0118_pickle

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1 118: Python basics - saving python objects to disk with pickle

Sometimes we may wish to save Python objects to disc (for example if we have performed a lot of processing to get to a certain point). We can use Python's pickle method to save and reload any Python object. Here we will save and reload a NumPy array, and then save and reload a collection of different objects.

1.1 Saving a single python object

Here we will use pickle to save a single object, a NumPy array.

```
In [1]: import pickle
        import numpy as np

        # Create array of random numbers:
        my_array= np.random.rand(2,4)
        print (my_array)
```

```
[[0.6383297  0.45250192 0.09882854 0.84896196]
 [0.97006917 0.29206495 0.92500062 0.52965801]]
```

```
In [2]: # Save using pickle
        filename = 'pickled_array.p'
        with open(filename, 'wb') as filehandler:
            pickle.dump(my_array, filehandler)
```

Reload and print pickled array:

```
In [3]: filename = 'pickled_array.p'
        with open(filename, 'rb') as filehandler:
            reloaded_array = pickle.load(filehandler)

        print ('Reloaded array:')
        print (reloaded_array)
```

```
Reloaded array:
[[0.6383297  0.45250192 0.09882854 0.84896196]
 [0.97006917 0.29206495 0.92500062 0.52965801]]
```

1.2 Using a tuple to save multiple objects

We can use pickle to save a collection of objects grouped together as a list, a dictionary, or a tuple. Here we will save a collection of objects as a tuple.

```
In [4]: # Create an array, a list, and a dictionary
        my_array = np.random.rand(2,4)
        my_list =['A', 'B', 'C']
        my_dictionary = {'name': 'Bob', 'Age': 42}

In [5]: # Save all items in a tuple
        items_to_save = (my_array, my_list, my_dictionary)
        filename = 'pickled_tuple_of_objects.p'
        with open(filename, 'wb') as filehandler:
            pickle.dump(items_to_save, filehandler)
```

Reload pickled tuple, unpack the objecys, and print them.

```
In [6]: filename = 'pickled_tuple_of_objects.p'
        with open(filename, 'rb') as filehandler:
            reloaded_tuple = pickle.load(filehandler)


        reloaded_array = reloaded_tuple[0]
        reloaded_list = reloaded_tuple[1]
        reloaded_dict = reloaded_tuple[2]

        print ('Reloaded array:')
        print (reloaded_array)
        print ('\nReloaded list:')
        print (reloaded_list)
        print ('\n Reloaded dictionary')
        print (reloaded_dict)
```

```
Reloaded array:
[[0.40193978 0.55173167 0.89411291 0.84625061]
 [0.86540981 0.27835353 0.43359222 0.31579122]]

Reloaded list:
['A', 'B', 'C']

 Reloaded dictionary
{'name': 'Bob', 'Age': 42}
```