Bahria University,

Karachi Campus

## LAB EXPERIMENT NO.

10

## LIST OF TASKS

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| **TASK NO** | **OBJECTIVE** |
| **1** | Imagine you're a farmer facing the constant threat of plant diseases, which can sweep through your fields and ruin your entire crop. To help tackle this issue, there's a smart tool powered by a type of artificial intelligence known as a Convolutional Neural Network (CNN). This innovative tool works by analyzing photos of plants . It's trained to spot the subtle signs of various common diseases, such as rust, blight, or mildew, as well as confirming when plants are healthy. This means that instead of guessing or waiting for visible damage, you get an early warning system. With quick and accurate detection, you can act fast, treating the affected plants and protecting your crop from further harm. This use of technology not only saves time and resources but also gives you peace of mind, knowing you're doing all you can to keep your plants healthy and thriving. |
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Submitted On:

8 May 2024

(Date: DD/MM/YY)

**TASK # 1:** Imagine you're a farmer facing the constant threat of plant diseases, which can sweep through your fields and ruin your entire crop. To help tackle this issue

import numpy as np

from PIL import Image

import requests

from io import BytesIO

import tensorflow as tf

from tensorflow.keras.applications import ResNet50

from tensorflow.keras.applications.resnet50 import preprocess\_input,decode\_predictions

def load\_and\_preprocess\_image(url):

 response = requests.get(url)

 img = Image.open(BytesIO(response.content))

 img = img.resize((224, 224))

 img = img.convert('RGB')

 img\_array = np.array(img)

 img\_array = np.expand\_dims(img\_array, axis=0)

 return preprocess\_input(img\_array)

model = ResNet50(weights='imagenet')

def predict\_plant\_health(url):

 preprocessed\_image = load\_and\_preprocess\_image(url)

 predictions = model.predict(preprocessed\_image)

 decoded\_predictions = decode\_predictions(predictions, top=1)[0]

 \_, label, confidence = decoded\_predictions[0]

 return label, confidence

image\_url = "https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcS2jejmbM93f9Jm1Dl-rswMBOkSxlvNwXNbXfbuDTMnZf0Pio7zKnpjh4-2kBH0OqwRoI&usqp=CAU"

label, confidence = predict\_plant\_health(image\_url)

print("Predicted Label:", label)

print("Confidence:", confidence)

A screenshot of a computer

Description automatically generated