Case Study 5 Homework: Exercises 1-4

Homework due Jul 14, 2021 05:59 +06 Completed

Exercise 1

1/1 point (graded)

In Exercise 1, we will group the dataframe by `birdname` and then find the average `speed_2d` for each bird. `pandas` makes it easy to perform basic operations on groups within a dataframe without needing to loop through each value in the dataframe.

Instructions

Fill in the code to find the mean altitudes of each bird using the pre-loaded `birddata` dataframe.

Here is the code:

```
# First, use `groupby()` to group the data by "bird_name".
grouped_birds =

# Now calculate the mean of `speed_2d` using the `mean()` function.
mean_speeds =

# Find the mean `altitude` for each bird.
mean_altitudes =
```

What is the mean speed for Sanne?

2.450434 ✔

2.450434

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✔ Correct (1/1 point)

Exercise 2

1/1 point (graded)

In Exercise 2, we will group the flight times by date and calculate the mean altitude within that day.

Instructions

Convert `birddata.date_time` to the `pd.datetime` format, and store as `birddata["date"]`.

Fill in the code below to find the mean altitudes for each day:

```
# Convert birddata.date_time to the `pd.datetime` format.
birddata.date_time =

# Create a new column of day of observation
birddata["date"] =
```

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```
# Use  groupby()  to group the data by date.
grouped_bydates =

# Find the mean `altitude` for each date.
mean_altitudes_perday =
```

What is the mean altitude of the birds on 2013-09-12?

75.646091 ✔

75.646091

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Exercise 3

1/1 point (graded)
In Exercise 3, we will group the flight times by both bird and date, and calculate the mean altitude for each.

Instructions
Note that `birddata` already contains the `date` column. To find the average speed for each bird and day, create a new grouped dataframe called `grouped_birdday` that groups the data by both `bird_name` and date.

Fill in the following code for this exercise:

```
# Use `groupby()` to group the data by bird and date.
grouped_birdday =

# Find the mean `altitude` for each bird and date.
mean_altitudes_perday =
```

What is the mean altitude of the bird Eric on 2013-08-18?

121.353659 ✔

121.353659

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Exercise 4

1/1 point (graded)
In Exercise 4, we will find the average speed for each bird and day.

Instructions
Store the average speeds for each bird and day as three `pandas` `Series` objects, one for each bird, then use the plotting code provided to plot the average speeds for each bird.

Here is the code to moldify for this exercise:

```
import matplotlib.pyplot as plt

eric_daily_speed  = # Enter your code here.
sanne_daily_speed = # Enter your code here.
nico_daily_speed  = # Enter your code here.

eric_daily_speed.plot(label="Eric")
sanne_daily_speed.plot(label="Sanne")
nico_daily_speed.plot(label="Nico")
plt.legend(loc="upper left")
plt.show()
```

What is the mean speed of the bird Nico on 2014-04-04?

2.832465

2.832465

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✔ Correct (1/1 point)

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