

KEY_Practice06_2D_Lists_Intro

January 20, 2020

1 Practice with 2D lists!

Remember: * Lists can be used to group different values together - it's just a collection of things.
* You can make a list in Python by putting different things in a box of brackets [] separated by commas. * 2D lists are lists of lists

First, make a list of land animals including cat, dog, elephant, and any other land animals you want to include. Store it in the variable `land`:

```
[1]: # command Python to make a list of land animals including dog, cat, and
      ↪elephant. Store it in land
      land = ['cat', 'dog', 'elephant']

      # command Python to print land
      print(land)
```

```
['cat', 'dog', 'elephant']
```

Second, make a list of aquatic animals including fish, seahorse, and whale. Store it in the variable `aquatic`:

```
[2]: # command Python to make a list of aquatic animals including fish, seahorse,
      ↪and whale. Store it in aquatic
      aquatic = ['fish', 'seahorse', 'whale']

      # command Python to print aquatic
      print(aquatic)
```

```
['fish', 'seahorse', 'whale']
```

How many things are in your `land` list? How about your `aquatic` list?

```
[3]: # command Python to print the length of land
      print(len(land))

      # command Python to print the length of aquatic
      print(len(aquatic))
```

3

3

Okay, time to make a 2D list! Combine land and aquatic into a 2D list called `animals`:

```
[4]: # command Python to make a 2D list of animals that contains land and aquatic
animals = [land, aquatic]

# command Python to print animals
print(animals)
```

```
[['cat', 'dog', 'elephant'], ['fish', 'seahorse', 'whale']]
```

Now, create another list called `air` and include robin, cardinal, and bat.

```
[ ]: # command Python to make a list called air
air = ['robin', 'cardinal', 'bat']
```

Add `air` to your 2D `animals` list.

```
[6]: # command Python to add air to your animals list
animals.append(air)

# command Python to print animals
print(animals)

# command Python to find the length of animals
len(animals)
```

```
[['cat', 'dog', 'elephant'], ['fish', 'seahorse', 'whale'], ['robin',
'cardinal', 'bat']]
```

```
[6]: 3
```

Challenge: Make a 2D list of numbers from 1 to 20 where the odd numbers are in the first list and the even numbers are in the second list

```
[7]: # make 2D list of numbers
odd = [1,3,5,7,9,11,13,15,17,19]
even = [2,4,6,8,10,12,14,16,18,20]
all_nums = [odd,even]
# print out 2D list of numbers to see if you did it right!
print(all_nums)
```

```
[[1, 3, 5, 7, 9, 11, 13, 15, 17, 19], [2, 4, 6, 8, 10, 12, 14, 16, 18, 20]]
```

Now add your `animals` list and your `numbers` list together, print it out, and find the length!

```
[8]: # add your animals list and your numbers list together
both_lists = animals + all_nums
# print new list
print(both_lists)
# find length of new list
```

```
len(both_lists)
```

```
[['cat', 'dog', 'elephant'], ['fish', 'seahorse', 'whale'], ['robin',  
'cardinal', 'bat'], [1, 3, 5, 7, 9, 11, 13, 15, 17, 19], [2, 4, 6, 8, 10, 12,  
14, 16, 18, 20]]
```

```
[8]: 5
```

Nice job! You just practiced: * Making a 2D list (a list of lists) * Finding the length of a 2D list (len) * Adding 2D lists together (+) * Adding things to a 2D list (.append)