Visualizing Chipotle's Data.

In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import math
import os
```

In [4]:
```
#Import the necessary data set.
os.chdir(r'D:\Sagun Shakya\Python\Data Sets\Chipotle-data_analysis-example-master')
chipo = pd.read_csv('chipotle.tsv', sep = '\t')
```

In [5]:
```
chipo.head()
```

Out[5]:

	order_id	quantity	item_name	choice_description	item_price
0	1	1	Chips and Fresh Tomato Salsa	NaN	$2.39
1	1	1	Izze	[Clementine]	$3.39
2	1	1	Nantucket Nectar	[Apple]	$3.39
3	1	1	Chips and Tomatillo-Green Chili Salsa	NaN	$2.39
4	2	2	Chicken Bowl	[Tomatillo-Red Chili Salsa (Hot), [Black Beans...	$16.98

In [6]:
```
chipo.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4622 entries, 0 to 4621
Data columns (total 5 columns):
order_id              4622 non-null int64
quantity              4622 non-null int64
item_name             4622 non-null object
choice_description    3376 non-null object
item_price            4622 non-null object
dtypes: int64(2), object(3)
memory usage: 180.6+ KB
```

In [22]:
```
chipo.shape
```

Out[22]:
```
(4622, 5)
```

In [7]:
```
chipo.describe()
```

Out[7]:

	order_id	quantity
count	4622.000000	4622.000000
mean	927.254868	1.075725
std	528.890796	0.410186
min	1.000000	1.000000
25%	477.250000	1.000000
50%	926.000000	1.000000
75%	1393.000000	1.000000
max	1834.000000	15.000000

In [8]:
```
chipo.isnull().sum()
```

Out[8]:
```
order_id                0
quantity                0
item_name               0
choice_description    1246
item_price              0
dtype: int64
```

In [10]:
```
chipo.dtypes
```

Out[10]:
```
order_id               int64
quantity               int64
item_name             object
choice_description    object
item_price            object
dtype: object
```

The item_price is an object. we need to change it into floating point.

In [20]:
```
chipo['item_price'] = chipo['item_price'].str.replace('$', '')
chipo['item_price'] = chipo['item_price'].astype(float)
```

In [23]:
```
chipo.tail(10)
```

Out[23]:

	order_id	quantity	item_name	choice_description	item_price
4612	1831	1	Carnitas Bowl	[Fresh Tomato Salsa, [Fajita Vegetables, Rice,...	9.25
4613	1831	1	Chips	NaN	2.15
4614	1831	1	Bottled Water	NaN	1.50
4615	1832	1	Chicken Soft Tacos	[Fresh Tomato Salsa, [Rice, Cheese, Sour Cream]]	8.75
4616	1832	1	Chips and Guacamole	NaN	4.45
4617	1833	1	Steak Burrito	[Fresh Tomato Salsa, [Rice, Black Beans, Sour ...	11.75
4618	1833	1	Steak Burrito	[Fresh Tomato Salsa, [Rice, Sour Cream, Cheese...	11.75
4619	1834	1	Chicken Salad Bowl	[Fresh Tomato Salsa, [Fajita Vegetables, Pinto...	11.25
4620	1834	1	Chicken Salad Bowl	[Fresh Tomato Salsa, [Fajita Vegetables, Lettu...	8.75
4621	1834	1	Chicken Salad Bowl	[Fresh Tomato Salsa, [Fajita Vegetables, Pinto...	8.75

Total Sales.

In [24]:
```
chipo['item_price'].sum()
```

Out[24]: 34500.16

Having fun with colors.

Storing random colors using Hexadecimal codes in a list.

In [71]:
```
import random
colors_list = []
n = chipo['item_name'].value_counts().count()  #No. of colors to be generated.

#Storing random hexadecimal color codes in a list.
for ii in range(n):
    random_number = random.randint(0,16777215)
    hex_number = str(hex(random_number))

    hex_number ='#'+ hex_number[2:]

    colors_list.append(hex_number)

print(colors_list)
```

```
['#1cee7f', '#332a76', '#98b224', '#9da72f', '#c8954f', '#b7a191', '#62a7f5', '#9b3282',
'#652a48', '#3a806a', '#426585', '#98fc26', '#4c5f75', '#8fd14c', '#80828d', '#574874',
'#a4cbd4', '#af2713', '#9f18c', '#794fb9', '#7f2a3c', '#63008', '#51be55', '#230bf3', '#a
7faa7', '#616623', '#b3af60', '#c0caf3', '#751944', '#6b675f', '#8ef2f5', '#2a8079', '#24
8764', '#51dd1c', '#10d165', '#ce0e1b', '#16d871', '#4f235c', '#f8dc8b', '#deda7f', '#975
f4e', '#9d6d58', '#ab2715', '#b2de43', '#f455c7', '#d78484', '#d55e69', '#d45d1b', '#15ad
b3', '#cf6460']
```

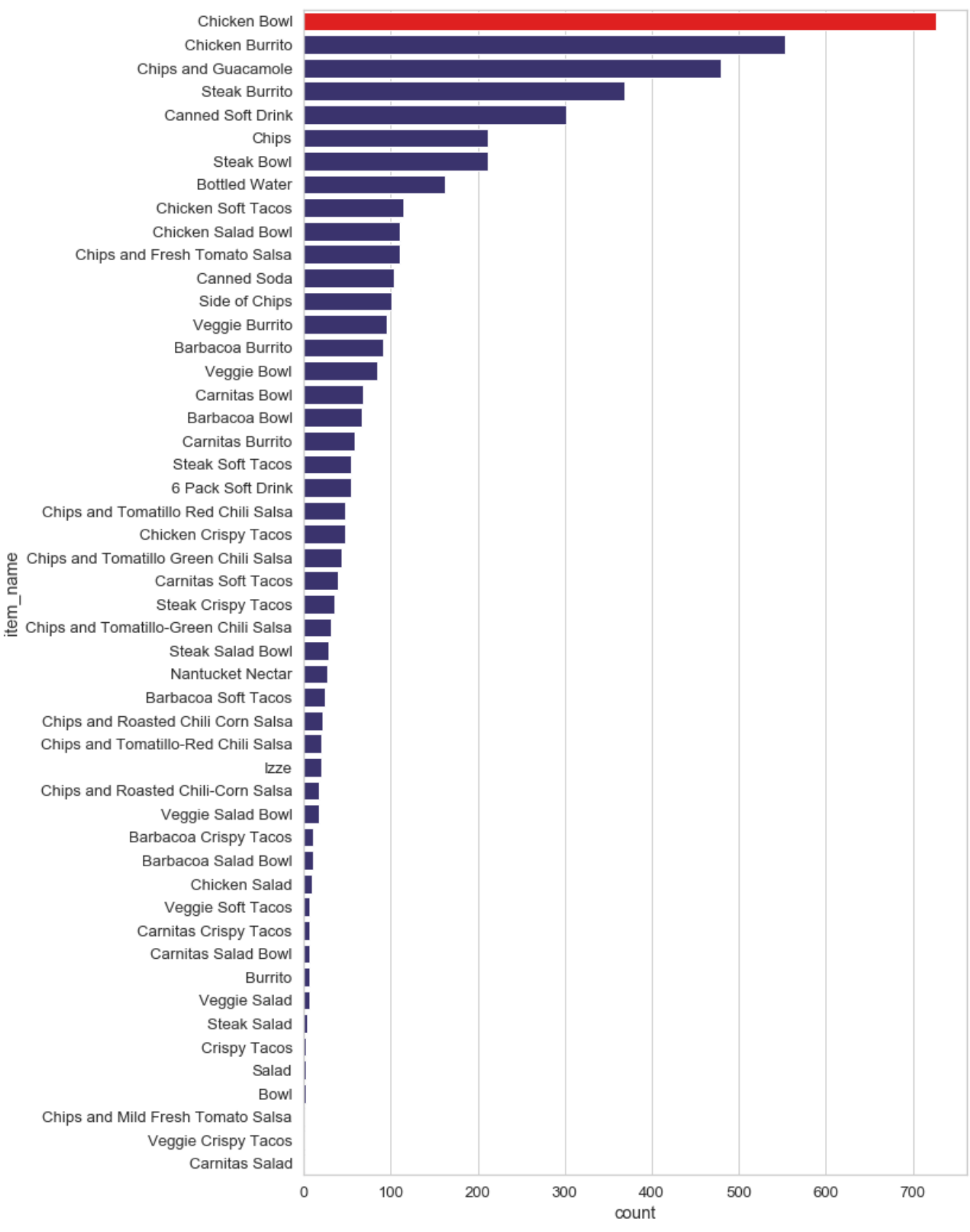
To find which item was the most frequently bought (coloured in red).

In [93]:
```
max_value = chipo['item_name'].value_counts().max()  #Max value of the frequency.

jj = np.random.randint( len(colors_list))  #Random index from the colors_list.
clrs = [colors_list[jj] if (ii < max_value) else 'red' for ii in chipo['item_name'].value_

plt.figure( figsize = (10,18) )
sns.set(style = 'whitegrid',  font_scale = 1.2)
sns.set_palette(sns.color_palette(clrs))

sns.countplot(y = chipo['item_name'], order = chipo['item_name'].value_counts().index)
plt.show()
```



Reference to some blocks of code used above.

In [70]:
```
chipo['item_name'].value_counts().count()
```

Out[70]: 50

In [94]:
```
chipo['item_name'].value_counts()    #sort = True
```

Out[94]:

Chicken Bowl	726
Chicken Burrito	553
Chips and Guacamole	479
Steak Burrito	368
Canned Soft Drink	301
Chips	211
Steak Bowl	211
Bottled Water	162
Chicken Soft Tacos	115
Chicken Salad Bowl	110
Chips and Fresh Tomato Salsa	110
Canned Soda	104
Side of Chips	101
Veggie Burrito	95
Barbacoa Burrito	91
Veggie Bowl	85
Carnitas Bowl	68
Barbacoa Bowl	66
Carnitas Burrito	59
Steak Soft Tacos	55
6 Pack Soft Drink	54
Chips and Tomatillo Red Chili Salsa	48
Chicken Crispy Tacos	47
Chips and Tomatillo Green Chili Salsa	43
Carnitas Soft Tacos	40
Steak Crispy Tacos	35
Chips and Tomatillo-Green Chili Salsa	31
Steak Salad Bowl	29
Nantucket Nectar	27
Barbacoa Soft Tacos	25
Chips and Roasted Chili Corn Salsa	22
Chips and Tomatillo-Red Chili Salsa	20
Izze	20
Chips and Roasted Chili-Corn Salsa	18
Veggie Salad Bowl	18
Barbacoa Crispy Tacos	11
Barbacoa Salad Bowl	10
Chicken Salad	9
Veggie Soft Tacos	7
Carnitas Crispy Tacos	7
Carnitas Salad Bowl	6
Burrito	6
Veggie Salad	6
Steak Salad	4
Crispy Tacos	2
Salad	2
Bowl	2
Chips and Mild Fresh Tomato Salsa	1
Veggie Crispy Tacos	1
Carnitas Salad	1

Name: item_name, dtype: int64

In [95]:
```
chipo['item_name'].value_counts().index
```

Out[95]:
```
Index(['Chicken Bowl', 'Chicken Burrito', 'Chips and Guacamole',
       'Steak Burrito', 'Canned Soft Drink', 'Chips', 'Steak Bowl',
       'Bottled Water', 'Chicken Soft Tacos', 'Chicken Salad Bowl',
       'Chips and Fresh Tomato Salsa', 'Canned Soda', 'Side of Chips',
       'Veggie Burrito', 'Barbacoa Burrito', 'Veggie Bowl', 'Carnitas Bowl',
       'Barbacoa Bowl', 'Carnitas Burrito', 'Steak Soft Tacos',
       '6 Pack Soft Drink', 'Chips and Tomatillo Red Chili Salsa',
       'Chicken Crispy Tacos', 'Chips and Tomatillo Green Chili Salsa',
       'Carnitas Soft Tacos', 'Steak Crispy Tacos',
       'Chips and Tomatillo-Green Chili Salsa', 'Steak Salad Bowl',
       'Nantucket Nectar', 'Barbacoa Soft Tacos',
       'Chips and Roasted Chili Corn Salsa',
       'Chips and Tomatillo-Red Chili Salsa', 'Izze',
       'Chips and Roasted Chili-Corn Salsa', 'Veggie Salad Bowl',
       'Barbacoa Crispy Tacos', 'Barbacoa Salad Bowl', 'Chicken Salad',
       'Veggie Soft Tacos', 'Carnitas Crispy Tacos', 'Carnitas Salad Bowl',
       'Burrito', 'Veggie Salad', 'Steak Salad', 'Crispy Tacos', 'Salad',
       'Bowl', 'Chips and Mild Fresh Tomato Salsa', 'Veggie Crispy Tacos',
       'Carnitas Salad'],
      dtype='object')
```

Create a histogram of the top 5 items bought.

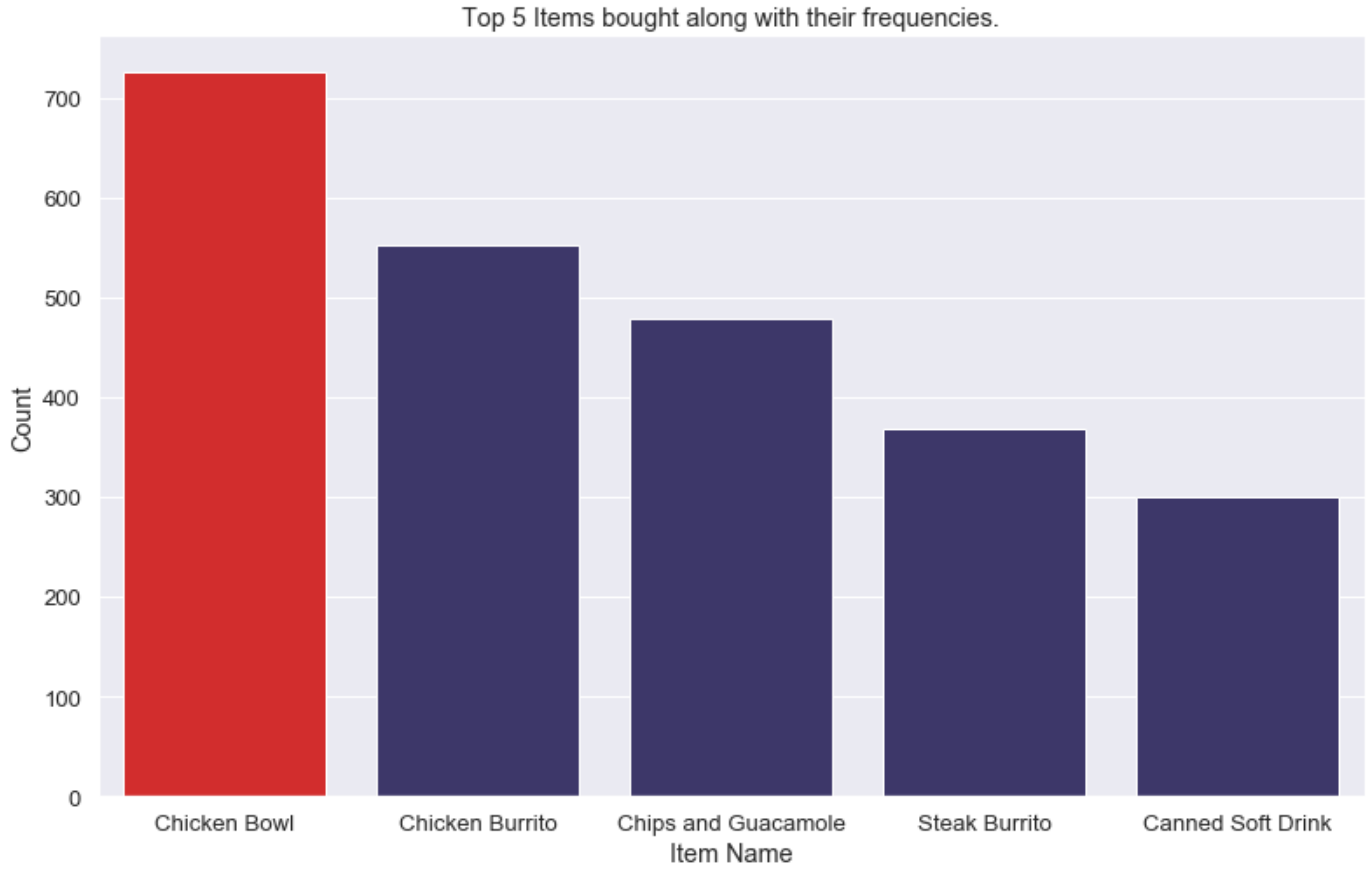
In [109]:
```
top5 = chipo['item_name'].value_counts().head()
top5.values
```

Out[109]:
```
array([726, 553, 479, 368, 301], dtype=int64)
```

In [125]:
```
plt.figure(figsize = (13,8))
sns.set(style = 'darkgrid',  font_scale = 1.2)
sns.set_palette(sns.color_palette(clrs))

sns.barplot(x = top5.index, y = top5.values, saturation = 0.65)

plt.xlabel('Item Name')
plt.ylabel('Count')
plt.title('Top 5 Items bought along with their frequencies.')
plt.show()
```



Create a scatterplot with the number of items ordered per order price.

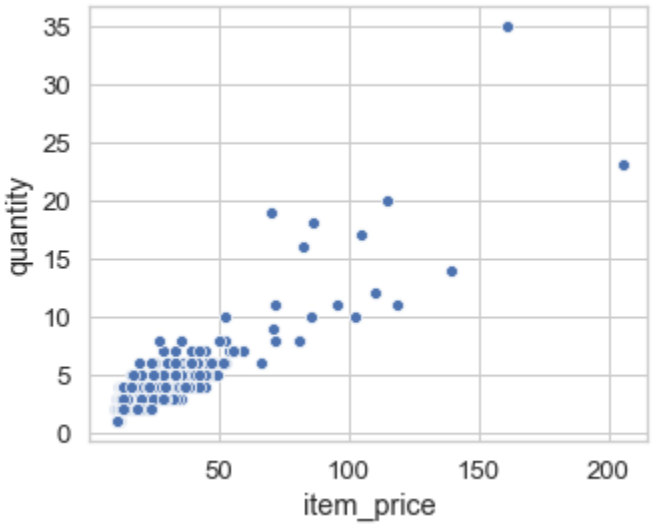
- Hint: Price should be in the X-axis and Items ordered in the Y-axis.

In [129]:
```
qtyVSprice = chipo.groupby('order_id').sum()
qtyVSprice.head(10)
```

Out[129]:

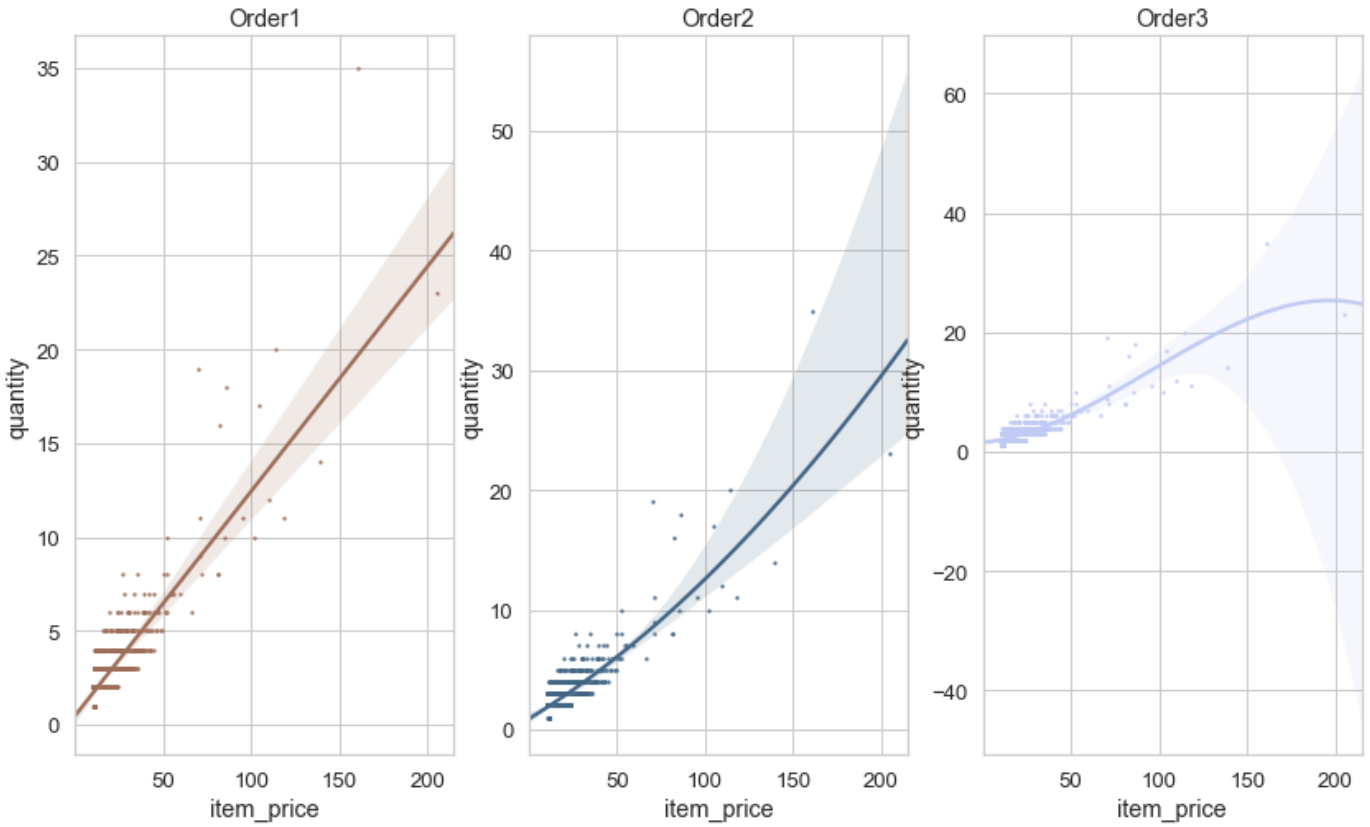
order_id	quantity	item_price
1	4	11.56
2	2	16.98
3	2	12.67
4	2	21.00
5	2	13.70
6	2	17.50
7	2	15.70
8	2	10.88
9	3	10.67
10	2	13.20

In [147]:
```
plt.figure(figsize = (5,4))
sns.set(style = 'whitegrid', font_scale = 1.2)
sns.scatterplot(x = qtyVSprice['item_price'], y = qtyVSprice['quantity'] )
plt.show()
```



In [144]:
```
plt.figure(figsize = (14,8))
sns.set(style = 'whitegrid', font_scale = 1.2)
for ii in range(1,3+1):
    plt.subplot(1,3,ii)

    sns.regplot(x = qtyVSprice['item_price'], y = qtyVSprice['quantity'],
                marker = 'o', scatter_kws={'s':2}, order = ii,
                color = colors_list[np.random.randint( len(colors_list))] )
    plt.title('Order' + str(ii))
plt.show()
```



The End.