

Data Collection

In [3]:

```
from google.colab import drive
drive.mount('/content/drive')
```

Mounted at /content/drive

In [4]:

```
!unzip '/content/drive/MyDrive/ibm/archive.zip'
```

Archive: /content/drive/MyDrive/ibm/archive.zip

```
  inflating: Dataset/Dataset/test_set/forest/0.48007200_1530881924_final_forest.jpg
  inflating: Dataset/Dataset/test_set/forest/0.64133000_1519374442_forest_deep.jpg
  inflating: Dataset/Dataset/test_set/forest/0.72918000_1559733279_forests1_gettyimages_.jpg
  inflating: Dataset/Dataset/test_set/forest/0.98884800_1554454572_spin.jpg
  inflating: Dataset/Dataset/test_set/forest/01_NeilBurnell_Mystical_photoverticall.jpg
  inflating: Dataset/Dataset/test_set/forest/091318_LH_forest_loss_main_FREE.jpg
  inflating: Dataset/Dataset/test_set/forest/1009821.jpg
  inflating: Dataset/Dataset/test_set/forest/111188170_river_in_the_mountain_forest.jpg
  inflating: Dataset/Dataset/test_set/forest/1170x500_Ireland_web.jpg
  inflating: Dataset/Dataset/test_set/forest/1200px_Mountainarea.jpg
  inflating: Dataset/Dataset/test_set/forest/146019.jpg
  inflating: Dataset/Dataset/test_set/forest/1506697583544.jpg
  inflating: Dataset/Dataset/test_set/forest/1551622076_img_5241.jpg
  inflating: Dataset/Dataset/test_set/forest/1551903255_2942.jpg
  inflating: Dataset/Dataset/test_set/forest/1556508284pexels_photo_1179229.jpeg
  inflating: Dataset/Dataset/test_set/forest/16475617_web1_ForestHealth_VIB_190418_2.jpg

  inflating: Dataset/Dataset/test_set/forest/18435324436_6a20e7fc70_k.jpg
  inflating: Dataset/Dataset/test_set/forest/1_chimp.jpg
  inflating: Dataset/Dataset/test_set/forest/200px_View_of_Lake_Moraine.jpg
  inflating: Dataset/Dataset/test_set/forest/2017_10_12_09_01_56.jpg
  inflating: Dataset/Dataset/test_set/forest/220px_The_forest_near_Blatets_Vinitza.JPG
  inflating: Dataset/Dataset/test_set/forest/23769_pcbkrdoss_1500310327.jpg
  inflating: Dataset/Dataset/test_set/forest/2E215059_55C7_417B_8DDD693AA6E416B4_source.jpg
  inflating: Dataset/Dataset/test_set/forest/31105585103_4c32392ac1_k.jpg
  inflating: Dataset/Dataset/test_set/forest/381417.jpg
  inflating: Dataset/Dataset/test_set/forest/4632581118_dcfb9ed978_b.jpg.860x0_q70_crop_scale.jpg
  inflating: Dataset/Dataset/test_set/forest/4fe3f4e45d6bb93070989b8bbb77d30e.jpg
  inflating: Dataset/Dataset/test_set/forest/4k_timelapse_heavy_rain_on_mountain_forest_tree_fog_motion_bad_weather_condition_rfift1zh_thumbnail.png
  inflating: Dataset/Dataset/test_set/forest/5325.jpg
  inflating: Dataset/Dataset/test_set/forest/5472.jpg
  inflating: Dataset/Dataset/test_set/forest/559672101517195076987621071193712n.jpg
  inflating: Dataset/Dataset/test_set/forest/78closer_exterior_view_of_northern_Rocky_Mountain_forest.jpg
  inflating: Dataset/Dataset/test_set/forest/79806645_landscape_of_tall_grass_field_green_mountain_forest.jpg
  inflating: Dataset/Dataset/test_set/forest/7_18_MedicineBowHikingFishing_KL_1319_4003.jpg
  inflating: Dataset/Dataset/test_set/forest/7ece9530_9cf1_11e9_bf3c_4fe6e6438142.jpg
  inflating: Dataset/Dataset/test_set/forest/852554.jpg
  inflating: Dataset/Dataset/test_set/forest/91ErlodmE5L.jpg
  inflating: Dataset/Dataset/test_set/forest/91sALlLjdLL.jpg
  inflating: Dataset/Dataset/test_set/forest/A003_C014_0724EC.0000000.jpg
  inflating: Dataset/Dataset/test_set/forest/Adirondack_Habitats_Mixed_Forest_Barnum_Brook_Trail_Paul_Smiths_VIC_23_May_2012_61.jpg
  inflating: Dataset/Dataset/test_set/forest/Adirondack_Habitats_Mixed_Forest_Jenkins_Mountain_Trail_Paul_Smiths_VIC_12_August_2013_71.jpg
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  inflating: Dataset/Dataset/test_set/forest/DSC_0072_Forest.jpg
  inflating: Dataset/Dataset/test_set/forest/Deciduous_forest.jpg
```

inflating: Dataset/Dataset/test_set/forest/Deciduous_forest.jpg
inflating: Dataset/Dataset/test_set/forest/Dupont_Forest_Triple_Falls_Rob_Travis_2_1.jpg
g
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0.jpg
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g
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in_forest_wildfire_picture_id157384116.jpg
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inflatng: Dataset/Dataset/train_set/forest/with_fire (14).jpg

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[illegible]

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inflating: Dataset/Dataset/train_set/with fire/with fire (75).jpg
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inflating: Dataset/Dataset/train_set/with fire/with fire.jpeg
inflating: forest1.h5
```

Image Preprocessing

1. Importing The ImageDataGenerator Library

In [5]:

```
# import keras library
import keras
#import ImageDataGenerator from keras.preprocessing.image
from keras.preprocessing.image import ImageDataGenerator
```

In [6]:

```
import tensorflow as tf
import numpy as np
import matplotlib.pyplot as plt
from tensorflow import keras
from tensorflow.keras.preprocessing import image_dataset_from_directory
```

1. Define The Parameters /Arguments For ImageDataGenerator Class

In [8]:

```
# Preprocessing the Training Dataset Images
train_datagen = ImageDataGenerator(
    rotation_range=170,
    brightness_range=None,
    shear_range=0.5,
    zoom_range=0.4,
    horizontal_flip=True,
    vertical_flip=True,
    rescale=1./254,)
```

In [9]:

```
# Preprocessing the Testing Dataset Images
test_datagen = ImageDataGenerator(rescale=1./254)
```

1. Applying ImageDataGenerator Functionality To Trainset And Testset

In [10]:

```
xtrain = train_datagen.flow_from_directory('/content/Dataset/Dataset/train_set',  
                                          target_size=(64,64),  
                                          class_mode='binary',  
                                          batch_size=100)
```

Found 436 images belonging to 2 classes.

In [14]:

```
xtest = train_datagen.flow_from_directory('/content/Dataset/Dataset/test_set',  
                                          target_size=(64,64),  
                                          class_mode='binary',  
                                          batch_size=110)
```

Found 121 images belonging to 2 classes.