

# Project 9 -- SEYI OGUNMODEDE

**INSTRUCTOR Help:** Dr. ward

- Help with figuring out how to write a function.

## Question 1

```
In [1]: # It is helpful to use a Parquet file when we need efficient storage  
# If we tried to read in all the .csv files in the disney folder the kernel would crash  
# In short a Parquet file allows for high performance data compression and encoding  
# schemes to deal with large amounts of complex data.  
# The format is a column-oriented file format while .csv's tend to be row-oriented
```

```
In [62]: # to know the files that are in the Disney directory  
# using ls/anvil/projects/tdm/data/disney  
# there are separate files for each ride  
# There is a ride called total.parquet  
# it has information of all of the rides in it.  
# to import the file which is not a csv,  
# you have to use read_parquet function
```

```
In [61]: ls/anvil/projects/tdm/data/disney
```

|                          |                                    |
|--------------------------|------------------------------------|
| 7_dwarfs_train.csv       | people mover.csv                   |
| alien_saucers.csv        | peter_pan_s_flight.csv             |
| ariel_s_grotto.csv       | pete_s_goofy_donald.csv            |
| astro_orbiter.csv        | pete_s_minnie_daisy.csv            |
| barnstormer.csv          | philharmagic.csv                   |
| big_thunder_mtn.csv      | pirate_s_adventure.csv             |
| buzz_lightyear.csv       | pirates_of_caribbean.csv           |
| carousel_of_progress.csv | princess_hall_cinderella_elena.csv |
| casey_jr_splash.csv      | princess_hall_rapunzel_tiana.csv   |
| country_bears.csv        | regal_carrousel.csv                |
| dinosaur.csv             | rock_n_rollercoaster.csv           |
| dumbo.csv                | slinky_dog.csv                     |
| enchanted_tiki_rm.csv    | soarin.csv                         |
| ench_tales_w_belle.csv   | sorcerers_of_the_mk.csv            |
| entities.csv             | space_mountain.csv                 |
| expedition EVEREST.csv   | spaceship_earth.csv                |
| flight_of_passage.csv    | splash_mountain.csv                |
| hall_of_presidents.csv   | swiss_family_tree.csv              |
| haunted_mansion.csv      | tom_land_speedway.csv              |
| it_s_a_small_world.csv   | tom_sawyer_island.csv              |
| jungle_cruise.csv        | total.parquet                      |
| kilimanjaro_safaris.csv  | touringplans_data_dictionary.xlsx  |
| laugh_floor.csv          | town_sq_mickey.csv                 |
| liberty_sq_riverboat.csv | town_sq_tink.csv                   |
| mad_tea_party.csv        | toy_story_mania.csv                |
| magic_carpets.csv        | under_the_sea.csv                  |
| main_st_vehicles.csv     | update.py*                         |
| metadata.csv             | winnie_the_pooh.csv                |
| navi_river.csv           |                                    |

In [5]: `import pandas as pd  
disney = pd.read_parquet('/anvil/projects/tdm/data/disney/total.parquet')`

In [6]: `disney.head()`

Out[6]:

|   | <b>date</b> | <b>datetime</b>     | <b>SACTMIN</b> | <b>SPOSTMIN</b> | <b>ride_name</b>    |
|---|-------------|---------------------|----------------|-----------------|---------------------|
| 0 | 01/01/2015  | 2015-01-01 07:47:26 | NaN            | 5.0             | kilimanjaro_safaris |
| 1 | 01/01/2015  | 2015-01-01 07:54:23 | NaN            | 5.0             | kilimanjaro_safaris |
| 2 | 01/01/2015  | 2015-01-01 08:05:33 | NaN            | 5.0             | kilimanjaro_safaris |
| 3 | 01/01/2015  | 2015-01-01 08:12:23 | NaN            | 10.0            | kilimanjaro_safaris |
| 4 | 01/01/2015  | 2015-01-01 08:19:26 | NaN            | 10.0            | kilimanjaro_safaris |

In [7]: `disney.columns`

Out[7]: `Index(['date', 'datetime', 'SACTMIN', 'SPOSTMIN', 'ride_name'], dtype='object')`

In [8]: `disney['ride_name']`

```
Out[8]: 0      kilimanjaro_safaris
         1      kilimanjaro_safaris
         2      kilimanjaro_safaris
         3      kilimanjaro_safaris
         4      kilimanjaro_safaris
         ...
        124500    enchanted_tiki_rm
        124501    enchanted_tiki_rm
        124502    enchanted_tiki_rm
        124503    enchanted_tiki_rm
        124504    enchanted_tiki_rm
Name: ride_name, Length: 10306140, dtype: object
```

```
In [9]: disney['ride_name'].head()
```

```
Out[9]: 0      kilimanjaro_safaris
         1      kilimanjaro_safaris
         2      kilimanjaro_safaris
         3      kilimanjaro_safaris
         4      kilimanjaro_safaris
Name: ride_name, dtype: object
```

```
In [10]: # to Look at the unique entry in that column
```

```
disney['ride_name'].unique()
```

```
Out[10]: array(['kilimanjaro_safaris', 'expedition_everest', 'dinosaur',
       'spaceship_earth', 'soarin', 'rock_n_rollercoaster',
       'toy_story_mania', 'splash_mountain', 'pirates_of_caribbean',
       'navi_river', 'flight_of_passage', 'Slinky_dog', 'alien_saucers',
       '7_dwarfs_train', 'pirate_s_adventure', 'astro_orbiter',
       'barnstormer', 'big_thunder_mtn', 'buzz_lightyear',
       'carousel_of_progress', 'country_bears', 'dumbo',
       'hall_of_presidents', 'haunted_mansion', 'it_s_a_small_world',
       'jungle_cruise', 'liberty_sq_riverboat', 'mad_tea_party',
       'magic_carpets', 'town_sq_mickey', 'philharmagic', 'laugh_floor',
       'people mover', 'peter_pan_s_flight', 'regal_carrousel',
       'princess_hall_cinderella_elena', 'princess_hall_rapunzel_tiana',
       'sorcerers_of_the_mk', 'space_mountain', 'swiss_family_tree',
       'winnie_the_pooh', 'tom_sawyer_island', 'tom_land_speedway',
       'under_the_sea', 'enchanted_tiki_rm'], dtype=object)
```

```
In [11]: # if everything is wrapped up in a print, array will not show again.
# output looks more natural
```

```
print(disney['ride_name'].unique())
```

```
['kilimanjaro_safaris' 'expedition_everest' 'dinosaur' 'spaceship_earth'
 'soarin' 'rock_n_rollercoaster' 'toy_story_mania' 'splash_mountain'
 'pirates_of_caribbean' 'navi_river' 'flight_of_passage' 'Slinky_dog'
 'alien_saucers' '7_dwarfs_train' 'pirate_s_adventure' 'astro_orbiter'
 'barnstormer' 'big_thunder_mtn' 'buzz_lightyear' 'carousel_of_progress'
 'country_bears' 'dumbo' 'hall_of_presidents' 'haunted_mansion'
 'it_s_a_small_world' 'jungle_cruise' 'liberty_sq_riverboat'
 'mad_tea_party' 'magic_carpets' 'town_sq_mickey' 'philharmagic'
 'laugh_floor' 'people mover' 'peter_pan_s_flight' 'regal_carrousel'
 'princess_hall_cinderella_elena' 'princess_hall_rapunzel_tiana'
 'sorcerers_of_the_mk' 'space_mountain' 'swiss_family_tree'
 'winnie_the_pooh' 'tom_sawyer_island' 'tom_land_speedway' 'under_the_sea'
 'enchanted_tiki_rm']
```

```
In [12]: disney.groupby(['ride_name']).count()
```

Out[12]:

date datetime SACTMIN SPOSTMIN

| ride_name                      |        |        |       |        |  |
|--------------------------------|--------|--------|-------|--------|--|
| 7_dwarfs_train                 | 321631 | 321631 | 7635  | 313996 |  |
| alien_saucers                  | 129876 | 129876 | 3031  | 126845 |  |
| astro_orbiter                  | 293767 | 293767 | 1770  | 291997 |  |
| barnstormer                    | 307835 | 307835 | 3087  | 304748 |  |
| big_thunder_mtn                | 309857 | 309857 | 11730 | 298127 |  |
| buzz_lightyear                 | 316582 | 316582 | 7998  | 308584 |  |
| carousel_of_progress           | 104867 | 104867 | 876   | 103991 |  |
| country_bears                  | 105949 | 105949 | 362   | 105587 |  |
| dinosaur                       | 252403 | 252403 | 5059  | 247344 |  |
| dumbo                          | 306135 | 306135 | 2518  | 303617 |  |
| enchanted_tiki_rm              | 124505 | 124505 | 550   | 123955 |  |
| expedition EVEREST             | 275274 | 275274 | 8743  | 266531 |  |
| flight_of_passage              | 184818 | 184818 | 5965  | 178853 |  |
| hall_of_presidents             | 84685  | 84685  | 161   | 84524  |  |
| haunted_mansion                | 319956 | 319956 | 10887 | 309069 |  |
| it_s_a_small_world             | 240979 | 240979 | 7106  | 233873 |  |
| jungle_cruise                  | 298706 | 298706 | 5056  | 293650 |  |
| kilimanjaro_safaris            | 257785 | 257785 | 6516  | 251269 |  |
| laugh_floor                    | 244571 | 244571 | 1435  | 243136 |  |
| liberty_sq_riverboat           | 89259  | 89259  | 71    | 89188  |  |
| mad_tea_party                  | 303946 | 303946 | 2308  | 301638 |  |
| magic_carpets                  | 300338 | 300338 | 1918  | 298420 |  |
| navi_river                     | 182121 | 182121 | 4574  | 177547 |  |
| people mover                   | 105174 | 105174 | 5149  | 100025 |  |
| peter_pan_s_flight             | 311213 | 311213 | 5356  | 305857 |  |
| philharmagic                   | 293820 | 293820 | 2014  | 291806 |  |
| pirate_s_adventure             | 83489  | 83489  | 0     | 83489  |  |
| pirates_of_caribbean           | 301946 | 301946 | 11589 | 290357 |  |
| princess_hall_cinderella_elena | 138936 | 138936 | 195   | 138741 |  |
| princess_hall_rapunzel_tiana   | 139005 | 139005 | 266   | 138739 |  |
| regal_carrousel                | 286693 | 286693 | 1321  | 285372 |  |
| rock_n_rollercoaster           | 277509 | 277509 | 6364  | 271145 |  |

date datetime SACTMIN SPOSTMIN

| ride_name                  |        |        |       |        |  |
|----------------------------|--------|--------|-------|--------|--|
| <b>slinky_dog</b>          | 135946 | 135946 | 6005  | 129941 |  |
| <b>soarin</b>              | 274770 | 274770 | 8850  | 265920 |  |
| <b>sorcerers_of_the_mk</b> | 39931  | 39931  | 5     | 39926  |  |
| <b>space_mountain</b>      | 321959 | 321959 | 8705  | 313254 |  |
| <b>spaceship_earth</b>     | 277248 | 277248 | 4482  | 272766 |  |
| <b>splash_mountain</b>     | 287948 | 287948 | 6875  | 281073 |  |
| <b>swiss_family_tree</b>   | 112621 | 112621 | 0     | 112621 |  |
| <b>tom_land_speedway</b>   | 303173 | 303173 | 3186  | 299987 |  |
| <b>tom_sawyer_island</b>   | 108097 | 108097 | 167   | 107930 |  |
| <b>town_sq_mickey</b>      | 247152 | 247152 | 435   | 246717 |  |
| <b>toy_story_mania</b>     | 284170 | 284170 | 10483 | 273687 |  |
| <b>under_the_sea</b>       | 307351 | 307351 | 6829  | 300522 |  |
| <b>winnie_the_pooh</b>     | 312144 | 312144 | 4757  | 307387 |  |

In [13]: disney['ride\_name'].value\_counts()

```
Out[13]: space_mountain           321959
          7_dwarfs_train          321631
          haunted_mansion         319956
          buzz_lightyear          316582
          winnie_the_pooh          312144
          peter_pan_s_flight       311213
          big_thunder_mtn          309857
          barnstormer              307835
          under_the_sea             307351
          dumbo                     306135
          mad_tea_party              303946
          tom_land_speedway         303173
          pirates_of_caribbean      301946
          magic_carpets              300338
          jungle_cruise              298706
          philharmagic                293820
          astro_orbiter               293767
          splash_mountain              287948
          regal_carousel              286693
          toy_story_mania             284170
          rock_n_rollercoaster        277509
          spaceship_earth              277248
          expedition_everest          275274
          soarin                      274770
          kilimanjaro_safaris          257785
          dinosaur                     252403
          town_sq_mickey              247152
          laugh_floor                  244571
          it_s_a_small_world            240979
          flight_of_passage             184818
          navi_river                   182121
          princess_hall_rapunzel_tiana    139005
          princess_hall_cinderella_elena    138936
          slinky_dog                   135946
          alien_saucers                 129876
          enchanted_tiki_rm              124505
          swiss_family_tree              112621
          tom_sawyer_island              108097
          country_bears                  105949
          people mover                  105174
          carousel_of_progress            104867
          liberty_sq_riverboat            89259
          hall_of_presidents              84685
          pirate_s_adventure              83489
          sorcerers_of_the_mk              39931
Name: ride_name, dtype: int64
```

In [14]: `disney.shape`

Out[14]: `(10306140, 5)`

In [15]: `disney['ride_name'].shape`

Out[15]: `(10306140,)`

In [16]: `import numpy as np`  
`disney[disney.ride_name == 'hall_of_presidents'].shape[0]`

Out[16]: 84685

In [17]: `disney[disney.ride_name == 'hall_of_presidents']`

Out[17]:

|              | <b>date</b> | <b>datetime</b>     | <b>SACTMIN</b> | <b>SPOSTMIN</b> | <b>ride_name</b>   |
|--------------|-------------|---------------------|----------------|-----------------|--------------------|
| <b>0</b>     | 01/02/2015  | 2015-01-02 14:35:12 | NaN            | -999.0          | hall_of_presidents |
| <b>1</b>     | 01/04/2015  | 2015-01-04 10:35:31 | NaN            | -999.0          | hall_of_presidents |
| <b>2</b>     | 01/07/2015  | 2015-01-07 12:00:17 | NaN            | -999.0          | hall_of_presidents |
| <b>3</b>     | 01/09/2015  | 2015-01-09 17:03:27 | NaN            | -999.0          | hall_of_presidents |
| <b>4</b>     | 01/10/2015  | 2015-01-10 12:27:07 | NaN            | -999.0          | hall_of_presidents |
| ...          | ...         | ...                 | ...            | ...             | ...                |
| <b>84680</b> | 12/28/2021  | 2021-12-28 22:36:08 | NaN            | -999.0          | hall_of_presidents |
| <b>84681</b> | 12/28/2021  | 2021-12-28 22:42:15 | NaN            | -999.0          | hall_of_presidents |
| <b>84682</b> | 12/28/2021  | 2021-12-28 22:48:12 | NaN            | -999.0          | hall_of_presidents |
| <b>84683</b> | 12/28/2021  | 2021-12-28 22:54:10 | NaN            | -999.0          | hall_of_presidents |
| <b>84684</b> | 12/28/2021  | 2021-12-28 23:00:27 | NaN            | -999.0          | hall_of_presidents |

84685 rows × 5 columns

In [18]: `(disney['ride_name']=='hall_of_presidents').sum()`

Out[18]: 84685

In [19]: `disney['ride_name'].value_counts()['hall_of_presidents']`

Out[19]: 84685

In [20]: `# this will display both true and false``len(disney['ride_name']=='hall_of_presidents')`

Out[20]: 10306140

In [21]: `# This gives a value for 'hall_of_presidents'``len(disney[disney['ride_name']=='hall_of_presidents'])`

Out[21]: 84685

Since there is a lot of new ride data, let's print the name of each ride.

How many rows of data are there for each ride?

What is different about the information that you receive if you use the groupby() vs value.count()? For groupby it gave four columns output which both data and datetime gave same value, while value count gave a single columns and with no confusion.

Which one yields the information asked by question 1b? value count Why? gave a single columns and with no confusion

Go ahead and import the numpy package and see if you can find the frequency of JUST the ride named hall\_of\_presidents from the column ride\_name. Under Helpful Hint there are two different ways to do that, but can you come up with a third?

## Question 2

```
In [22]: # picking 'kilimanjaro_safaris'  
# Look for the row of the dataframe = 'kilimanjaro_safaris'
```

```
In [23]: disney[disney['ride_name'] == 'kilimanjaro_safaris'].shape
```

```
Out[23]: (257785, 5)
```

```
In [24]: disney[disney['ride_name'] == 'kilimanjaro_safaris'].head()
```

```
Out[24]:
```

|          | <b>date</b> | <b>datetime</b>     | <b>SACTMIN</b> | <b>SPOSTMIN</b> | <b>ride_name</b>    |
|----------|-------------|---------------------|----------------|-----------------|---------------------|
| <b>0</b> | 01/01/2015  | 2015-01-01 07:47:26 | NaN            | 5.0             | kilimanjaro_safaris |
| <b>1</b> | 01/01/2015  | 2015-01-01 07:54:23 | NaN            | 5.0             | kilimanjaro_safaris |
| <b>2</b> | 01/01/2015  | 2015-01-01 08:05:33 | NaN            | 5.0             | kilimanjaro_safaris |
| <b>3</b> | 01/01/2015  | 2015-01-01 08:12:23 | NaN            | 10.0            | kilimanjaro_safaris |
| <b>4</b> | 01/01/2015  | 2015-01-01 08:19:26 | NaN            | 10.0            | kilimanjaro_safaris |

```
In [25]: disney[disney['ride_name'] == 'kilimanjaro_safaris'].tail()
```

```
Out[25]:
```

|               | <b>date</b> | <b>datetime</b>     | <b>SACTMIN</b> | <b>SPOSTMIN</b> | <b>ride_name</b>    |
|---------------|-------------|---------------------|----------------|-----------------|---------------------|
| <b>257780</b> | 12/28/2021  | 2021-12-28 19:30:15 | NaN            | -999.0          | kilimanjaro_safaris |
| <b>257781</b> | 12/28/2021  | 2021-12-28 19:36:10 | NaN            | -999.0          | kilimanjaro_safaris |
| <b>257782</b> | 12/28/2021  | 2021-12-28 19:42:15 | NaN            | -999.0          | kilimanjaro_safaris |
| <b>257783</b> | 12/28/2021  | 2021-12-28 19:48:15 | NaN            | -999.0          | kilimanjaro_safaris |
| <b>257784</b> | 12/28/2021  | 2021-12-28 19:54:10 | NaN            | -999.0          | kilimanjaro_safaris |

```
In [26]: disney[disney['ride_name'] == 'kilimanjaro_safaris']['date']
```

```
Out[26]: 0      01/01/2015
         1      01/01/2015
         2      01/01/2015
         3      01/01/2015
         4      01/01/2015
         ...
        257780 12/28/2021
        257781 12/28/2021
        257782 12/28/2021
        257783 12/28/2021
        257784 12/28/2021
Name: date, Length: 257785, dtype: object
```

```
In [27]: # converting the data to datetime first
# then .dt.year will work afterwards

pd.to_datetime(disney[disney['ride_name'] == 'kilimanjaro_safaris']['date']).dt.year
```

```
Out[27]: 0      2015
         1      2015
         2      2015
         3      2015
         4      2015
         ...
        257780 2021
        257781 2021
        257782 2021
        257783 2021
        257784 2021
Name: date, Length: 257785, dtype: int64
```

```
In [28]: # then i can aggregate my data to pull out whatever i want.

pd.to_datetime(disney[disney['ride_name'] == 'kilimanjaro_safaris']['date']).dt.year.agg(['min', 'max'])
```

```
Out[28]: min    2015
         max    2021
Name: date, dtype: int64
```

```
In [29]: disney[disney['ride_name'] == 'flight_of_passage'].head()
```

|          | <b>date</b> | <b>datetime</b>     | <b>SACTMIN</b> | <b>SPOSTMIN</b> | <b>ride_name</b>  |
|----------|-------------|---------------------|----------------|-----------------|-------------------|
| <b>0</b> | 05/26/2017  | 2017-05-26 09:06:38 | NaN            | -999.0          | flight_of_passage |
| <b>1</b> | 05/26/2017  | 2017-05-26 09:10:11 | 47.0           | NaN             | flight_of_passage |
| <b>2</b> | 05/26/2017  | 2017-05-26 09:10:12 | NaN            | 5.0             | flight_of_passage |
| <b>3</b> | 05/26/2017  | 2017-05-26 09:17:09 | NaN            | 60.0            | flight_of_passage |
| <b>4</b> | 05/26/2017  | 2017-05-26 09:24:07 | NaN            | 60.0            | flight_of_passage |

```
In [30]: disney[disney['ride_name'] == 'flight_of_passage'].tail()
```

Out[30]:

|        |            | date                | datetime | SACTMIN | SPOSTMIN | ride_name         |
|--------|------------|---------------------|----------|---------|----------|-------------------|
| 184813 | 12/28/2021 | 2021-12-28 19:35:47 |          | NaN     | 90.0     | flight_of_passage |
| 184814 | 12/28/2021 | 2021-12-28 19:42:15 |          | NaN     | 90.0     | flight_of_passage |
| 184815 | 12/28/2021 | 2021-12-28 19:48:15 |          | NaN     | 90.0     | flight_of_passage |
| 184816 | 12/28/2021 | 2021-12-28 19:54:10 |          | NaN     | 90.0     | flight_of_passage |
| 184817 | 12/28/2021 | 2021-12-28 19:58:35 |          | NaN     | 80.0     | flight_of_passage |

In [31]: `pd.to_datetime(disney[disney['ride_name'] =='flight_of_passage']['date']).dt.year.agg()`Out[31]:  
min 2017  
max 2021  
Name: date, dtype: int64In [32]: `def oldandrecentyears(myride: str)-> None:  
 """  
 oldandrecentyears accept myride as an arguments and print old and recent years for  
 Args:  
 my ride (str): The ride for which we want to find old and recent years  
 Returns:  
 None: This function doesnot return any value.  
 Instead it prints old and recent values of the years for a ride  
 """  
 # make a data frame with the rows correspoding to my ride and extract old and rec  
 print(pd.to_datetime(disney[disney['ride_name'] ==myride]['date']).dt.year.agg(['n  
 return None`In [33]: `oldandrecentyears('kilimanjaro_safaris')`min 2015  
max 2021  
Name: date, dtype: int64In [34]: `oldandrecentyears('flight_of_passage')`min 2017  
max 2021  
Name: date, dtype: int64In [35]: `oldandrecentyears('mad_tea_party')`min 2015  
max 2021  
Name: date, dtype: int64

Create a new function that accepts a ride name as an argument, and prints two things: (1) the first year the data for that ride was collected, and (2) the most recent year that the data for that ride was collected.

## Question 3

In [36]: `# the total row  
disney.shape[0]`

```
Out[36]: 10306140
```

```
In [37]: disney['SPOSTMIN'].head()
```

```
Out[37]: 0    5.0
1    5.0
2    5.0
3   10.0
4   10.0
Name: SPOSTMIN, dtype: float64
```

```
In [38]: disney['SACTMIN'].head()
```

```
Out[38]: 0    NaN
1    NaN
2    NaN
3    NaN
4    NaN
Name: SACTMIN, dtype: float64
```

```
In [39]: # Looking in to see, are those values null?
# the first values are not null
# the last values are not null
```

```
disney['SPOSTMIN'].isnull()
```

```
Out[39]: 0      False
1      False
2      False
3      False
4      False
...
124500  False
124501  False
124502  False
124503  False
124504  False
Name: SPOSTMIN, Length: 10306140, dtype: bool
```

```
In [40]: # Then we can sum up to know the null values that are in between
# sum up the trues and falses
# True values become a 1 when we sum and false values become 0
# There are 192389 NAN values in the SPOSTMIN column
```

```
disney['SPOSTMIN'].isnull().sum()
```

```
Out[40]: 192389
```

```
In [41]: # Then we can sum up to know the null values that are in between
# sum up the trues and falses
# True values become a 1 when we sum and false values become 0
# There are 10113751 NAN values in the SPOSTMIN column
```

```
disney['SACTMIN'].isnull().sum()
```

```
Out[41]: 10113751
```

```
In [42]: # The total number of NAN values is the same as the total number of rows in the data frame
# There is one NAN value per row, in either column
# there is going to be one NAN value and one actual value

disney['SPOSTMIN'].isnull().sum() + disney['SACTMIN'].isnull().sum()
```

Out[42]: 10306140

```
In [43]: # we will not actually integrate this into the data frame as a new column,
# but we could if we wanted to

newcolumn = disney['SACTMIN'].combine_first(disney['SPOSTMIN'])
```

In [44]: newcolumn.head()

```
Out[44]: 0    5.0
1    5.0
2    5.0
3   10.0
4   10.0
Name: SACTMIN, dtype: float64
```

```
In [45]: # we have removed all NAN values when building this new column! Every value is present

newcolumn.isnull().sum()
```

Out[45]: 0

```
In [46]: # the length of the newcolumn is the same as the number of rows in the data frame itself

len(newcolumn)
```

Out[46]: 10306140

How many total rows of data do we have?

How many non-null rows for SPOSTMIN?

How many non-null rows for SACTMIN?

Combine columns SPOSTMIN and SACTMIN to create a new variable named newcolumn

What is the length of newcolumn? Is that the same as the number of rows in the disney dataframe?

## Question 4

```
In [47]: disney.groupby('ride_name')['SACTMIN'].agg(['min','max'])
```

Out[47]:

| ride_name                      | min      | max      |
|--------------------------------|----------|----------|
| 7_dwarfs_train                 | -92918.0 | 217.0    |
| alien_saucers                  | 0.0      | 79.0     |
| astro_orbiter                  | 0.0      | 65.0     |
| barnstormer                    | 0.0      | 70.0     |
| big_thunder_mtn                | 0.0      | 952.0    |
| buzz_lightyear                 | 0.0      | 109.0    |
| carousel_of_progress           | 0.0      | 33.0     |
| country_bears                  | 0.0      | 40.0     |
| dinosaur                       | 0.0      | 96.0     |
| dumbo                          | 0.0      | 75.0     |
| enchanted_tiki_rm              | 0.0      | 36.0     |
| expedition EVEREST             | 0.0      | 137.0    |
| flight_of_passage              | 0.0      | 47897.0  |
| hall_of_presidents             | 0.0      | 35.0     |
| haunted_mansion                | 0.0      | 1511.0   |
| it_s_a_small_world             | 0.0      | 90.0     |
| jungle_cruise                  | -79187.0 | 135.0    |
| kilimanjaro_safaris            | 0.0      | 206.0    |
| laugh_floor                    | 0.0      | 2413.0   |
| liberty_sq_riverboat           | 0.0      | 16.0     |
| mad_tea_party                  | 0.0      | 372.0    |
| magic_carpets                  | 0.0      | 54.0     |
| navi_river                     | 0.0      | 203.0    |
| people mover                   | 0.0      | 131935.0 |
| peter_pan_s_flight             | 0.0      | 192.0    |
| philharmagic                   | 0.0      | 508261.0 |
| pirate_s_adventure             | NaN      | NaN      |
| pirates_of_caribbean           | 0.0      | 101.0    |
| princess_hall_cinderella_elena | 0.0      | 82.0     |
| princess_hall_rapunzel_tiana   | 0.0      | 75.0     |
| regal_carrousel                | 0.0      | 718.0    |
| rock_n_rollercoaster           | 0.0      | 195.0    |

| ride_name           | min | max     |
|---------------------|-----|---------|
| slinky_dog          | 0.0 | 197.0   |
| soarin              | 0.0 | 193.0   |
| sorcerers_of_the_mk | 0.0 | 3.0     |
| space_mountain      | 0.0 | 193.0   |
| spaceship_earth     | 0.0 | 81.0    |
| splash_mountain     | 0.0 | 156.0   |
| swiss_family_tree   | NaN | NaN     |
| tom_land_speedway   | 0.0 | 218.0   |
| tom_sawyer_island   | 0.0 | 35.0    |
| town_sq_mickey      | 0.0 | 114.0   |
| toy_story_mania     | 0.0 | 90387.0 |
| under_the_sea       | 0.0 | 113.0   |
| winnie_the_pooh     | 0.0 | 73.0    |

In [68]:

```
# Instead of working on the entire data frame you can go in
# and work on the value that the 'SACTMIN' is less than 0 to
# then we can work around the values with min 0
# This will show values Less than 0 alone

disney[disney['SACTMIN']<0].groupby('ride_name')[['SACTMIN']].agg(['min','max'])
```

Out[68]:

| ride_name      | min      | max      |
|----------------|----------|----------|
| 7_dwarfs_train | -92918.0 | -92918.0 |
| jungle_cruise  | -79187.0 | -79187.0 |

In [69]:

```
# # Instead of working on the entire data frame you can go in
# and work on the value that the 'SACTMIN' is less than or equal to 0 to
# then we can work around the values with min 0

disney[disney['SACTMIN']>=0].groupby('ride_name')[['SACTMIN']].agg(['min','max'])
```

Out[69]:

| ride_name                      | min | max      |
|--------------------------------|-----|----------|
| 7_dwarfs_train                 | 0.0 | 217.0    |
| alien_saucers                  | 0.0 | 79.0     |
| astro_orbiter                  | 0.0 | 65.0     |
| barnstormer                    | 0.0 | 70.0     |
| big_thunder_mtn                | 0.0 | 952.0    |
| buzz_lightyear                 | 0.0 | 109.0    |
| carousel_of_progress           | 0.0 | 33.0     |
| country_bears                  | 0.0 | 40.0     |
| dinosaur                       | 0.0 | 96.0     |
| dumbo                          | 0.0 | 75.0     |
| enchanted_tiki_rm              | 0.0 | 36.0     |
| expedition EVEREST             | 0.0 | 137.0    |
| flight_of_passage              | 0.0 | 47897.0  |
| hall_of_presidents             | 0.0 | 35.0     |
| haunted_mansion                | 0.0 | 1511.0   |
| it_s_a_small_world             | 0.0 | 90.0     |
| jungle_cruise                  | 0.0 | 135.0    |
| kilimanjaro_safaris            | 0.0 | 206.0    |
| laugh_floor                    | 0.0 | 2413.0   |
| liberty_sq_riverboat           | 0.0 | 16.0     |
| mad_tea_party                  | 0.0 | 372.0    |
| magic_carpets                  | 0.0 | 54.0     |
| navi_river                     | 0.0 | 203.0    |
| people mover                   | 0.0 | 131935.0 |
| peter_pan_s_flight             | 0.0 | 192.0    |
| philarmagic                    | 0.0 | 508261.0 |
| pirates_of_caribbean           | 0.0 | 101.0    |
| princess_hall_cinderella_elena | 0.0 | 82.0     |
| princess_hall_rapunzel_tiana   | 0.0 | 75.0     |
| regal_carrousel                | 0.0 | 718.0    |
| rock_n_rollercoaster           | 0.0 | 195.0    |
| slinky_dog                     | 0.0 | 197.0    |

| ride_name                  | min | max     |
|----------------------------|-----|---------|
| <b>soarin</b>              | 0.0 | 193.0   |
| <b>sorcerers_of_the_mk</b> | 0.0 | 3.0     |
| <b>space_mountain</b>      | 0.0 | 193.0   |
| <b>spaceship_earth</b>     | 0.0 | 81.0    |
| <b>splash_mountain</b>     | 0.0 | 156.0   |
| <b>tom_land_speedway</b>   | 0.0 | 218.0   |
| <b>tom_sawyer_island</b>   | 0.0 | 35.0    |
| <b>town_sq_mickey</b>      | 0.0 | 114.0   |
| <b>toy_story_mania</b>     | 0.0 | 90387.0 |
| <b>under_the_sea</b>       | 0.0 | 113.0   |
| <b>winnie_the_pooh</b>     | 0.0 | 73.0    |

```
In [52]: disney.groupby('ride_name')['SPOSTMIN'].agg(['min','max'])
```

Out[52]:

| ride_name                      | min    | max   |
|--------------------------------|--------|-------|
| 7_dwarfs_train                 | -999.0 | 300.0 |
| alien_saucers                  | -999.0 | 190.0 |
| astro_orbiter                  | -999.0 | 180.0 |
| barnstormer                    | -999.0 | 120.0 |
| big_thunder_mtn                | -999.0 | 300.0 |
| buzz_lightyear                 | -999.0 | 160.0 |
| carousel_of_progress           | -999.0 | 80.0  |
| country_bears                  | -999.0 | 45.0  |
| dinosaur                       | -999.0 | 300.0 |
| dumbo                          | -999.0 | 150.0 |
| enchanted_tiki_rm              | -999.0 | 40.0  |
| expedition EVEREST             | -999.0 | 180.0 |
| flight_of_passage              | -999.0 | 390.0 |
| hall_of_presidents             | -999.0 | 120.0 |
| haunted_mansion                | -999.0 | 180.0 |
| it_s_a_small_world             | -999.0 | 200.0 |
| jungle_cruise                  | -999.0 | 195.0 |
| kilimanjaro_safaris            | -999.0 | 300.0 |
| laugh_floor                    | -999.0 | 100.0 |
| liberty_sq_riverboat           | -999.0 | 30.0  |
| mad_tea_party                  | -999.0 | 90.0  |
| magic_carpets                  | -999.0 | 90.0  |
| navi_river                     | -999.0 | 225.0 |
| people mover                   | -999.0 | 65.0  |
| peter_pan_s_flight             | -999.0 | 300.0 |
| philarmagic                    | -999.0 | 90.0  |
| pirate_s_adventure             | -999.0 | 5.0   |
| pirates_of_caribbean           | -999.0 | 185.0 |
| princess_hall_cinderella_elena | -999.0 | 140.0 |
| princess_hall_rapunzel_tiana   | -999.0 | 140.0 |
| regal_carrousel                | -999.0 | 65.0  |
| rock_n_rollercoaster           | -999.0 | 300.0 |

|  |                            | min    | max   |
|--|----------------------------|--------|-------|
|  | ride_name                  |        |       |
|  | <b>slinky_dog</b>          | -999.0 | 305.0 |
|  | <b>soarin</b>              | -999.0 | 240.0 |
|  | <b>sorcerers_of_the_mk</b> | -999.0 | 0.0   |
|  | <b>space_mountain</b>      | -999.0 | 330.0 |
|  | <b>spaceship_earth</b>     | -999.0 | 155.0 |
|  | <b>splash_mountain</b>     | -999.0 | 300.0 |
|  | <b>swiss_family_tree</b>   | -999.0 | 20.0  |
|  | <b>tom_land_speedway</b>   | -999.0 | 110.0 |
|  | <b>tom_sawyer_island</b>   | -999.0 | 65.0  |
|  | <b>town_sq_mickey</b>      | -999.0 | 230.0 |
|  | <b>toy_story_mania</b>     | -999.0 | 300.0 |
|  | <b>under_the_sea</b>       | -999.0 | 180.0 |
|  | <b>winnie_the_pooh</b>     | -999.0 | 230.0 |

```
In [53]: # Instead of working on the entire data frame you can go in  
# and work on the value that the SPOSTMIN is not equal to -999  
# then we can work around the values with min 0  
  
disney[disney['SPOSTMIN'] != -999.0].groupby('ride_name')['SPOSTMIN'].agg(['min','max'])
```

Out[53]:

| ride_name                      | min | max   |
|--------------------------------|-----|-------|
| 7_dwarfs_train                 | 0.0 | 300.0 |
| alien_saucers                  | 0.0 | 190.0 |
| astro_orbiter                  | 0.0 | 180.0 |
| barnstormer                    | 0.0 | 120.0 |
| big_thunder_mtn                | 0.0 | 300.0 |
| buzz_lightyear                 | 0.0 | 160.0 |
| carousel_of_progress           | 0.0 | 80.0  |
| country_bears                  | 0.0 | 45.0  |
| dinosaur                       | 0.0 | 300.0 |
| dumbo                          | 0.0 | 150.0 |
| enchanted_tiki_rm              | 0.0 | 40.0  |
| expedition EVEREST             | 0.0 | 180.0 |
| flight_of_passage              | 0.0 | 390.0 |
| hall_of_presidents             | 0.0 | 120.0 |
| haunted_mansion                | 0.0 | 180.0 |
| it_s_a_small_world             | 0.0 | 200.0 |
| jungle_cruise                  | 0.0 | 195.0 |
| kilimanjaro_safaris            | 0.0 | 300.0 |
| laugh_floor                    | 0.0 | 100.0 |
| liberty_sq_riverboat           | 0.0 | 30.0  |
| mad_tea_party                  | 0.0 | 90.0  |
| magic_carpets                  | 0.0 | 90.0  |
| navi_river                     | 0.0 | 225.0 |
| people mover                   | 0.0 | 65.0  |
| peter_pan_s_flight             | 0.0 | 300.0 |
| philarmagic                    | 0.0 | 90.0  |
| pirate_s_adventure             | 0.0 | 5.0   |
| pirates_of_caribbean           | 0.0 | 185.0 |
| princess_hall_cinderella_elena | 0.0 | 140.0 |
| princess_hall_rapunzel_tiana   | 0.0 | 140.0 |
| regal_carrousel                | 0.0 | 65.0  |
| rock_n_rollercoaster           | 0.0 | 300.0 |

|  |                            | min | max   |
|--|----------------------------|-----|-------|
|  | ride_name                  |     |       |
|  | <b>slinky_dog</b>          | 0.0 | 305.0 |
|  | <b>soarin</b>              | 0.0 | 240.0 |
|  | <b>sorcerers_of_the_mk</b> | 0.0 | 0.0   |
|  | <b>space_mountain</b>      | 0.0 | 330.0 |
|  | <b>spaceship_earth</b>     | 0.0 | 155.0 |
|  | <b>splash_mountain</b>     | 0.0 | 300.0 |
|  | <b>swiss_family_tree</b>   | 0.0 | 20.0  |
|  | <b>tom_land_speedway</b>   | 0.0 | 110.0 |
|  | <b>tom_sawyer_island</b>   | 0.0 | 65.0  |
|  | <b>town_sq_mickey</b>      | 0.0 | 230.0 |
|  | <b>toy_story_mania</b>     | 0.0 | 300.0 |
|  | <b>under_the_sea</b>       | 0.0 | 180.0 |
|  | <b>winnie_the_pooh</b>     | 0.0 | 230.0 |

```
In [54]: disney.groupby('ride_name')[ 'SACTMIN' ].mean()
```

```
Out[54]: ride_name
7_dwarfs_train           23.991880
alien_saucers             22.068624
astro_orbiter              20.402260
barnstormer                12.528345
big_thunder_mtn            18.331117
buzz_lightyear              14.120780
carousel_of_progress        4.179224
country_bears               7.842541
dinosaur                     20.197075
dumbo                        12.894758
enchanted_tiki_rm            9.030909
expedition EVEREST          15.500858
flight_of_passage            72.917854
hall_of_presidents            9.590062
haunted_mansion              16.401488
it_s_a_small_world            13.607233
jungle_cruise                  9.899921
kilimanjaro_safaris            22.216697
laugh_floor                     16.417422
liberty_sq_riverboat            3.535211
mad_tea_party                   8.395581
magic_carpets                  11.471846
navi_river                      29.046130
people mover                    34.030686
peter_pan_s_flight              24.087005
philharmonic_g                264.642999
pirate_s_adventure                 NaN
pirates_of_caribbean            18.167141
princess_hall_cinderella_elena      21.087179
princess_hall_rapunzel_tiana       17.620301
regal_carrousel                  11.822104
rock_n_rollercoaster                29.267599
slinky_dog                         40.657119
soarin                            24.963390
sorcerers_of_the_mk                1.200000
space_mountain                      24.409075
spaceship_earth                      9.757474
splash_mountain                      25.430836
swiss_family_tree                  NaN
tom_land_speedway                  14.126491
tom_sawyer_island                  8.209581
town_sq_mickey                      24.728736
toy_story_mania                      35.066966
under_the_sea                         12.067067
winnie_the_pooh                      16.718100
Name: SACTMIN, dtype: float64
```

```
In [55]: disney.groupby('ride_name')[ 'SPOSTMIN'].mean()
```

```
Out[55]: ride_name
7_dwarfs_train           -2.063539
alien_saucers             -11.284694
astro_orbiter              -32.968253
barnstormer                -41.245491
big_thunder_mtn            -44.370694
buzz_lightyear               -8.856940
carousel_of_progress        -650.041782
country_bears              -896.332636
dinosaur                   -50.282400
dumbo                      -23.307074
enchanted_tiki_rm           -862.087088
expedition EVEREST          -45.362239
flight_of_passage            81.639201
hall_of_presidents          -913.577824
haunted_mansion              -20.735852
it_s_a_small_world           -18.718403
jungle_cruise                -31.695457
kilimanjaro_safaris          -18.065189
laugh_floor                  -101.080428
liberty_sq_riverboat         -990.322689
mad_tea_party                 -19.063550
magic_carpets                 -43.914808
navi_river                   17.269945
people mover                  -212.120780
peter_pan_s_flight            18.412402
philharmagic                  -39.502447
pirate_s_adventure            -992.422056
pirates_of_caribbean          -49.029367
princess_hall_cinderella_elena -16.975227
princess_hall_rapunzel_tiana   -19.067263
regal_carrousel                -215.494568
rock_n_rollercoaster            0.461432
slinky_dog                     -15.191802
soarin                         24.825876
sorcerers_of_the_mk            -972.627561
space_mountain                  -22.233954
spaceship_earth                  -28.997052
splash_mountain                  -75.123978
swiss_family_tree                -604.446036
tom_land_speedway                -31.644865
tom_sawyer_island                 -914.277578
town_sq_mickey                  0.279835
toy_story_mania                  17.377716
under_the_sea                    -20.302504
winnie_the_pooh                  -40.499741
Name: SPOSTMIN, dtype: float64
```

```
In [56]: disney[disney['SPOSTMIN'] != -999.0].groupby('ride_name')['SPOSTMIN'].mean()
```

```
Out[56]:
```

| ride_name                      | SACTMIN    |
|--------------------------------|------------|
| 7_dwarfs_train                 | 76.962455  |
| alien_saucers                  | 29.863351  |
| astro_orbiter                  | 27.026822  |
| barnstormer                    | 19.227069  |
| big_thunder_mtn                | 37.630817  |
| buzz_lightyear                 | 31.639333  |
| carousel_of_progress           | 6.333389   |
| country_bears                  | 14.968665  |
| dinosaur                       | 27.399704  |
| dumbo                          | 21.025959  |
| enchanted_tiki_rm              | 4.906537   |
| expedition EVEREST             | 32.429036  |
| flight_of_passage              | 114.806860 |
| hall_of_presidents             | 9.270353   |
| haunted_mansion                | 31.905298  |
| it_s_a_small_world             | 22.814251  |
| jungle_cruise                  | 42.823386  |
| kilimanjaro_safaris            | 39.959134  |
| laugh_floor                    | 16.463706  |
| liberty_sq_riverboat           | 15.301442  |
| mad_tea_party                  | 12.186767  |
| magic_carpets                  | 18.254938  |
| navi_river                     | 62.511237  |
| people mover                   | 15.260048  |
| peter_pan_s_flight             | 55.624252  |
| philharmagic                   | 12.123384  |
| pirate_s_adventure             | 1.338798   |
| pirates_of_caribbean           | 28.524095  |
| princess_hall_cinderella_elena | 34.223871  |
| princess_hall_rapunzel_tiana   | 31.687439  |
| regal_carrousel                | 9.172641   |
| rock_n_rollercoaster           | 58.994605  |
| slinky_dog                     | 72.703003  |
| soarin                         | 45.654540  |
| sorcerers_of_the_mk            | 0.000000   |
| space_mountain                 | 56.456800  |
| spaceship_earth                | 18.790590  |
| splash_mountain                | 43.731363  |
| swiss_family_tree              | 0.933885   |
| tom_land_speedway              | 25.678113  |
| tom_sawyer_island              | 15.432106  |
| town_sq_mickey                 | 38.374548  |
| toy_story_mania                | 54.264905  |
| under_the_sea                  | 19.470871  |
| winnie_the_pooh                | 28.120418  |

Name: SPOSTMIN, dtype: float64

Find the max and min SACTMIN time for each ride

Find the max and min SPOSTMIN time for each ride

Find the average SACTMIN time for each ride

Find the average SACTMIN time for each ride

## Question 5

```
In [57]: disney.groupby('ride_name')['date'].value_counts()
```

```
Out[57]: ride_name      date
7_dwarfs_train  11/08/2021    363
                10/01/2021    359
                11/09/2021    344
                10/29/2021    333
                10/15/2021    332
                ...
winnie_the_pooh  03/27/2015     2
                  05/11/2018     2
                  05/09/2018     1
                  07/08/2020     1
                  07/30/2015     1
Name: date, Length: 88353, dtype: int64
```

```
In [63]: checked = disney.groupby('ride_name')['date'].value_counts()
checked
```

```
Out[63]: ride_name      date
7_dwarfs_train  11/08/2021    363
                10/01/2021    359
                11/09/2021    344
                10/29/2021    333
                10/15/2021    332
                ...
winnie_the_pooh  03/27/2015     2
                  05/11/2018     2
                  05/09/2018     1
                  07/08/2020     1
                  07/30/2015     1
Name: date, Length: 88353, dtype: int64
```

```
In [59]: # go into group according to ride_name in checked, work with each of the ride individual
# And pull out what were the maximum values
```

```
checked.groupby('ride_name').idxmax()
```

```
Out[59]: ride_name
7_dwarfs_train
alien_saucers
astro_orbiter
barnstormer
big_thunder_mtn
buzz_lightyear
carousel_of_progress
country_bears
dinosaur
dumbo
enchanted_tiki_rm
expedition EVEREST
flight_of_passage
hall_of_presidents
haunted_mansion
it_s_a_small_world
jungle_cruise
kilimanjaro_safaris
laugh_floor
liberty_sq_riverboat
mad_tea_party
magic_carpets
navi_river
peoplemover
peter_pan_s_flight
philharmagic
pirate_s_adventure
pirates_of_caribbean
princess_hall_cinderella_elena
princess_hall_rapunzel_tiana
regal_carrousel
rock_n_rollercoaster
slinky_dog
soarin
sorcerers_of_the_mk
space_mountain
spaceship_earth
splash_mountain
swiss_family_tree
tom_land_speedway
tom_sawyer_island
town_sq_mickey
toy_story_mania
under_the_sea
winnie_the_pooh
Name: date, dtype: object

(7_dwarfs_train, 11/08/2021)
(alien_saucers, 10/16/2021)
(astro_orbiter, 11/08/2021)
(barnstormer, 11/08/2021)
(big_thunder_mtn, 10/01/2021)
(buzz_lightyear, 11/08/2021)
(carousel_of_progress, 10/01/2021)
(country_bears, 10/01/2021)
(dinosaur, 10/03/2021)
(dumbo, 11/08/2021)
(enchanted_tiki_rm, 10/01/2021)
(expedition EVEREST, 02/26/2019)
(flight_of_passage, 02/26/2019)
(hall_of_presidents, 10/02/2021)
(haunted_mansion, 11/08/2021)
(it_s_a_small_world, 10/01/2021)
(jungle_cruise, 10/01/2021)
(kilimanjaro_safaris, 10/03/2021)
(laugh_floor, 11/08/2021)
(liberty_sq_riverboat, 12/22/2020)
(mad_tea_party, 11/08/2021)
(magic_carpets, 11/08/2021)
(navi_river, 02/26/2019)
(peoplemover, 11/08/2021)
(peter_pan_s_flight, 11/08/2021)
(phiharmagic, 10/01/2021)
(pirate_s_adventure, 11/08/2021)
(pirates_of_caribbean, 10/01/2021)
(princess_hall_cinderella_elena, 12/30/2018)
(princess_hall_rapunzel_tiana, 12/30/2018)
(regal_carrousel, 10/01/2021)
(rock_n_rollercoaster, 10/10/2021)
(slinky_dog, 10/02/2021)
(soarin, 10/18/2021)
(sorcerers_of_the_mk, 04/28/2018)
(space_mountain, 11/08/2021)
(spaceship_earth, 10/04/2021)
(splash_mountain, 10/01/2021)
(swiss_family_tree, 11/08/2021)
(tom_land_speedway, 04/08/2015)
(tom_sawyer_island, 12/22/2020)
(town_sq_mickey, 01/31/2015)
(toy_story_mania, 10/02/2021)
(under_the_sea, 11/08/2021)
(winnie_the_pooh, 11/08/2021)
```

```
In [60]: # Then you can go ahead and look at the ride individually
checked['7_dwarfs_train']
```

```
Out[60]: date
11/08/2021    363
10/01/2021    359
11/09/2021    344
10/29/2021    333
10/15/2021    332
...
07/30/2015     5
10/07/2016     5
05/09/2018     4
05/11/2018     4
07/08/2020     1
Name: date, Length: 2334, dtype: int64
```

```
In [64]: checked['flight_of_passage']
```

```
Out[64]: date
02/26/2019    695
10/03/2021    304
02/25/2019    298
10/10/2021    294
10/21/2021    292
...
07/08/2020     25
05/10/2018     13
05/09/2018     10
05/12/2018      8
05/11/2018      7
Name: date, Length: 1457, dtype: int64
```

```
In [65]: checked['winnie_the_pooh']
```

```
Out[65]: date
11/08/2021    363
10/01/2021    347
11/09/2021    337
10/31/2021    332
10/17/2021    331
...
03/27/2015     2
05/11/2018     2
05/09/2018     1
07/08/2020     1
07/30/2015     1
Name: date, Length: 2333, dtype: int64
```

```
In [51]: # Again, note that the value -999 indicates that the attraction was closed.
```

```
disney[disney['SPOSTMIN'] == -999.0].groupby('ride_name')['SPOSTMIN'].count()
```

```
Out[51]:
```

| ride_name                      |        |
|--------------------------------|--------|
| 7_dwarfs_train                 | 23062  |
| alien_saucers                  | 5073   |
| astro_orbiter                  | 17074  |
| barnstormer                    | 18099  |
| big_thunder_mtn                | 23583  |
| buzz_lightyear                 | 12125  |
| carousel_of_progress           | 67895  |
| country_bears                  | 94896  |
| dinosaur                       | 18720  |
| dumbo                          | 13196  |
| enchanted_tiki_rm              | 107050 |
| expedition EVEREST             | 20102  |
| flight_of_passage              | 5326   |
| hall_of_presidents             | 77363  |
| haunted_mansion                | 15782  |
| it_s_a_small_world             | 9506   |
| jungle_cruise                  | 21004  |
| kilimanjaro_safaris            | 14033  |
| laugh_floor                    | 28144  |
| liberty_sq_riverboat           | 88425  |
| mad_tea_party                  | 9322   |
| magic_carpets                  | 18238  |
| navi_river                     | 7567   |
| people mover                   | 22424  |
| peter_pan_s_flight             | 10792  |
| philharmonic                   | 14899  |
| pirate_s_adventure             | 82940  |
| pirates_of_caribbean           | 21915  |
| princess_hall_cinderella_elena | 6875   |
| princess_hall_rapunzel_tiana   | 6832   |
| regal_carrousel                | 63594  |
| rock_n_rollercoaster           | 15001  |
| slinky_dog                     | 10657  |
| soarin                         | 5302   |
| sorcerers_of_the_mk            | 38872  |
| space_mountain                 | 23355  |
| spaceship_earth                | 12807  |
| splash_mountain                | 32038  |
| swiss_family_tree              | 68183  |
| tom_land_speedway              | 16782  |
| tom_sawyer_island              | 98916  |
| town_sq_mickey                 | 9060   |
| toy_story_mania                | 9585   |
| under_the_sea                  | 11736  |
| winnie_the_pooh                | 20536  |

Name: SPOSTMIN, dtype: int64

Find the date that each ride was most frequently checked.

What was the most commonly closed ride? (Again, note that the value -999 indicates that the attraction was closed.)

## Pledge

By submitting this work I hereby pledge that this is my own, personal work. I've acknowledged in the designated place at the top of this file all sources that I used to complete said work,

including but not limited to: online resources, books, and electronic communications. I've noted all collaboration with fellow students and/or TA's. I did not copy or plagiarize another's work.

As a Boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together – We are Purdue.

In [ ]: