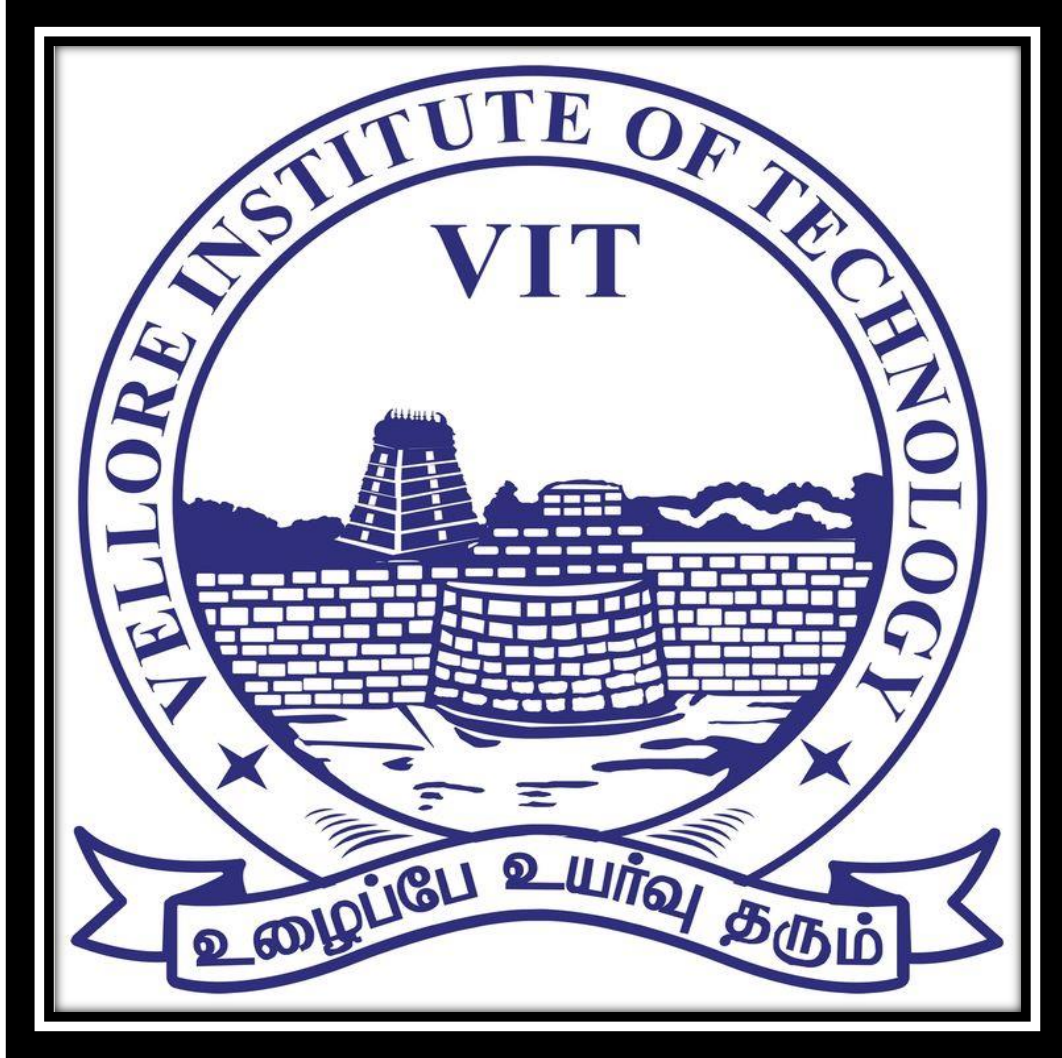


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### DEEP LEARNING LAB

### LAB ASSIGNMENT – 1

### FACULTY: DR. HARINI.S



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### BCSE332P - DL Lab

### Lab 1 - DL Lab Assignment

#### SCREENSHOTS OF THE MNIST DATASET:

```
import tensorflow
from tensorflow.keras import layers, models
from tensorflow.keras.datasets import mnist
from tensorflow.keras.utils import to_categorical

# Load the MNIST dataset
(train_images, train_labels), (test_images, test_labels) = mnist.load_data()

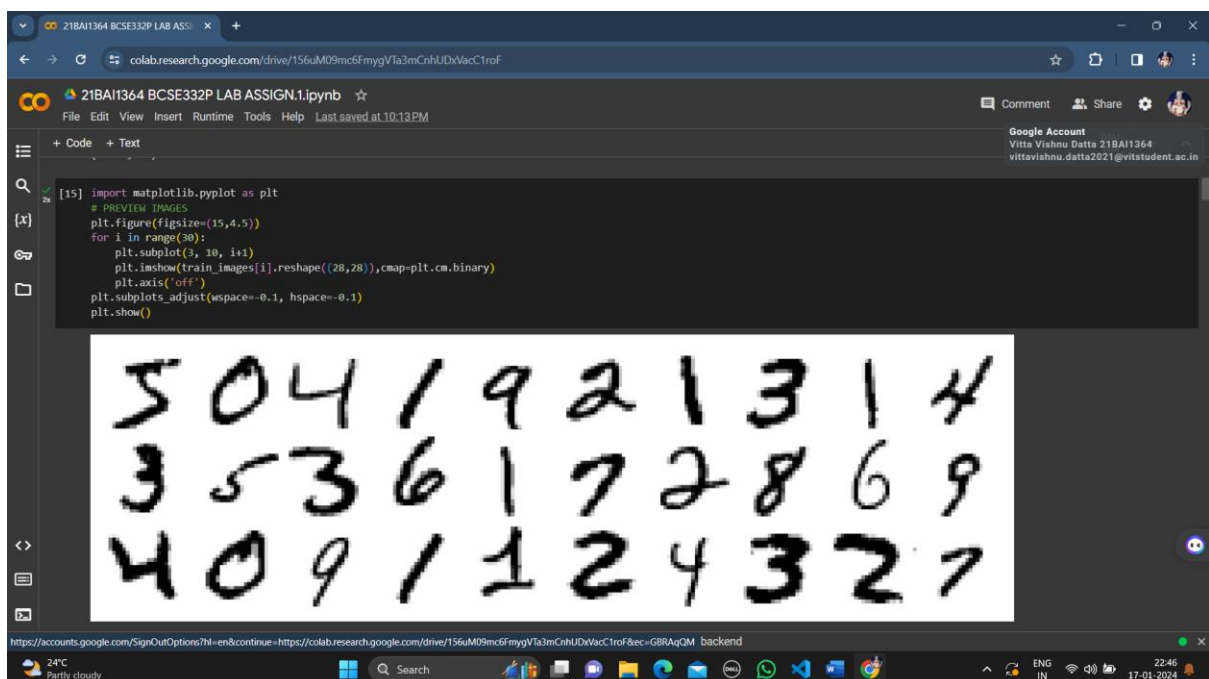
# Preprocess the data
train_images = train_images.reshape((60000, 28, 28, 1)).astype('float32') / 255
test_images = test_images.reshape((10000, 28, 28, 1)).astype('float32') / 255
train_labels = to_categorical(train_labels)
test_labels = to_categorical(test_labels)

# Print shapes
print(train_images.shape)
print(train_labels.shape)
print(test_images.shape)
print(test_labels.shape)

# Preview images
plt.figure(figsize=(15,4.5))
for i in range(10):
    plt.subplot(3, 10, i+1)
    plt.imshow(train_images[i].reshape((28,28)), cmap=plt.cm.binary)
    plt.axis('off')
plt.subplots_adjust(wspace=0.1, hspace=0.1)
plt.show()
```

Downloading data from https://storage.googleapis.com/tensorflow/tf-keras-datasets/mnist.npz 11490434/11490434 [-----] - 0s 0us/step

(60000, 28, 28, 1)  
(60000, 10)  
(10000, 28, 28, 1)  
(10000, 10)

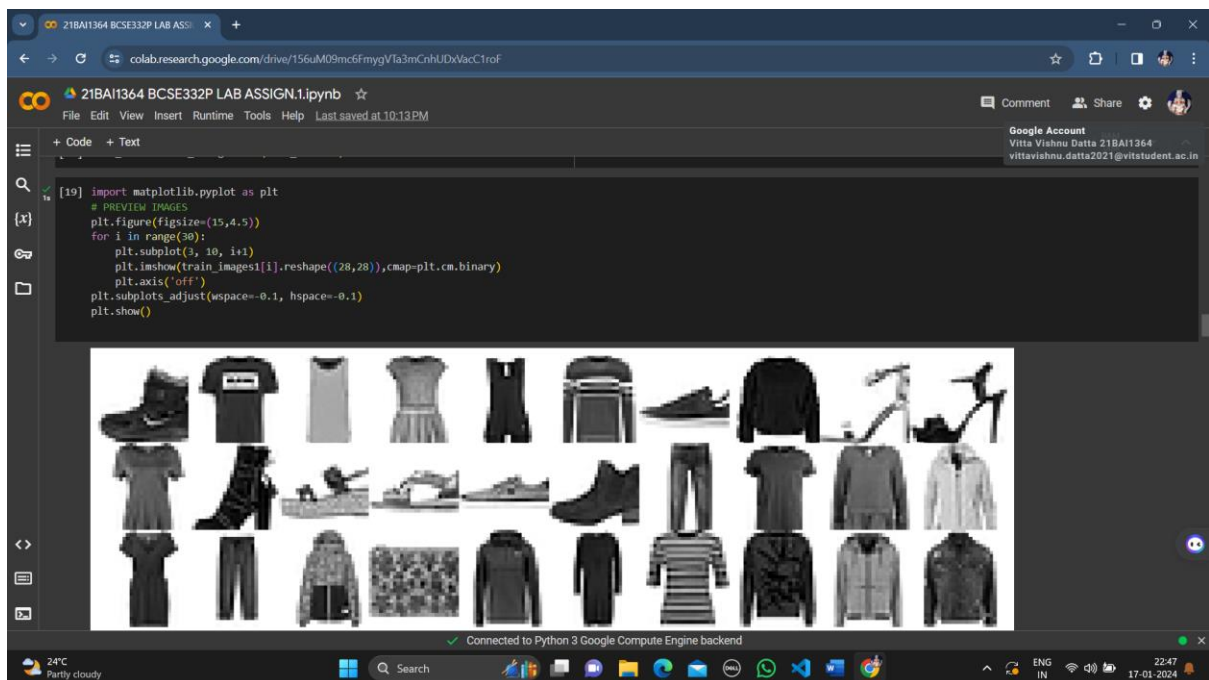
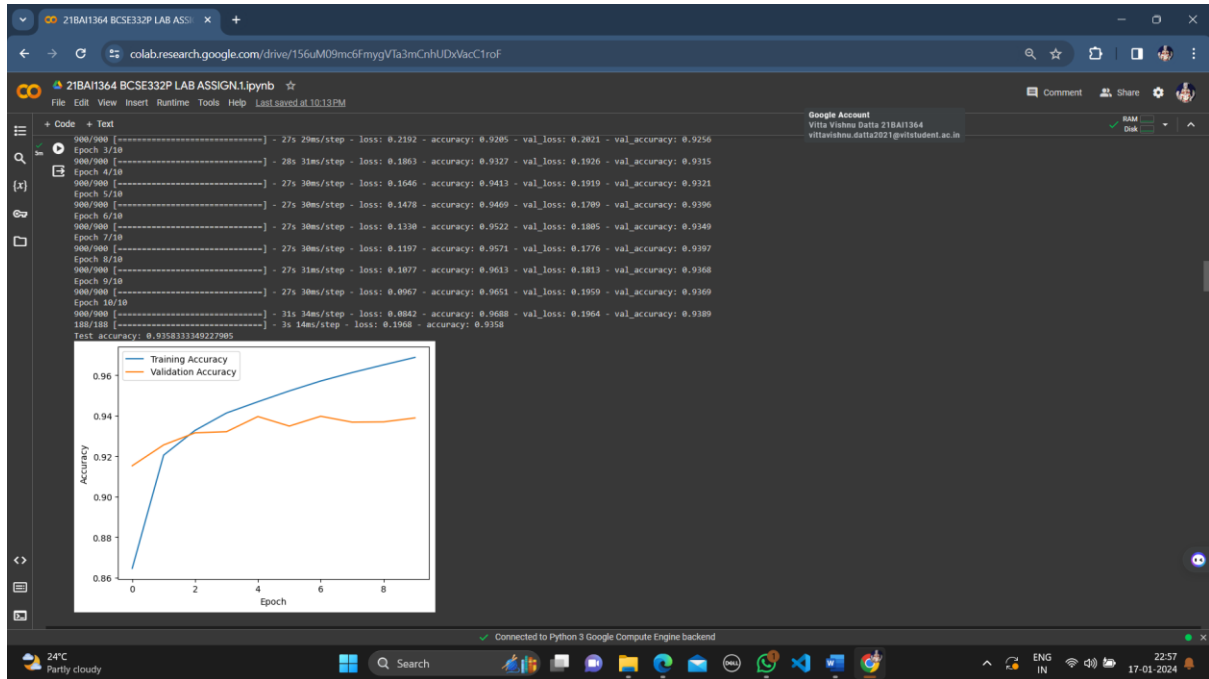




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## SCREENSHOTS OF THE FASHION MNIST DATASET:





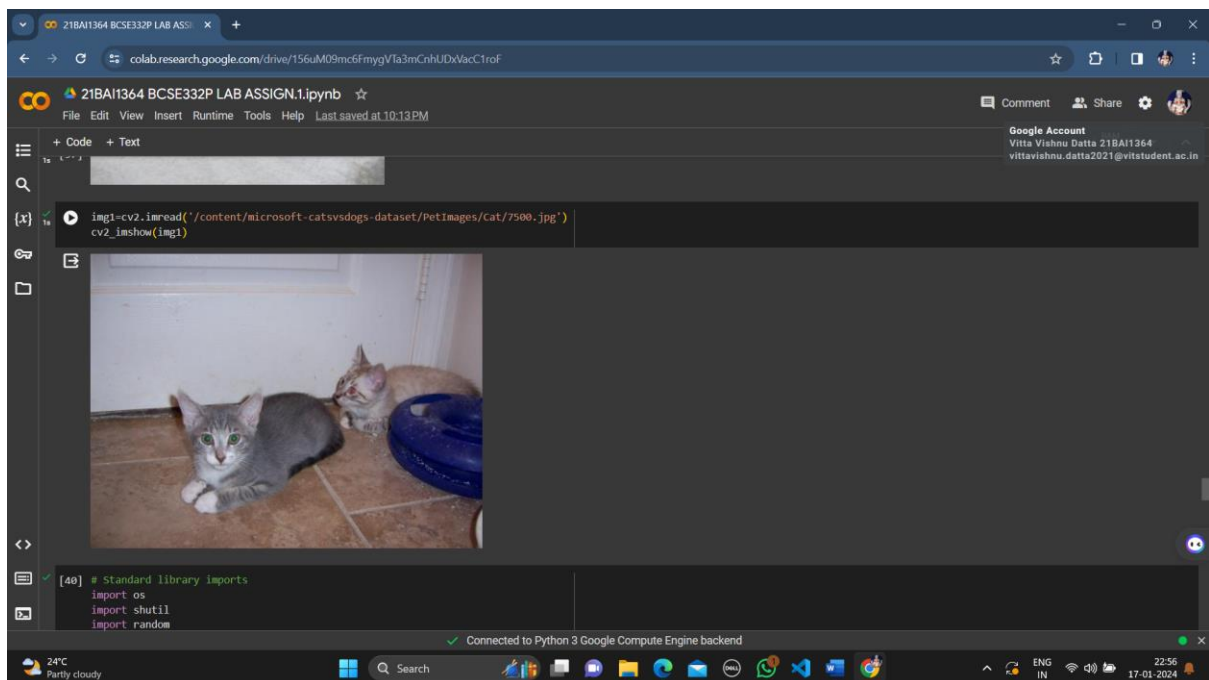
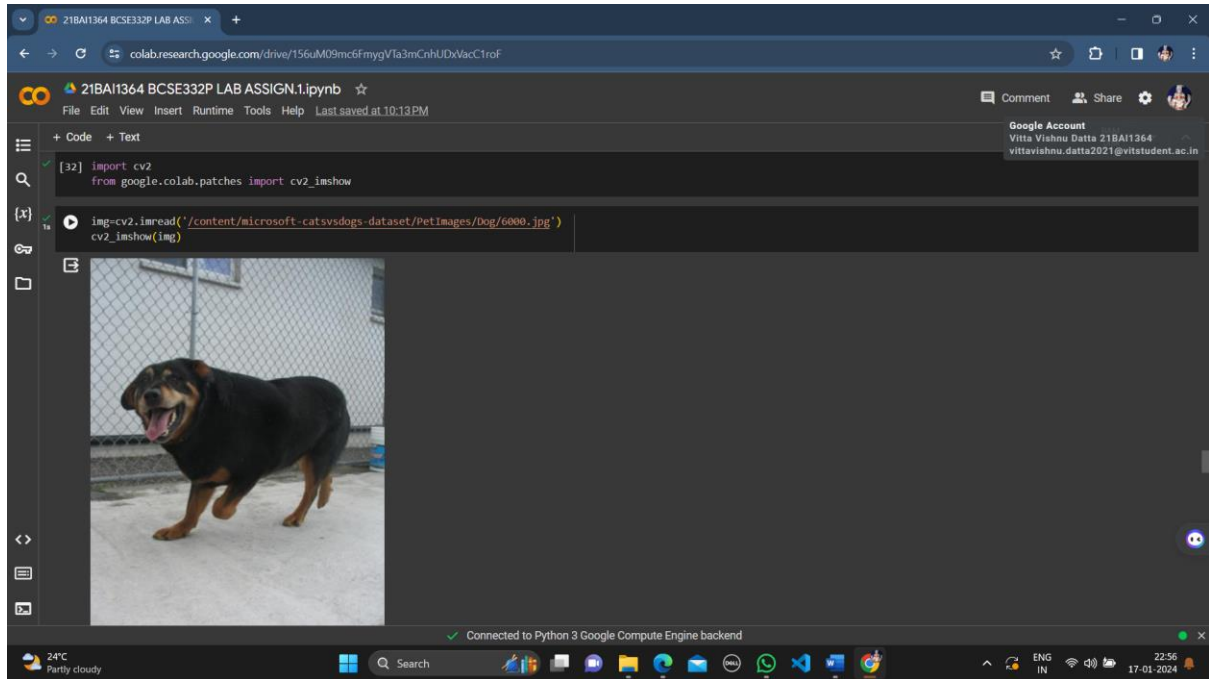
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### SCREENSHOTS OF THE DOGS VS CATS DATASET:







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## SCREENSHOTS OF THE PCAM DATASET:

```
from google.colab import files

# Upload the Kaggle API key
uploaded = files.upload()

!mkdir -p ~/.kaggle
!mv kaggle.json ~/.kaggle/
!chmod 600 ~/.kaggle/kaggle.json

!cd /content/microsoft-catsvstdogs-dataset

[Errno 2] No such file or directory: '/content/microsoft-catsvstdogs-dataset'

!ls
sample_data

!kaggle datasets download -d andrewmvd/metastatic-tissue-classification-patchcamelyon

Downloading metastatic-tissue-classification-patchcamelyon.zip to /content
```

```
# Upload the Kaggle API key
uploaded = files.upload()

!mkdir -p ~/.kaggle

!mv kaggle.json ~/.kaggle/

!chmod 600 ~/.kaggle/kaggle.json

!mkdir metastatic-tissue-classification-patchcamelyon
!mv metastatic-tissue-classification-patchcamelyon.zip metastatic-tissue-classification-patchcamelyon

!cd metastatic-tissue-classification-patchcamelyon/

/content/metastatic-tissue-classification-patchcamelyon

!unzip metastatic-tissue-classification-patchcamelyon.zip

Archive: metastatic-tissue-classification-patchcamelyon.zip
  inflating: Labels/Labels/camelyonpatch_level_2_split_test.y.h5
  inflating: Labels/Labels/camelyonpatch_level_2_split_train.y.h5
  inflating: Labels/Labels/camelyonpatch_level_2_split_valid.y.h5
  inflating: Metadata/Metadata/test_metadata.csv
  inflating: Metadata/Metadata/train_metadata.csv
  inflating: Metadata/Metadata/valid_metadata.csv
```



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```
import cv2
from google.colab.patches import cv2_imshow

import pandas as pd
df=pd.read_csv('/content/metastatic-tissue-classification-patchcamelyon/Metadata/test_metadata.csv')
df
```

Unnamed: 0	coord_y	coord_x	tumor_patch	center_tumor_patch	ws1	
0	0	145856	73984	False	False	camelyon16_test_032
1	1	92224	76032	True	True	camelyon16_test_029
2	2	14720	15936	False	False	camelyon16_test_055
3	3	20096	15360	True	True	camelyon16_test_071
4	4	34688	15936	True	True	camelyon16_test_071
...	...	...	...	...	...	...
32763	32763	93120	46336	True	True	camelyon16_test_040
32764	32764	168512	45696	True	True	camelyon16_test_082
32765	32765	159040	28672	True	True	camelyon16_test_049
32766	32766	62528	68736	True	True	camelyon16_test_069
32767	32767	117568	23744	False	False	camelyon16_test_024

32768 rows x 6 columns

```
df1=pd.read_csv('/content/metastatic-tissue-classification-patchcamelyon/Metadata/Metadata/train_metadata.csv')
```

```
df1=pd.read_csv('/content/metastatic-tissue-classification-patchcamelyon/Metadata/Metadata/train_metadata.csv')
df1
```

Unnamed: 0	coord_y	coord_x	tumor_patch	center_tumor_patch	ws1	
0	0	63104	43648	False	False	camelyon16_train_tumor_104
1	1	148544	74048	True	True	camelyon16_train_tumor_003
2	2	64192	78912	True	True	camelyon16_train_tumor_089
3	3	98048	72128	True	True	camelyon16_train_tumor_004
4	4	27264	50688	False	False	camelyon16_train_normal_118
...	...	...	...	...	...	...
262139	262139	164672	44160	True	True	camelyon16_train_tumor_025
262140	262140	155384	31296	True	True	camelyon16_train_tumor_042
262141	262141	28032	114944	True	True	camelyon16_train_tumor_101
262142	262142	51264	32960	False	False	camelyon16_train_normal_021
262143	262143	103040	46784	True	True	camelyon16_train_tumor_002

262144 rows x 6 columns

## LINKS TO THE GOOGLE COLAB NOTEBOOKS:

<https://colab.research.google.com/drive/156uM09mc6FmygVTa3mCnhUDxVacC1roF?usp=sharing>

[https://colab.research.google.com/drive/184FKbqXN\\_DS98wWmJT9hhyooSLnPHHG1?usp=sharing](https://colab.research.google.com/drive/184FKbqXN_DS98wWmJT9hhyooSLnPHHG1?usp=sharing)



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