Quiz 2 - DSC 10, Fall 2023

Full Name:

PID:

Discussion: ◯ A (3PM) ◯ B (4PM) ◯ C (5PM)

Instructions:

- This quiz consists of 5 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; if we cannot tell which option(s) you selected, you may lose points. For multiple choice questions, select **only one answer**.
- 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).

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.

The DataFrame `items` describes various items available to collect or purchase using bells, the currency used in the game *Animal Crossing: New Horizons*.

For each item, we have:

- `"Item" (str)`: The name of the item.
- `"Cost" (int)`: The cost of the item in bells. Items that cost 0 bells cannot be purchased and must be collected through other means (such as crafting).
- `"Location" (str)`: The store or action through which the item can be obtained.

The first 6 rows of `items` are below, though `items` has more rows than are shown here.

	Item	Cost	Location
0	Mantis-Head Model	1500	Nook's Cranny
1	Spooky Lantern	5600	Able Sisters Shop
2	Forbidden Altar	0	Crafting
3	Exercise Ball	1100	Nook's Cranny
4	Double-Edged Sword	130000	Nook's Cranny
5	Birthday Table	0	Birthday Gift

Question 1

Fill in the blanks so that `count_1` and `count_2` both evaluate to the number of items in `items` with a `"Cost"` of 0.

```
count_1 = items.groupby(__(a)__).__(b)__().get("Item").loc[__(c)__]
count_2 = items[__(d)__].shape[0]
```

a: , b: , c:

d:

Question 2

The DataFrame `keepers` has 5 rows, each of which represent a different shopkeeper in the *Animal Crossing: New Horizons* universe.

`keepers` is shown below in its entirety.

	Store	Keeper
0	Able Sisters Shop	Mable
1	Nook's Cranny	Tom
2	Nook's Cranny	Tim
3	Kicks Shoe Store	Kicks
4	Nook's Cranny	Isabelle

How many rows are in the following DataFrame? Give your answer as an integer.

```
keepers.merge(items.take(np.arange(6)),
              left_on="Store",
              right_on="Location")
```

number of rows:

PID: _____

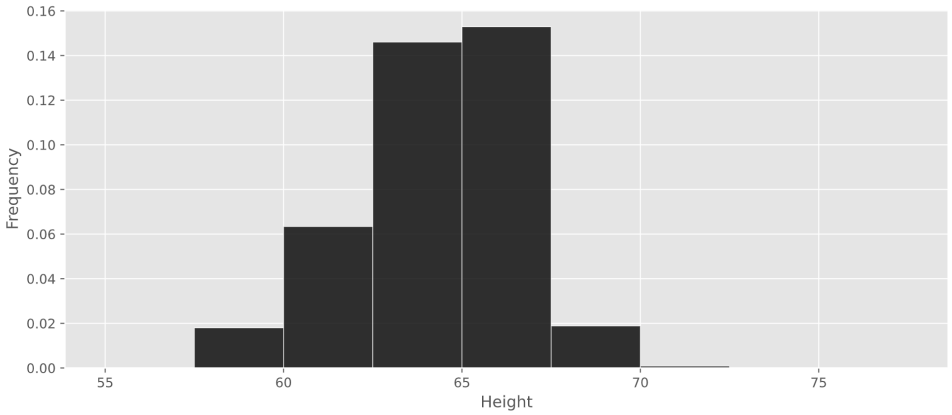
Question 3

Which type of plot should we use to visualize the distribution of the `"Location"` column in the `items` DataFrame?

◯ Scatter plot ◯ Line plot ◯ Bar chart ◯ Histogram

Question 4

Nintendo collected data on the heights of a sample of *Animal Crossing: New Horizons* players. A histogram of the heights in their sample is given below.



What **percentage** of players in Nintendo's sample are at least 62.5 inches tall? Give your answer as an integer rounded to the **nearest multiple of 5**.

80%

Question 5

Consider the function `tom_nook`, defined below. Recall that if `x` is an integer, `x % 2` is `0` if `x` is even and `1` if `x` is odd.

```
def tom_nook(crossing):
    bells = 0
    for nook in np.arange(crossing):
        if nook % 2 == 0:
            bells = bells + 1
        else:
            bells = bells - 2
    return bells
```

What value does `tom_nook(8)` evaluate to?

◯ -6 ◯ -4 ◯ -2 ◯ 0 ◯ 2 ◯ 4 ◯ 6

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