In [1]:

```
#Paul Galvez
#DSC 650 Fall 2023
#Date: 9/24/23
```

In [2]:

```
#Load the ResNet50 model. Perform image classification on five to ten images of your choice.
#They can be personal images or publically available images.
#Include the images in dsc650/assignments/assignment06/images/.
#Save the predictions dsc650/assignments/assignment06/results/predictions/resnet50 directory.
#If you are using JupyterHub, you can include those plots in your Jupyter notebook.
```

In [52]:

```
#Week 6 Assing. 6.3
```

In [53]:

```
#Loading the required libraries

from tensorflow.keras.applications.resnet50 import ResNet50
from tensorflow.keras.preprocessing import image
from tensorflow.keras.applications.resnet50 import preprocess_input, decode_predictions
import numpy as np
```

In [54]:

```
#Loding the model

model = ResNet50(weights='imagenet')
```

In [69]:

```
#Loading image (leather back sea turtle)

img_path = "C:/Users\paul_/OneDrive/Desktop/leatherbackseaturtle.jpg"
img = image.load_img(img_path, target_size=(224, 224))
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = preprocess_input(x)
```

In [73]:

```
preds = model.preds = model.predict(x)
```

```
1/1 [==============================] - 0s 290ms/step
```

In [74]:

```
print('Predicted:', decode_predictions(preds, top=3)[0])
```

```
Downloading data from https://storage.googleapis.com/download.tensorflow.org/data/imagenet_class_index.j
son (https://storage.googleapis.com/download.tensorflow.org/data/imagenet_class_index.json)
35363/35363 [==============================] - 0s 3us/step
Predicted: [('n01665541', 'leatherback_turtle', 0.655429), ('n01664065', 'loggerhead', 0.34374776), ('n0
1667778', 'terrapin', 0.00079764175)]
```

In [77]:

```
#Loading image (dolphin)

img_path = "C:/Users/paul_/OneDrive/Desktop/dolphin.jpg"
img = image.load_img(img_path, target_size=(224, 224))
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = preprocess_input(x)
```

In [78]:

```
preds = model.preds = model.predict(x)
```

```
1/1 [==============================] - 0s 301ms/step
```

In [79]:

```
print('Predicted:', decode_predictions(preds, top=3)[0])
```

```
Predicted: [('n01491361', 'tiger_shark', 0.37145734), ('n02058221', 'albatross', 0.25176618), ('n0149447
5', 'hammerhead', 0.21492705)]
```

In [80]:

```
#Loading image (Beluga)

img_path = "C:/Users/paul_/OneDrive/Desktop/Beluga.jpg"
img = image.load_img(img_path, target_size=(224, 224))
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = preprocess_input(x)
```

In [81]:

```
preds = model.preds = model.predict(x)
```

```
1/1 [==============================] - 0s 272ms/step
```

In [82]:

```
print('Predicted:', decode_predictions(preds, top=3)[0])
```

```
Predicted: [('n02074367', 'dugong', 0.92853796), ('n02134084', 'ice_bear', 0.013373739), ('n04251144',
'snorkel', 0.0112054115)]
```

In [83]:

```
#Loading image (Orca)

img_path = "C:/Users/paul_/OneDrive/Desktop/Orca.jpg"
img = image.load_img(img_path, target_size=(224, 224))
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = preprocess_input(x)
```

In [84]:

```
preds = model.preds = model.predict(x)
```

```
1/1 [==============================] - 0s 299ms/step
```

In [85]:

```
print('Predicted:', decode_predictions(preds, top=3)[0])
```

```
Predicted: [('n02071294', 'killer_whale', 0.9984428), ('n02066245', 'grey_whale', 0.001132937), ('n02058
221', 'albatross', 0.0002832583)]
```

In [86]:

```
#Loading image (Octopus)

img_path = "C:/Users/paul_/OneDrive/Desktop/octopus.jpg"
img = image.load_img(img_path, target_size=(224, 224))
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = preprocess_input(x)
```

In [87]:

```
preds = model.preds = model.predict(x)
```

```
1/1 [==============================] - 0s 276ms/step
```

In [88]:

```
print('Predicted:', decode_predictions(preds, top=3)[0])
```

```
Predicted: [('n12985857', 'coral_fungus', 0.14129865), ('n01704323', 'triceratops', 0.11821148), ('n0925
6479', 'coral_reef', 0.07205557)]
```

In [92]:

```
#Loading image (Great White Shark)

img_path = "C:/Users/paul_/OneDrive/Desktop/shark.jpg"
img = image.load_img(img_path, target_size=(224, 224))
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = preprocess_input(x)
```

In [93]:

```
preds = model.preds = model.predict(x)
```

```
1/1 [==============================] - 0s 291ms/step
```

In [94]:

```
print('Predicted:', decode_predictions(preds, top=3)[0])
```

```
Predicted: [('n01484850', 'great_white_shark', 0.9956649), ('n01491361', 'tiger_shark', 0.002986795),
('n02071294', 'killer_whale', 0.0012530709)]
```