

KSR College Of Engineering , Tiruchengode

Department of Information Technology

NALAIYA THIRAN

AI ASSESMENT- 3

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    "# **Trained by Team ID : PNT2022TMID17050**"

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        "drive.mount('/content/drive\\', force_remount=True).\\n"
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    "replace flowers/daisy/100080576_f52e8ee070_n.jpg? [y]es, [n]o, [A]ll, [N]one, [r]ename: N\n"
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}
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```

```
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```

```
  ]
```

```
}
```

```
]
```

```
},
```

```
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```

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},
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{
```

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```

```
  "text": [
```

```
    "Found 4317 images belonging to 5 classes.\n"
```

```
  ]
```

```
}
```

```
]
```

```
},
```

```
{
```

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```

```
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```

```
    "x_train.class_indices"
```

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      ]
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        "from tensorflow.keras.layers import Dense,Convolution2D,MaxPooling2D,Flatten"

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```

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    "# **4.1 Input Layers (Convolution ,MaxPooling,Flatten)**"  
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  "metadata": {  
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  }  
},  
  
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```

```
"model.add(Convolution2D(32,(3,3),input_shape=(64,64,3),activation='relu'))"
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},
"execution_count": 12,
"outputs": []
},
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    "model.add(MaxPooling2D(pool_size=(2,2)))"
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  },
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    "model.add(Flatten())"
  ],
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```

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},
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    "model.summary()"
  ],
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    "outputId": "1f46f35d-1950-4456-bce9-16a06053d40f"
  },
  "execution_count": 15,
  "outputs": [
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        \"_____\\n\",
```

```

" Layer (type)          Output Shape          Param #   \n",
"===== \n",
" conv2d (Conv2D)       (None, 62, 62, 32)    896      \n",
"                        \n",
" max_pooling2d (MaxPooling2D) (None, 31, 31, 32)    0        \n",
" )                        \n",
"                        \n",
" flatten (Flatten)     (None, 30752)         0        \n",
"                        \n",
"===== \n",
"Total params: 896\n",
"Trainable params: 896\n",
"Non-trainable params: 0\n",
"_____ \n"
]
}
]
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    "# **4.2 Hidden Layers**"
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```

```
}

},

{
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    "# **4.3 Output Layers**"
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```



```
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  "model.add(Dense(5,activation='softmax'))"  
],  
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},  
"execution_count": 17,  
"outputs": []  
},  
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    "model.compile(loss='categorical_crossentropy',optimizer='adam',metrics=['accuracy'])"  
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    "len(x_train)"  
  ],
```

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    "# **Step -5 Train the Model**"
```

```

],
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    "model.fit_generator(x_train,steps_per_epoch=len(x_train), validation_data=x_test,
validation_steps=len(x_test), epochs= 30)"
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    "outputId": "734d2b05-c864-450f-a46f-8ce129904306"
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      "name": "stderr",
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        "/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.\n",

```

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" \\"\"Entry point for launching an IPython kernel.\n"
]
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    "val_loss: 1.1275 - val_accuracy: 0.5532\n",
    "Epoch 2/30\n",
    "180/180 [=====] - 74s 409ms/step - loss: 1.0600 - accuracy:\n",
    "0.5854 - val_loss: 0.9406 - val_accuracy: 0.6301\n",
    "Epoch 3/30\n",
    "180/180 [=====] - 73s 405ms/step - loss: 0.9678 - accuracy:\n",
    "0.6247 - val_loss: 0.9603 - val_accuracy: 0.6203\n",
    "Epoch 4/30\n",
    "180/180 [=====] - 77s 429ms/step - loss: 0.8884 - accuracy:\n",
    "0.6546 - val_loss: 0.8187 - val_accuracy: 0.6938\n",
    "Epoch 5/30\n",
    "180/180 [=====] - 76s 422ms/step - loss: 0.8358 - accuracy:\n",
    "0.6787 - val_loss: 0.7393 - val_accuracy: 0.7225\n",
    "Epoch 6/30\n",
    "180/180 [=====] - 75s 418ms/step - loss: 0.7924 - accuracy:\n",
    "0.6965 - val_loss: 0.8389 - val_accuracy: 0.6928\n",
    "Epoch 7/30\n",
    "180/180 [=====] - 73s 405ms/step - loss: 0.7521 - accuracy:\n",
    "0.7158 - val_loss: 0.8503 - val_accuracy: 0.6789\n",

```

"Epoch 8/30\n",
"180/180 [=====] - 74s 411ms/step - loss: 0.7048 - accuracy:
0.7313 - val_loss: 0.6492 - val_accuracy: 0.7521\n",
"Epoch 9/30\n",
"180/180 [=====] - 72s 400ms/step - loss: 0.6502 - accuracy:
0.7521 - val_loss: 0.6458 - val_accuracy: 0.7438\n",
"Epoch 10/30\n",
"180/180 [=====] - 74s 409ms/step - loss: 0.6182 - accuracy:
0.7684 - val_loss: 0.5721 - val_accuracy: 0.7818\n",
"Epoch 11/30\n",
"180/180 [=====] - 72s 402ms/step - loss: 0.5662 - accuracy:
0.7931 - val_loss: 0.5968 - val_accuracy: 0.7725\n",
"Epoch 12/30\n",
"180/180 [=====] - 72s 401ms/step - loss: 0.5600 - accuracy:
0.7908 - val_loss: 0.6907 - val_accuracy: 0.7612\n",
"Epoch 13/30\n",
"180/180 [=====] - 72s 399ms/step - loss: 0.5064 - accuracy:
0.8138 - val_loss: 0.5185 - val_accuracy: 0.8117\n",
"Epoch 14/30\n",
"180/180 [=====] - 71s 394ms/step - loss: 0.4830 - accuracy:
0.8249 - val_loss: 0.3613 - val_accuracy: 0.8673\n",
"Epoch 15/30\n",
"180/180 [=====] - 71s 397ms/step - loss: 0.4650 - accuracy:
0.8196 - val_loss: 0.3396 - val_accuracy: 0.8768\n",
"Epoch 16/30\n",
"180/180 [=====] - 71s 393ms/step - loss: 0.4117 - accuracy:
0.8559 - val_loss: 0.3472 - val_accuracy: 0.8738\n",
"Epoch 17/30\n",

"180/180 [=====] - 71s 397ms/step - loss: 0.3892 - accuracy:
0.8631 - val_loss: 0.3314 - val_accuracy: 0.8826\n",

"Epoch 18/30\n",

"180/180 [=====] - 70s 389ms/step - loss: 0.3441 - accuracy:
0.8726 - val_loss: 0.4008 - val_accuracy: 0.8589\n",

"Epoch 19/30\n",

"180/180 [=====] - 73s 404ms/step - loss: 0.3467 - accuracy:
0.8719 - val_loss: 0.2484 - val_accuracy: 0.9060\n",

"Epoch 20/30\n",

"180/180 [=====] - 72s 398ms/step - loss: 0.3327 - accuracy:
0.8758 - val_loss: 0.2234 - val_accuracy: 0.9210\n",

"Epoch 21/30\n",

"180/180 [=====] - 73s 403ms/step - loss: 0.2807 - accuracy:
0.9009 - val_loss: 0.2830 - val_accuracy: 0.9036\n",

"Epoch 22/30\n",

"180/180 [=====] - 70s 392ms/step - loss: 0.2751 - accuracy:
0.9013 - val_loss: 0.2392 - val_accuracy: 0.9141\n",

"Epoch 23/30\n",

"180/180 [=====] - 73s 404ms/step - loss: 0.2549 - accuracy:
0.9097 - val_loss: 0.2221 - val_accuracy: 0.9189\n",

"Epoch 24/30\n",

"180/180 [=====] - 72s 399ms/step - loss: 0.2412 - accuracy:
0.9243 - val_loss: 0.2029 - val_accuracy: 0.9291\n",

"Epoch 25/30\n",

"180/180 [=====] - 72s 402ms/step - loss: 0.2360 - accuracy:
0.9199 - val_loss: 0.1965 - val_accuracy: 0.9307\n",

"Epoch 26/30\n",

"180/180 [=====] - 72s 401ms/step - loss: 0.2199 - accuracy:
0.9201 - val_loss: 0.1919 - val_accuracy: 0.9331\n",

```
"Epoch 27/30\n",  
  
  "180/180 [=====] - 72s 400ms/step - loss: 0.2008 - accuracy:  
0.9363 - val_loss: 0.1218 - val_accuracy: 0.9560\n",  
  
  "Epoch 28/30\n",  
  
  "180/180 [=====] - 73s 406ms/step - loss: 0.1889 - accuracy:  
0.9310 - val_loss: 0.2838 - val_accuracy: 0.9108\n",  
  
  "Epoch 29/30\n",  
  
  "180/180 [=====] - 70s 389ms/step - loss: 0.2046 - accuracy:  
0.9275 - val_loss: 0.2116 - val_accuracy: 0.9307\n",  
  
  "Epoch 30/30\n",  
  
  "180/180 [=====] - 70s 392ms/step - loss: 0.1886 - accuracy:  
0.9372 - val_loss: 0.2091 - val_accuracy: 0.9280\n"  
  
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      ]  
  
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        "model.save('Flowers_classification_model1.h5')"
    ],
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    },
    "execution_count": 21,
    "outputs": []
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        "# **Step -7 Test The model**"
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  ],
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    },
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    "outputId": "bf8a661d-3210-4695-dcb7-48e6f365dfce"
  },
  "execution_count": 22,
  "outputs": [
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      "name": "stdout",
      "text": [
        "\u001b[0m\u001b[01;34mflowers\u001b[0m/ Flowers_classification_model1.h5 Flowers-
Dataset.zip video.mp4\n"
      ]
    }
  ]
}
```

```
},  
  
{  
  "cell_type": "code",  
  "source": [  
    "import numpy as np\\n",  
    "from tensorflow.keras.models import load_model\\n",  
    "from tensorflow.keras.preprocessing import image"  
  ],  
  "metadata": {  
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  },  
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  "outputs": []  
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{  
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    "# Load the model\\n",  
    "model=load_model('Flowers_classification_model1.h5')"  
  ],  
  "metadata": {  
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  },  
  "execution_count": 24,  
  "outputs": []  
}
```

```
},
{
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    "img=image.load_img(r\"/content/s3.jpg\",target_size=(64,64))\n",
    "x=image.img_to_array(img)\n",
    "x=np.expand_dims(x,axis=0)\n",
    "y=np.argmax(model.predict(x),axis=1)\n",
    "# x_train.class_indices\n",
    "index=['daisy','dandelion','rose','sunflower','tulip']\n",
    "index[y[0]]"
  ],
  "metadata": {
    "colab": {
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      "height": 35
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    "outputId": "c6357a8b-5163-4884-c82e-05651a65571c"
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  "execution_count": 38,
  "outputs": [
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      "output_type": "execute_result",
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```

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  "'sunflower'"  
],  
  "application/vnd.google.colaboratory.intrinsic+json": {  
    "type": "string"  
  }  
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}  
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    "# **Trained by Team ID : PNT2022TMID17050**"  
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