

Lecture 2 Examples

UCLA, Econ 10P: Introduction to Python for Economists

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I. Lists & Dictionaries

1. Given the `list` below, perform the following operations (Hint: use the `.` tab command):

```
stocks = ["Facebook", "Amazon", "Apple", "Google"]
```

- Reverse the order of the stocks.
- Remove Facebook from the list. Note: Did you remove Google instead? Why?
- Insert the stock "Twitter" between Amazon and Apple.
- Remove Twitter from the list, and check if it was done by using the `in` or `not in` command.

2. Given the two lists below, perform the following operations:

```
X = [[0, 1, 2], 3]
```

```
Y = [[4, 5], 6, [7, 8]]
```

- Output the number 0, 1, 2 from `X`.
- Output the number 1 from `X`.
- Combine the two lists into a new one, call it `Z`.
- Append the values 9 and 10 to `Z` (compare the `extend` vs. `append` functions).
- Output the numbers 6, 7, and 8 from `Z`.
- Remove the values 9 and 10 from `Z` (compare the `remove` vs. `del` functions).
- Output every other element of `Z` (Hint: use the `[::]` syntax).

3. Given the `tuple` below, perform the following operations:

```
U = ([1, 2, 3], 4)
```

- Try assigning the value 100 to the first element of `U`. Did you get an error?
- Assign the value 100 to the contents of the first element of `U` (Note: Contents can change, elements cannot).
- What is the output of `2 * U`?
- Compare the `types` of `x = (10)` vs. `x = (10,)`.
- What `methods` are available for tuples?

4. Given the `dict` (dictionary) below, perform the following operations:

```
personal_data = {'age': 30, 'pets': [0, 1, 2], 'drinks': ['coffee',  
'tea']}
```

- a. Output the `keys` and `values` .
- b. Check the type of `personal_data` .
- c. Output (one by one) the values corresponding to each key.
- d. Change the `age` value to 40.
- e. Add a new `key-value` pair, `sport = 'Chess'` to the dictionary.
- f. Remove the `key-value` pair from part (e).

II. Functions

1. Write a function that returns the maximum number between two numbers, squares it, and then takes mod 2.
2. Write a function that outputs the volume and surface area of a cube when the length of the side is provided.
3. Write a function that multiplies a list of numbers.
4. Write a function that counts the number of upper case and lower case letters in a string. Hint: Use a `dict` and the `.isupper` function.
5. Write a function called `lottery` that solves the following problem (Berk & DeMarzo, Problem 4.8 -same one from the lecture). You are the lucky winner of the \$30 million state lottery. You can take your prize money either as (a) 30 payments of \$1 million per year (starting today), or (b) \$15 million paid today. If the interest rate is 8%, which option should you take?
6. Create an example for the use of (i) `try-except` and (ii) `pass`