Project-Petal Power Inventory

June 4, 2020

0.1 Petal Power Inventory

You're the lead data analyst for a chain of gardening stores called Petal Power. Help them analyze their inventory!

If you get stuck during this project or would like to see an experienced developer work through it,

[3]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

0.1.1 Data for all of the locations of Petal Power is in the file inventory.csv. Load the data into a DataFrame called inventory.

[7]:
```
inventory = pd.read_csv('inventory.csv')
```

0.1.2 Inspect the first 10 rows of inventory.

[5]:
```
inventory.head(10)
```

[5]:

	location	product_type	product_description	quantity	price
0	Staten Island	seeds	daisy	4	6.99
1	Staten Island	seeds	calla lily	46	19.99
2	Staten Island	seeds	tomato	85	13.99
3	Staten Island	garden tools	rake	4	13.99
4	Staten Island	garden tools	wheelbarrow	0	89.99
5	Staten Island	garden tools	spade	93	19.99
6	Staten Island	pest_control	insect killer	74	12.99
7	Staten Island	pest_control	weed killer	8	23.99
8	Staten Island	planter	20 inch terracotta planter	0	17.99
9	Staten Island	planter	8 inch plastic planter	53	3.99

0.1.3 The first 10 rows represent data from your Staten Island location. Select these rows and save them to staten_island

[9]:
```
staten_island = inventory.iloc[:10]
staten_island
```

[9]:

	location	product_type	product_description	quantity	price
0	Staten Island	seeds	daisy	4	6.99
1	Staten Island	seeds	calla lily	46	19.99
2	Staten Island	seeds	tomato	85	13.99
3	Staten Island	garden tools	rake	4	13.99
4	Staten Island	garden tools	wheelbarrow	0	89.99
5	Staten Island	garden tools	spade	93	19.99
6	Staten Island	pest_control	insect killer	74	12.99
7	Staten Island	pest_control	weed killer	8	23.99
8	Staten Island	planter	20 inch terracotta planter	0	17.99
9	Staten Island	planter	8 inch plastic planter	53	3.99

0.1.4 A customer just emailed you asking what products are sold at your Staten Island location. Select the column product_description from staten_island and save it to the variable product_request

[10]:
```
product_request = staten_island.product_description
product_request
```

[10]:
```
0                        daisy
1                   calla lily
2                       tomato
3                         rake
4                   wheelbarrow
5                        spade
6                  insect killer
7                   weed killer
8    20 inch terracotta planter
9        8 inch plastic planter
Name: product_description, dtype: object
```

0.1.5 Another customer emails to ask what types of seeds are sold at the Brooklyn location.

Select all rows where location is equal to Brooklyn and product_type is equal to seeds and save them to the variable seed_request.

[11]:
```

```

```
seed_request = inventory[(inventory['location'] == 'Brooklyn') &␣
↪(inventory['product_type'] == 'seeds')]
seed_request
```

[11]:

	location	product_type	product_description	quantity	price
10	Brooklyn	seeds	daisy	50	6.99
11	Brooklyn	seeds	calla lily	0	19.99
12	Brooklyn	seeds	tomato	0	13.99

0.1.6 Add a column to inventory called in_stock which is True if quantity is greater than 0 and False if quantity equals 0.

[12]:
```
inventory['in_stock'] = inventory.quantity.apply(lambda x: True if x > 0 else␣
↪False)
inventory
```

[12]:

	location	product_type	product_description	quantity	price	\
0	Staten Island	seeds	daisy	4	6.99	
1	Staten Island	seeds	calla lily	46	19.99	
2	Staten Island	seeds	tomato	85	13.99	
3	Staten Island	garden tools	rake	4	13.99	
4	Staten Island	garden tools	wheelbarrow	0	89.99	
5	Staten Island	garden tools	spade	93	19.99	
6	Staten Island	pest_control	insect killer	74	12.99	
7	Staten Island	pest_control	weed killer	8	23.99	
8	Staten Island	planter	20 inch terracotta planter	0	17.99	
9	Staten Island	planter	8 inch plastic planter	53	3.99	
10	Brooklyn	seeds	daisy	50	6.99	
11	Brooklyn	seeds	calla lily	0	19.99	
12	Brooklyn	seeds	tomato	0	13.99	
13	Brooklyn	garden tools	rake	15	13.99	
14	Brooklyn	garden tools	wheelbarrow	82	89.99	
15	Brooklyn	garden tools	spade	36	19.99	
16	Brooklyn	pest_control	insect killer	80	12.99	
17	Brooklyn	pest_control	weed killer	76	23.99	
18	Brooklyn	planter	20 inch terracotta planter	5	17.99	
19	Brooklyn	planter	8 inch plastic planter	26	3.99	
20	Queens	seeds	daisy	57	6.99	
21	Queens	seeds	calla lily	95	19.99	
22	Queens	seeds	tomato	45	13.99	
23	Queens	garden tools	rake	21	13.99	
24	Queens	garden tools	wheelbarrow	98	89.99	
25	Queens	garden tools	spade	26	19.99	
26	Queens	pest_control	insect killer	0	12.99	
27	Queens	pest_control	weed killer	16	23.99	

```
28         Queens       planter  20 inch terracotta planter        87  17.99

    in_stock
0       True
1       True
2       True
3       True
4      False
5       True
6       True
7       True
8      False
9       True
10      True
11     False
12     False
13      True
14      True
15      True
16      True
17      True
18      True
19      True
20      True
21      True
22      True
23      True
24      True
25      True
26     False
27      True
28      True
```

0.1.7 Petal Power wants to know how valuable their current inventory is.

Create a column called total_value that is equal to price multiplied by quantity.

[15]:
```
inventory['total_value'] = inventory["price"]*inventory["quantity"]
inventory
```

[15]:
```
          location  product_type         product_description  quantity  price  \
0   Staten Island         seeds                       daisy         4   6.99
1   Staten Island         seeds                 calla lily        46  19.99
2   Staten Island         seeds                     tomato        85  13.99
3   Staten Island  garden tools                       rake         4  13.99
4   Staten Island  garden tools                 wheelbarrow         0  89.99
```

5	Staten Island	garden tools	spade	93	19.99
6	Staten Island	pest_control	insect killer	74	12.99
7	Staten Island	pest_control	weed killer	8	23.99
8	Staten Island	planter	20 inch terracotta planter	0	17.99
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10	Brooklyn	seeds	daisy	50	6.99
11	Brooklyn	seeds	calla lily	0	19.99
12	Brooklyn	seeds	tomato	0	13.99
13	Brooklyn	garden tools	rake	15	13.99
14	Brooklyn	garden tools	wheelbarrow	82	89.99
15	Brooklyn	garden tools	spade	36	19.99
16	Brooklyn	pest_control	insect killer	80	12.99
17	Brooklyn	pest_control	weed killer	76	23.99
18	Brooklyn	planter	20 inch terracotta planter	5	17.99
19	Brooklyn	planter	8 inch plastic planter	26	3.99
20	Queens	seeds	daisy	57	6.99
21	Queens	seeds	calla lily	95	19.99
22	Queens	seeds	tomato	45	13.99
23	Queens	garden tools	rake	21	13.99
24	Queens	garden tools	wheelbarrow	98	89.99
25	Queens	garden tools	spade	26	19.99
26	Queens	pest_control	insect killer	0	12.99
27	Queens	pest_control	weed killer	16	23.99
28	Queens	planter	20 inch terracotta planter	87	17.99

	in_stock	total_value
0	True	27.96
1	True	919.54
2	True	1189.15
3	True	55.96
4	False	0.00
5	True	1859.07
6	True	961.26
7	True	191.92
8	False	0.00
9	True	211.47
10	True	349.50
11	False	0.00
12	False	0.00
13	True	209.85
14	True	7379.18
15	True	719.64
16	True	1039.20
17	True	1823.24
18	True	89.95
19	True	103.74
20	True	398.43

```
21      True      1899.05
22      True       629.55
23      True       293.79
24      True      8819.02
25      True       519.74
26     False         0.00
27      True       383.84
28      True      1565.13
```

0.1.8 The Marketing department wants a complete description of each product for their catalog.

The following lambda function combines product_type and product_description into a single string:

combine_lambda = lambda row:
'{} - {}'.format(row.product_type, row.product_description)

[16]:
```
combine_lambda = lambda row: '{} - {}'.format(row.product_type,row.
↪product_description)
```

0.1.9 Using combine_lambda, create a new column in inventory called full_description that has the complete description of each product.

[18]:
```
inventory['full_description'] = inventory.apply(combine_lambda, axis = 1)
inventory
```

[18]:

	location	product_type	product_description	quantity	price	\
0	Staten Island	seeds	daisy	4	6.99	
1	Staten Island	seeds	calla lily	46	19.99	
2	Staten Island	seeds	tomato	85	13.99	
3	Staten Island	garden tools	rake	4	13.99	
4	Staten Island	garden tools	wheelbarrow	0	89.99	
5	Staten Island	garden tools	spade	93	19.99	
6	Staten Island	pest_control	insect killer	74	12.99	
7	Staten Island	pest_control	weed killer	8	23.99	
8	Staten Island	planter	20 inch terracotta planter	0	17.99	
9	Staten Island	planter	8 inch plastic planter	53	3.99	
10	Brooklyn	seeds	daisy	50	6.99	
11	Brooklyn	seeds	calla lily	0	19.99	
12	Brooklyn	seeds	tomato	0	13.99	
13	Brooklyn	garden tools	rake	15	13.99	
14	Brooklyn	garden tools	wheelbarrow	82	89.99	
15	Brooklyn	garden tools	spade	36	19.99	
16	Brooklyn	pest_control	insect killer	80	12.99	

17	Brooklyn	pest_control	weed killer	76	23.99
18	Brooklyn	planter	20 inch terracotta planter	5	17.99
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20	Queens	seeds	daisy	57	6.99
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23	Queens	garden tools	rake	21	13.99
24	Queens	garden tools	wheelbarrow	98	89.99
25	Queens	garden tools	spade	26	19.99
26	Queens	pest_control	insect killer	0	12.99
27	Queens	pest_control	weed killer	16	23.99
28	Queens	planter	20 inch terracotta planter	87	17.99

	in_stock	total_value	full_description
0	True	27.96	seeds - daisy
1	True	919.54	seeds - calla lily
2	True	1189.15	seeds - tomato
3	True	55.96	garden tools - rake
4	False	0.00	garden tools - wheelbarrow
5	True	1859.07	garden tools - spade
6	True	961.26	pest_control - insect killer
7	True	191.92	pest_control - weed killer
8	False	0.00	planter - 20 inch terracotta planter
9	True	211.47	planter - 8 inch plastic planter
10	True	349.50	seeds - daisy
11	False	0.00	seeds - calla lily
12	False	0.00	seeds - tomato
13	True	209.85	garden tools - rake
14	True	7379.18	garden tools - wheelbarrow
15	True	719.64	garden tools - spade
16	True	1039.20	pest_control - insect killer
17	True	1823.24	pest_control - weed killer
18	True	89.95	planter - 20 inch terracotta planter
19	True	103.74	planter - 8 inch plastic planter
20	True	398.43	seeds - daisy
21	True	1899.05	seeds - calla lily
22	True	629.55	seeds - tomato
23	True	293.79	garden tools - rake
24	True	8819.02	garden tools - wheelbarrow
25	True	519.74	garden tools - spade
26	False	0.00	pest_control - insect killer
27	True	383.84	pest_control - weed killer
28	True	1565.13	planter - 20 inch terracotta planter

[ ]: