Project Development Phase

Delivery of Sprint 1

Date	9 November 2022
Team ID	PNT2022TMID07640
Project Name	Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation

Task 1:

Download the dataset:

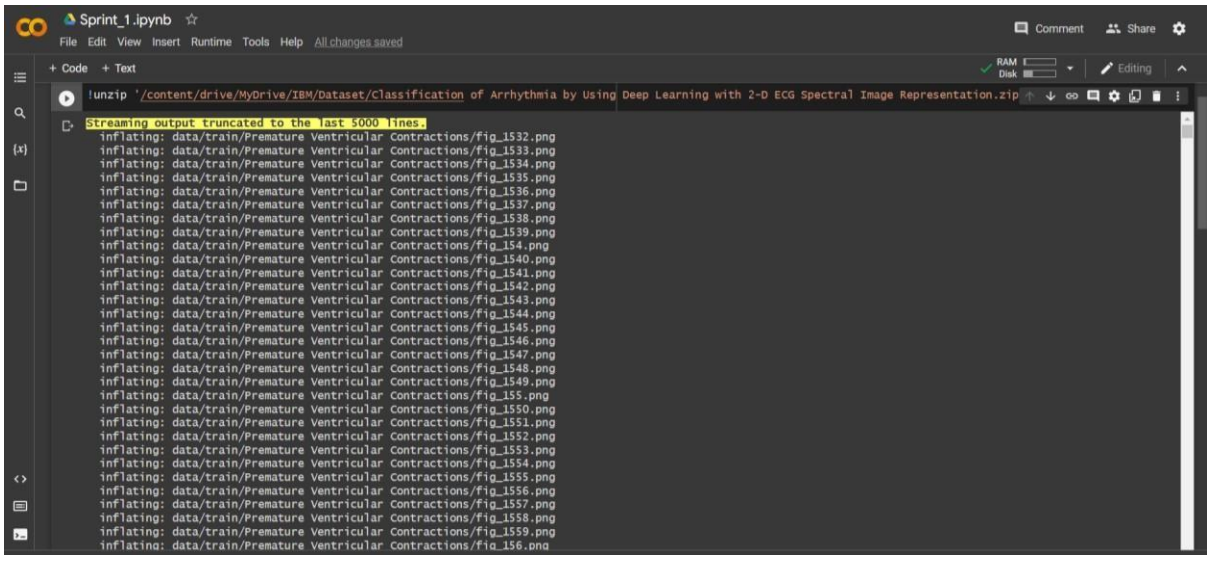
The dataset has been downloaded and the drive link is given https://drive.google.com/drive/folders/1h_v0ja8sMe4FbeYO85fGH7Zgsa2UTOHG?usp=share_link **Run the dataset (Unzipping the dataset):**

Code:

```
#UNZIPPING THE DATASET

!unzip '/content/drive/MyDrive/IBM/Dataset/Classification of Arrhythmia  by Using Deep Learning with 2-D ECG Spectral Image Representation.zip'
```

Output:



Task 2:

Image Preprocessing:

Import ImageDataGenerator Library:

Code:

```
#IMPORTING THE IMAGEDATAGENERATOR LIBRARY

from keras.preprocessing.image import ImageDataGenerator
```

Configure ImageDataGenerator class:

Code:

```
#SETTING PARAMETER FOR IMAGE DATA AUGMENTATION TO THE TRAINING DATA
 train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range=0.2,horizontal_flip=True)

#IMAGE DATA AUGMENTATION TO THE TESTING DATA
 test_datagen=ImageDataGenerator(rescale=1./255)
```

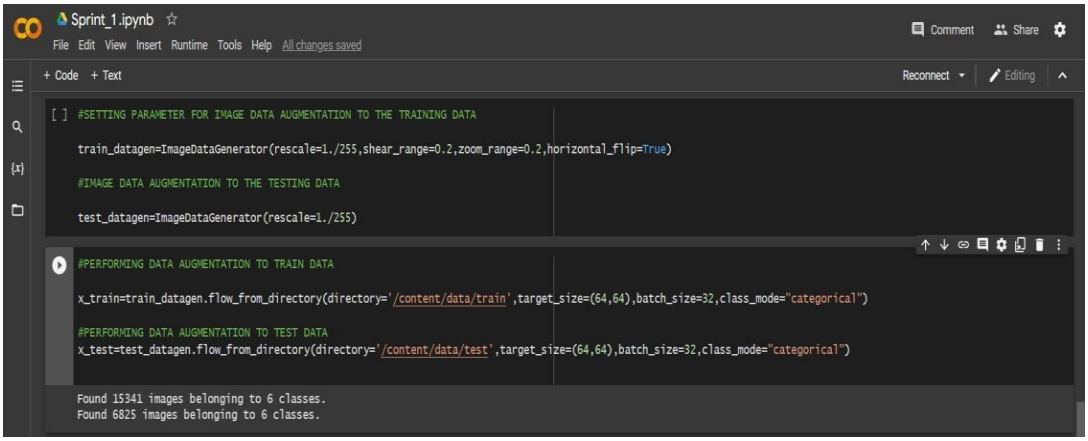
Apply ImageDataGenerator Functionality to Trainset and Testset:

Code:

```
#PERFORMING DATA AUGMENTATION TO TRAIN DATA
 x_train=train_datagen.flow_from_directory(directory='/content/data/train',target_size=(64,64),batch_size=32,class_mode="categorical")

#PERFORMING DATA AUGMENTATION TO TEST DATA
x_test=test_datagen.flow_from_directory(directory='/content/data/test',
target_size=(64,64),batch_size=32,class_mode="categorical")
```

Output:



Task 3:

Model Building:

Import Libraries:

Code:

```
#IMPORTING LIBRARIES
 import numpy as np #used for numerical analysis
 import tensorflow #open source used for both ML and DL for computation
from tensorflow.keras.models import Sequential #it is a plain stack of layers
from tensorflow.keras import layers #A layer consists of Tensorin Tensor-out computation function

#DENSE LAYER IS THE REGULAR DEEPLY CONNECTED NURAL NETWORK LAYER
 from tensorflow.keras.layers import Dense,Flatten

# FLATTEN-USED FOR FLATTENING THE INPUT OR CHANGE THE DIRECTION
 from tensorflow.keras.layers import Conv2D,MaxPooling2D #convolution La yer
```

Initialize Model:

Code:

```
#INITIALIZING MODEL
model=Sequential()
```