
Quiz 1 - DSC 10, Winter 2024

Full Name:

PID:

Discussion: ☐ A (5PM) ☐ B (6PM) ☐ C (7PM)

Instructions:

- This quiz consists of 4 questions. You have a total of 20 minutes to complete it.
 - Please write **clearly** in the provided answer boxes; we will not grade work that appears elsewhere. Completely fill in bubbles and square boxes; if we cannot tell which option(s) you selected, you may lose points.
 - ☐ A bubble means that you should only **select one choice**.
 - ☐ A square box means you should **select all that apply**.
 - If your answer is a string, make sure to put it in quotes. If your answer is a float, make sure to include a decimal point.
 - No aids are allowed (no notes, no calculators, and no computers).
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By signing below, you are agreeing that you will behave honestly and fairly during and after this quiz.

Signature:

Version A

Please do not open your quiz until instructed to do so.

Question 1

Select all the true statements below.

- ☐ Mixing `ints` and `floats` in an arithmetic expression will always result in a `float`.
- ☐ Dividing two `ints` will sometimes result in an `int`.
- ☐ Any `float` can be converted to a string using the function `str()`.
- ☐ Any string can be converted to a `float` using the function `float()`.

Question 2

Consider the assignment statement below.

```
pear = [6, 10.1, "pear", 13]
```

What does the expression `np.array(pear)` evaluate to?

- ☐ `array([6, 10.1, "pear", 13])`
- ☐ `array(["6", "10.1", "pear", "13"])`
- ☐ `array([pear])`
- ☐ `array([6, 10.1, pear, 13])`
- ☐ `array(["pear"])`
- ☐ This expression errors.

Question 3

Suppose `x` and `y` are both `ints` that have been previously defined, with `x < y`. Now, define:

```
peach = np.arange(x, y, 2)
```

Say that the *spread* of `peach` is the difference between the largest and smallest values in `peach`. The spread should be a non-negative integer.

- a) Using array methods, write an expression that evaluates to the spread of `peach`.

- b) Without using any methods or functions, write an expression that evaluates to the spread of `peach`.

Hint: Use `[ ]`.

- c) Choose the correct way to fill in the blank in this sentence:

The spread of `peach` is _____ the value of `y - x`.

- ☐ always less than
- ☐ sometimes less than and sometimes equal to
- ☐ always greater than
- ☐ sometimes greater than and sometimes equal to
- ☐ always equal to

Question 4

Suppose `fruits` is a DataFrame of the fruits Ashley bought at the grocery store, where:

- The `"fruit"` column contains the name of the fruit, as a string. All values in this column are distinct.
- The `"price"` column contains the amount in dollars spent on the fruit, as a `float`.
- The `"pounds"` column contains the number of **pounds** purchased, as an `int`.

- a) Fill in the blanks below to add a new column to `fruits` called `"price_per_ounce"` that contains the price per ounce of each of the fruits in `fruits`. **There are 16 ounces in a pound.**

```
fruits = fruits.__(x)__(price_per_ounce = __(y)__ / __(z))
```

(x):

(y):

(z):

- b) Write a line of code that evaluates to the amount of money, in dollars, that Ashley spent on fruit at the grocery store.

- c) Fill in the blanks so that the expression below evaluates to the name of the fruit with the highest price per ounce.

```
(fruits.sort_values(by = "price_per_ounce", ascending = __(x))
    .get(__(y)).iloc[0])
```

(x):

, (y):

- d) Assuming that `"mango"` is one of the fruits Ashley bought, fill in the blanks so that the expression below evaluates to the price per ounce of `"mango"`.

```
fruits.__(x)__("fruit").get("price_per_ounce").__(y)["mango"]
```

(x):

, (y):

Before submitting your quiz, make sure your PID is on the front page and on the top right corner of page 3.