Problem Set 0
Due by 2/21, 11:59PM

Generate a Python script for your answers. You will turn in your script only.

(0) Find the type of the following variables.

    (a) `x = 2.`

    (b) `x = 2.0`

    (c) `x = "2.0"`

    (d) `x = 2 + 0j`

    (e) `x = "2 + 0j"`

    (f) `x = math.pi # import math module first!`

(1) Generate the following string variable, `s = "Python has a nice syntax."`.

    (a) Compute the number of characters in `s`.

    (b) Slice `s` to obtain the substring `"syntax"`.

    (c) Find the first occurrence of `"a"` in `s`.

    (d) Replace all occurrences of `"a"` in `s` to `"A"`.

    (e) Add the following string to `s`, `"But, Stata's is counterintuitive"`.

(2) Generate the following list, `y = [[1,math.pi,0,7,8], ["abc", bool(0), -3, 12]]`.

    (a) Reversing the first list in `y` using a reverse method.

    (b) Replace `bool(0)` to `bool(1)` in the second list in `y`.

    (c) Drop `pi` from the first list in `y`.

    (d) Add `[math.pi, math.e, 3-1j, False]` to `y`.

(3) Let `z` be equal to `y` in 2(d), `z = y`.

    (a) Replace `z[2][0]` to `True`. What happened to `y`?

    (b) How should we generate `z` so that the definition of `y` is not affected? (Note that `copy` method will not work here.)

(4) Generate a dictionary named `student` with the following keys: `"name"`, `"age"`, `"courses"`, `"phone"` and corresponding values `"Jane", 22, ["MATH131", "ANTH201"], "555-788-5544"`.

    (a) Print student's phone.

    (b) Update student's `age` to `24` and `courses` to `["MATH131", "ANTH201", "ECO387"]`.

    (c) Drop the phone number from the dictionary.

    (d) Generate a new string variable named `courses` from the values in the `courses` such that course names are separated by `"-"`, and now print it.

(5) Generate an empty set named `w1`.

    (a) Add the following elements to `w1`: $\{2,4,6,\ldots,100\}$.

(b) Generate a new set `w2` with the elements $\{-100, -98, \ldots, 98, 100\}$.

(c) Find the number of elements in the intersection of `w1` and `w2`.

(d) Find the number of elements in the set difference between `w2` and `w1`.