AI-powered Nutrition Analyzer
For Fitness Enthusiasts

Sprint - 4

Date :	17/11/2022
Team Id :	PNT2022TMID37915
Domain Name :	AI-powered Nutrition Analyzer for Fitness Enthusiasts


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    "#Importing Neccessary Libraries\n",
    "\n",
    "import numpy as np\n",
    "#used for numerical analysis\n",
    "import tensorflow #open source used for both ML and DL for computation\n",
    "from tensorflow.keras.models import Sequential #it is a plain stack of layers\n",
    "from tensorflow.keras import layers # a layer consists of a tensor-in tensor-out computation function\n",
    "#Dense layer is the regular deeply connected neural network layer\n",
    "from tensorflow.keras.layers import Dense, Flatten \n",
    "#Flatten-used fot flattering the input or change the dimension\n",
    "from tensorflow.keras.layers import Conv2D, MaxPooling2D, Dropout #convolutional layer\n",
    "#MaxPooling2D-for downsampling the image\n",
    "from keras.preprocessing.image import ImageDataGenerator"
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   "from tensorflow.keras import datasets, layers, models\n",
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   "(train_images, train_labels), (test_images, test_labels) = datasets.cifar10.load_data()\n",
   "\n",
   "# Normalize pixel values to be between 0 and 1\n",
   "train_images, test_images = train_images / 255.0, test_images / 255.0"
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    "model = models.Sequential()\n",
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    "model.add(layers.MaxPooling2D((2, 2)))\n",
    "model.add(layers.Conv2D(64, (3, 3), activation='relu'))\n",
    "model.add(layers.MaxPooling2D((2, 2)))\n",
    "model.add(layers.Conv2D(64, (3, 3), activation='relu'))\n",
    "model.add(layers.Flatten())\n",
    "model.add(layers.Dense(64, activation='relu'))\n",
    "model.add(layers.Dense(10))\n"
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         ,
         " conv2d (Conv2D)            (None, 30, 30, 32)        896       \n",
         "                                                                 \n",
         " max_pooling2d (MaxPooling2D  (None, 15, 15, 32)       0         \n",
         " )                                                               \n",
         "                                                                 \n",
         " conv2d_1 (Conv2D)           (None, 13, 13, 64)        18496     \n",
         "                                                                 \n",
         " max_pooling2d_1 (MaxPooling  (None, 6, 6, 64)         0         \n",
         " 2D)                                                             \n",
         "                                                                 \n",
         " conv2d_2 (Conv2D)           (None, 4, 4, 64)          36928     \n",
         "                                                                 \n",
         " flatten (Flatten)           (None, 1024)              0         \n",
         "                                                                 \n",
         " dense (Dense)               (None, 64)                65600     \n",
         "                                                                 \n",
         " dense_1 (Dense)             (None, 10)                650       \n",
         "                                                                 \n",
"=================================================================\n",
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       "model.compile(optimizer='adam',\n",
       "              loss=tf.keras.losses.SparseCategoricalCrossentropy(from_logits=True),\n",
"              metrics=['accuracy'])\n",
       "#Fitting the model\n",
       "history = model.fit(train_images, train_labels, epochs=10, \n",
       "                    validation_data=(test_images, test_labels))"
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accuracy:
0.4449 - val_loss: 1.2775 - val_accuracy: 0.5395\n",
"Epoch 2/10\n",
       "1563/1563 [==============================] - 78s 50ms/step - loss: 1.1802 -
accuracy:
0.5837 - val_loss: 1.2141 - val_accuracy: 0.5757\n",
"Epoch 3/10\n",
       "1563/1563 [==============================] - 78s 50ms/step - loss: 1.0330 -
accuracy:
0.6392 - val_loss: 0.9934 - val_accuracy: 0.6493\n",
"Epoch 4/10\n",
       "1563/1563 [==============================] - 78s 50ms/step - loss: 0.9367 -
accuracy:
0.6738 - val_loss: 0.9645 - val_accuracy: 0.6568\n",
"Epoch 5/10\n",
       "1563/1563 [==============================] - 78s 50ms/step - loss: 0.8598 -
accuracy:
0.6982 - val_loss: 0.8927 - val_accuracy: 0.6906\n",
"Epoch 6/10\n",
       "1563/1563 [==============================] - 77s 49ms/step - loss: 0.8069 -
accuracy:
0.7185 - val_loss: 0.8897 - val_accuracy: 0.6925\n",
"Epoch 7/10\n",
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accuracy:
0.7351 - val_loss: 0.9193 - val_accuracy: 0.6885\n",
"Epoch 8/10\n",
       "1563/1563 [==============================] - 76s 49ms/step - loss: 0.7127 -
accuracy:
0.7508 - val_loss: 0.8996 - val_accuracy: 0.6962\n",
"Epoch 9/10\n",
       "1563/1563 [==============================] - 76s 48ms/step - loss: 0.6726 -
accuracy:
0.7641 - val_loss: 0.8864 - val_accuracy: 0.6996\n",
"Epoch 10/10\n",
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     "model.save('nutrition.h5')"
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     "#Prediciting our results\n",
     "from tensorflow.keras.models import load_model\n",
     "from tensorflow.keras.preprocessing import image\n",
     "model=load_model('nutrition.h5')"
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   "result"
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