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        "**1. Download the dataset\n",
        [here] (https://drive.google.com/file/d/1xkynpL15pt6KT3YS1Dimu4A5iRU9qYck/view).**\n",
        "# Importing necessary Libraries"
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        "import matplotlib.pyplot as plt\n",
        "import pandas as pd\n",
        "from tensorflow.keras.models import Sequential\n",
        "from tensorflow.keras.layers import\n",
        "Dense, Activation, Dropout, Conv2D, Flatten, MaxPool2D, Reshape, InputLayer\n",
        "from tensorflow.keras.applications.resnet50 import ResNet50\n",
        "from tensorflow.keras.applications.resnet50 import\n",
        "preprocess_input\n",
        "from tensorflow.keras.preprocessing import image\n",
        "from tensorflow.keras.preprocessing.image import\n",
        "ImageDataGenerator, load_img, img_to_array\n",
        "from tensorflow.keras.callbacks import EarlyStopping,\n",
        "ReduceLROnPlateau"
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        "# Data Augumentation\n",
        "\n",
        "** Dataset consist of 5 classes.\n",
        "** **Daisy** - European Species of Aster family.\n",
        "** **Sunflower** - Identified as the genus of Helianthus.\n",
        "** **Tulip** - Belong to the species of spring blooming
geophytes.\n",
        "** **Rose** - Belongs to the family of rosaceae.\n",
        "** **Dandelion** - Indentifies as the genus of Asterceae."
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        "                                       zoom_range = 0.2,\n",
        "                                       horizontal_flip = True,\n",
        "                                       validation_split = 0.30)\n",
        "test_data_gen = ImageDataGenerator(rescale =
1./255,validation_split = 0.30)"
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                "Found 3024 images belonging to 5 classes.\n",

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        "Found 1293 images belonging to 5 classes.\n"
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    "training_set = train_data_gen.flow_from_directory(path,\n",
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target_size=(64,64),\n",
    "
batch_size=100,\n",
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class_mode='categorical',\n",
    "
shuffle=True,\n",
    "
color_mode='rgb',\n",
    "
subset =
'training')\n",
    "\n",
    "testing_set = test_data_gen.flow_from_directory(path,\n",
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target_size=(64,64),\n",
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batch_size=100,\n",
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        "model = Sequential()\n",
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        "#convolution and Pooling layer 1\n",

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"model.add(Conv2D(filters=48,kernel_size=3,activation='relu',input_shape=
(64,64,3)))\n",
    "model.add(MaxPool2D(pool_size=2, strides=2))\n",
    "model.add(Dropout(0.2))\n",
    "\n",
    "#convolution and Pooling layer 2\n",

"model.add(Conv2D(filters=32,kernel_size=3,activation='relu'))\n",
    "model.add(MaxPool2D(pool_size=2, strides=2))\n",
    "model.add(Dropout(0.2))\n",
    "\n",
    "#Flattening the images\n",
    "model.add(Flatten())\n",
    "\n",
    "#Fully Connected layers\n",
    "model.add(Dense(64,activation='relu'))\n",
    "model.add(Dropout(0.2))\n",
    "model.add(Dense(5,activation='softmax'))"
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#   " Layer (type)                Output Shape                Param
\n",
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\n",
    " conv2d (Conv2D)                (None, 62, 62, 48)          1344
\n",
    "
\n",
    " max_pooling2d (MaxPooling2D    (None, 31, 31, 48)          0
\n",
    " )
\n",
    "
\n",
    " dropout (Dropout)                (None, 31, 31, 48)          0
\n",
    "
\n",
    " conv2d_1 (Conv2D)                (None, 29, 29, 32)          13856
\n",

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\n",
    " max_pooling2d_1 (MaxPooling (None, 14, 14, 32)      0
\n",
    " 2D)
\n",
    "
\n",
    " dropout_1 (Dropout)          (None, 14, 14, 32)      0
\n",
    "
\n",
    " flatten (Flatten)            (None, 6272)            0
\n",
    "
\n",
    " dense (Dense)                 (None, 64)
401472 \n",
    "
\n",
    " dropout_2 (Dropout)          (None, 64)            0
\n",
    "
\n",
    " dense_1 (Dense)               (None, 5)            325
\n",
    "
\n",

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"===== \n",
    "Total params: 416,997\n",
    "Trainable params: 416,997\n",
    "Non-trainable params: 0\n",

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"_____ \n"
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        "\n",
        "lr = ReduceLROnPlateau(monitor='val_accuracy', \n",
        "                        factor=0.2,patience=5, \n",
        "                        min_lr=0.00001)\n",
        "\n",
        "callback = [early_stop,lr]"
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loss: 1.4674 - accuracy: 0.3532 - val_loss: 1.2853 - val_accuracy:
0.4200\n",
        "Epoch 2/50\n",
        "31/31 [=====] - 18s 598ms/step -
loss: 1.2396 - accuracy: 0.4580 - val_loss: 1.1973 - val_accuracy:
0.4942\n",
        "Epoch 3/50\n",
        "31/31 [=====] - 17s 544ms/step -
loss: 1.1910 - accuracy: 0.4825 - val_loss: 1.1977 - val_accuracy:
0.5004\n",
        "Epoch 4/50\n",
        "31/31 [=====] - 20s 628ms/step -
loss: 1.1573 - accuracy: 0.5136 - val_loss: 1.1799 - val_accuracy:
0.5004\n",
        "Epoch 5/50\n",
        "31/31 [=====] - 17s 556ms/step -
loss: 1.1126 - accuracy: 0.5509 - val_loss: 1.1133 - val_accuracy:
0.5561\n",
        "Epoch 6/50\n",
        "31/31 [=====] - 19s 626ms/step -
loss: 1.0707 - accuracy: 0.5688 - val_loss: 1.0658 - val_accuracy:
0.5831\n",
        "Epoch 7/50\n",
        "31/31 [=====] - 20s 655ms/step -
loss: 1.0441 - accuracy: 0.5890 - val_loss: 1.1111 - val_accuracy:
0.5615\n",
        "Epoch 8/50\n",
        "31/31 [=====] - 44s 1s/step - loss:
1.0352 - accuracy: 0.5751 - val_loss: 1.1179 - val_accuracy: 0.5298\n",
        "Epoch 9/50\n",
        "31/31 [=====] - 19s 603ms/step -
loss: 0.9866 - accuracy: 0.6124 - val_loss: 1.0323 - val_accuracy:
0.5924\n",
        "Epoch 10/50\n",
        "31/31 [=====] - 19s 599ms/step -
loss: 0.9633 - accuracy: 0.6174 - val_loss: 0.9636 - val_accuracy:
0.6326\n",
        "Epoch 11/50\n",
        "31/31 [=====] - 19s 616ms/step -
loss: 0.9307 - accuracy: 0.6329 - val_loss: 0.9897 - val_accuracy:
0.6195\n",
        "Epoch 12/50\n",
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loss: 0.9415 - accuracy: 0.6263 - val_loss: 1.0379 - val_accuracy:
0.6025\n",
        "Epoch 13/50\n",
        "31/31 [=====] - 18s 596ms/step -
loss: 0.9065 - accuracy: 0.6349 - val_loss: 0.9754 - val_accuracy:
0.6249\n",
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        "31/31 [=====] - 19s 606ms/step -
loss: 0.8950 - accuracy: 0.6478 - val_loss: 0.9445 - val_accuracy:
0.6326\n",
        "Epoch 15/50\n",
```

```
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loss: 0.8649 - accuracy: 0.6736 - val_loss: 0.9327 - val_accuracy:  
0.6396\n",  
        "Epoch 16/50\n",  
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loss: 0.8388 - accuracy: 0.6673 - val_loss: 1.0472 - val_accuracy:  
0.6048\n",  
        "Epoch 17/50\n",  
        "31/31 [=====] - 19s 631ms/step -  
loss: 0.8464 - accuracy: 0.6620 - val_loss: 0.9201 - val_accuracy:  
0.6527\n",  
        "Epoch 18/50\n",  
        "31/31 [=====] - 19s 609ms/step -  
loss: 0.8144 - accuracy: 0.6739 - val_loss: 0.9701 - val_accuracy:  
0.6419\n",  
        "Epoch 19/50\n",  
        "31/31 [=====] - 19s 628ms/step -  
loss: 0.8010 - accuracy: 0.6815 - val_loss: 0.9518 - val_accuracy:  
0.6450\n",  
        "Epoch 20/50\n",  
        "31/31 [=====] - 20s 656ms/step -  
loss: 0.7695 - accuracy: 0.7060 - val_loss: 0.9519 - val_accuracy:  
0.6481\n",  
        "Epoch 21/50\n",  
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loss: 0.7618 - accuracy: 0.7054 - val_loss: 0.9319 - val_accuracy:  
0.6636\n",  
        "Epoch 22/50\n",  
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loss: 0.7771 - accuracy: 0.6984 - val_loss: 0.9386 - val_accuracy:  
0.6628\n",  
        "Epoch 23/50\n",  
        "31/31 [=====] - 19s 624ms/step -  
loss: 0.7676 - accuracy: 0.6968 - val_loss: 0.9263 - val_accuracy:  
0.6620\n",  
        "Epoch 24/50\n",  
        "31/31 [=====] - 19s 615ms/step -  
loss: 0.7089 - accuracy: 0.7189 - val_loss: 0.8842 - val_accuracy:  
0.6713\n",  
        "Epoch 25/50\n",  
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loss: 0.7140 - accuracy: 0.7199 - val_loss: 0.8939 - val_accuracy:  
0.6759\n",  
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loss: 0.7082 - accuracy: 0.7278 - val_loss: 0.8927 - val_accuracy:  
0.6574\n",  
        "Epoch 27/50\n",  
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loss: 0.6974 - accuracy: 0.7222 - val_loss: 0.9203 - val_accuracy:  
0.6736\n",  
        "Epoch 28/50\n",  
        "31/31 [=====] - 17s 554ms/step -  
loss: 0.6858 - accuracy: 0.7288 - val_loss: 0.9126 - val_accuracy:  
0.6636\n",  
        "Epoch 29/50\n",
```



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    "31/31 [=====] - 21s 669ms/step -  
loss: 0.6888 - accuracy: 0.7345 - val_loss: 0.8747 - val_accuracy:  
0.6690\n",  
    "Epoch 30/50\n",  
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loss: 0.6781 - accuracy: 0.7431 - val_loss: 0.9334 - val_accuracy:  
0.6512\n",  
    "Epoch 31/50\n",  
    "31/31 [=====] - 19s 616ms/step -  
loss: 0.6553 - accuracy: 0.7427 - val_loss: 0.9128 - val_accuracy:  
0.6690\n",  
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loss: 0.6629 - accuracy: 0.7391 - val_loss: 0.9904 - val_accuracy:  
0.6458\n",  
    "Epoch 33/50\n",  
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loss: 0.6481 - accuracy: 0.7414 - val_loss: 0.9626 - val_accuracy:  
0.6381\n",  
    "Epoch 34/50\n",  
    "31/31 [=====] - 21s 660ms/step -  
loss: 0.6615 - accuracy: 0.7341 - val_loss: 0.9099 - val_accuracy:  
0.6667\n",  
    "Epoch 35/50\n",  
    "31/31 [=====] - 19s 626ms/step -  
loss: 0.6218 - accuracy: 0.7566 - val_loss: 0.8818 - val_accuracy:  
0.6713\n",  
    "Epoch 36/50\n",  
    "31/31 [=====] - 18s 593ms/step -  
loss: 0.6110 - accuracy: 0.7665 - val_loss: 0.8745 - val_accuracy:  
0.6744\n",  
    "Epoch 37/50\n",  
    "31/31 [=====] - 19s 615ms/step -  
loss: 0.6063 - accuracy: 0.7639 - val_loss: 0.8847 - val_accuracy:  
0.6814\n",  
    "Epoch 38/50\n",  
    "31/31 [=====] - 19s 632ms/step -  
loss: 0.5810 - accuracy: 0.7662 - val_loss: 0.9403 - val_accuracy:  
0.6705\n",  
    "Epoch 39/50\n",  
    "31/31 [=====] - 21s 659ms/step -  
loss: 0.5647 - accuracy: 0.7748 - val_loss: 0.8768 - val_accuracy:  
0.6875\n",  
    "Epoch 40/50\n",  
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loss: 0.5656 - accuracy: 0.7804 - val_loss: 0.8909 - val_accuracy:  
0.6968\n",  
    "Epoch 41/50\n",  
    "31/31 [=====] - 20s 636ms/step -  
loss: 0.5622 - accuracy: 0.7705 - val_loss: 0.9996 - val_accuracy:  
0.6527\n",  
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loss: 0.5627 - accuracy: 0.7877 - val_loss: 0.8922 - val_accuracy:  
0.6945\n",  
    "Epoch 43/50\n",
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loss: 0.5462 - accuracy: 0.7874 - val_loss: 0.9363 - val_accuracy:
0.6613\n",
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loss: 0.5266 - accuracy: 0.7854 - val_loss: 1.0029 - val_accuracy:
0.6821\n",
        "Epoch 45/50\n",
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loss: 0.5482 - accuracy: 0.7857 - val_loss: 0.9348 - val_accuracy:
0.6759\n",
        "Epoch 46/50\n",
        "31/31 [=====] - 19s 605ms/step -
loss: 0.5440 - accuracy: 0.7930 - val_loss: 0.9796 - val_accuracy:
0.6721\n",
        "Epoch 47/50\n",
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loss: 0.5768 - accuracy: 0.7798 - val_loss: 0.9920 - val_accuracy:
0.6682\n",
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loss: 0.5214 - accuracy: 0.7960 - val_loss: 0.8894 - val_accuracy:
0.6845\n",
        "Epoch 49/50\n",
        "31/31 [=====] - 18s 561ms/step -
loss: 0.5127 - accuracy: 0.7999 - val_loss: 0.9061 - val_accuracy:
0.6790\n",
        "Epoch 50/50\n",
        "31/31 [=====] - 20s 658ms/step -
loss: 0.5015 - accuracy: 0.8079 - val_loss: 0.9536 - val_accuracy:
0.6883\n"
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        "* Each classes have more than 500 images for training the
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