Lab 1.3 - Assessing Product (SKU) Profitability

Analysis Task 1

Load the pandas and numpy modules and read in the data.

In [1]:
```
import pandas as pd
import numpy as np
```

In [2]:
```
df = pd.read_excel('Lab_1.3_Python_Data.xlsx')
df.head()
```

Out[2]:

	SKU	Description	Sales Price per Pound	Cost per Pound
0	FRT-APL	Apple	1.7	1.09
1	FRT-APO	Apricot	2.8	1.76
2	FRT-AVD	Avocado	1.0	0.59
3	FRT-BAN	Banana	0.5	0.31
4	FRT-BIT	Bilberry	2.0	1.17

Analysis Task 2

Create new columns for the gross margin and gross margin percentage. Display evidence that the new columns exist.

In [3]:
```
pd.options.display.precision = 2
df['Gross Margin'] = df['Sales Price per Pound']-df['Cost per Pound']
df['Gross Margin Percent'] = df['Gross Margin']/df['Sales Price per Pound']
df.head()
```

Out[3]:

	SKU	Description	Sales Price per Pound	Cost per Pound	Gross Margin	Gross Margin Percent
0	FRT-APL	Apple	1.7	1.09	0.61	0.36
1	FRT-APO	Apricot	2.8	1.76	1.04	0.37
2	FRT-AVD	Avocado	1.0	0.59	0.41	0.41
3	FRT-BAN	Banana	0.5	0.31	0.19	0.38
4	FRT-BIT	Bilberry	2.0	1.17	0.83	0.42

Analysis Task 3

Create a list of SKUs in descending order of gross margin percentage, and display evidence that the sorting worked.

In [4]:
```
df = df.sort_values('Gross Margin Percent', ascending = False)
df
```

Out[4]:

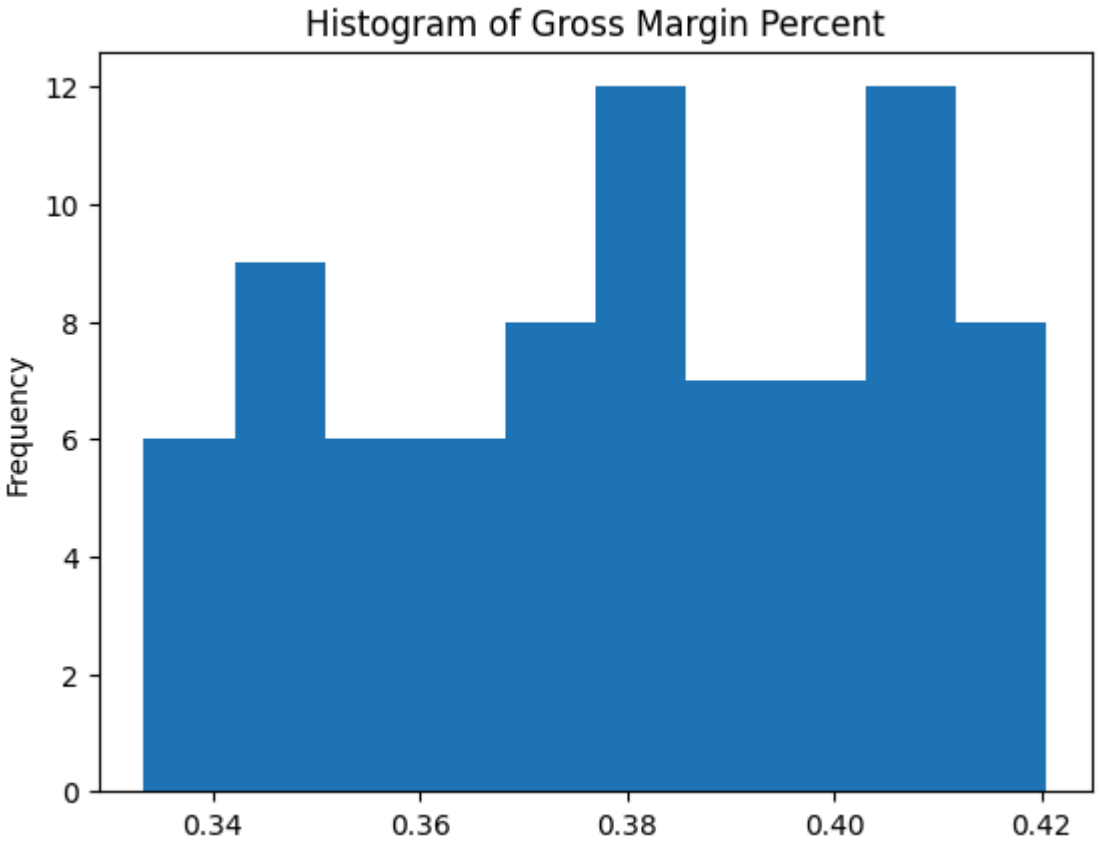
	SKU	Description	Sales Price per Pound	Cost per Pound	Gross Margin	Gross Margin Percent
33	FRT-JAU	Jambul	1.95	1.13	0.82	0.42
64	FRT-PUE	Purple mangosteen	1.01	0.59	0.42	0.42
31	FRT-JAB	Jabuticaba	0.89	0.52	0.37	0.42
54	FRT-PEA	Pear	1.83	1.07	0.76	0.42
4	FRT-BIT	Bilberry	2.00	1.17	0.83	0.42
...	...	...	...	...	...	...
35	FRT-JUR	Juniper berry	1.30	0.86	0.44	0.34
77	FRT-TAL	Tamarillo	0.77	0.51	0.26	0.34
26	FRT-GRF	Grapefruit	0.98	0.65	0.33	0.34
47	FRT-MUR	Mulberry	0.66	0.44	0.22	0.33
40	FRT-LOA	Loquat	0.57	0.38	0.19	0.33

81 rows × 6 columns

Analysis Task 4

Create a histogram of the gross margin percentages.

In [5]:
```
df['Gross Margin Percent'].plot(kind='hist',
                                title = 'Histogram of Gross Margin Percent');
```

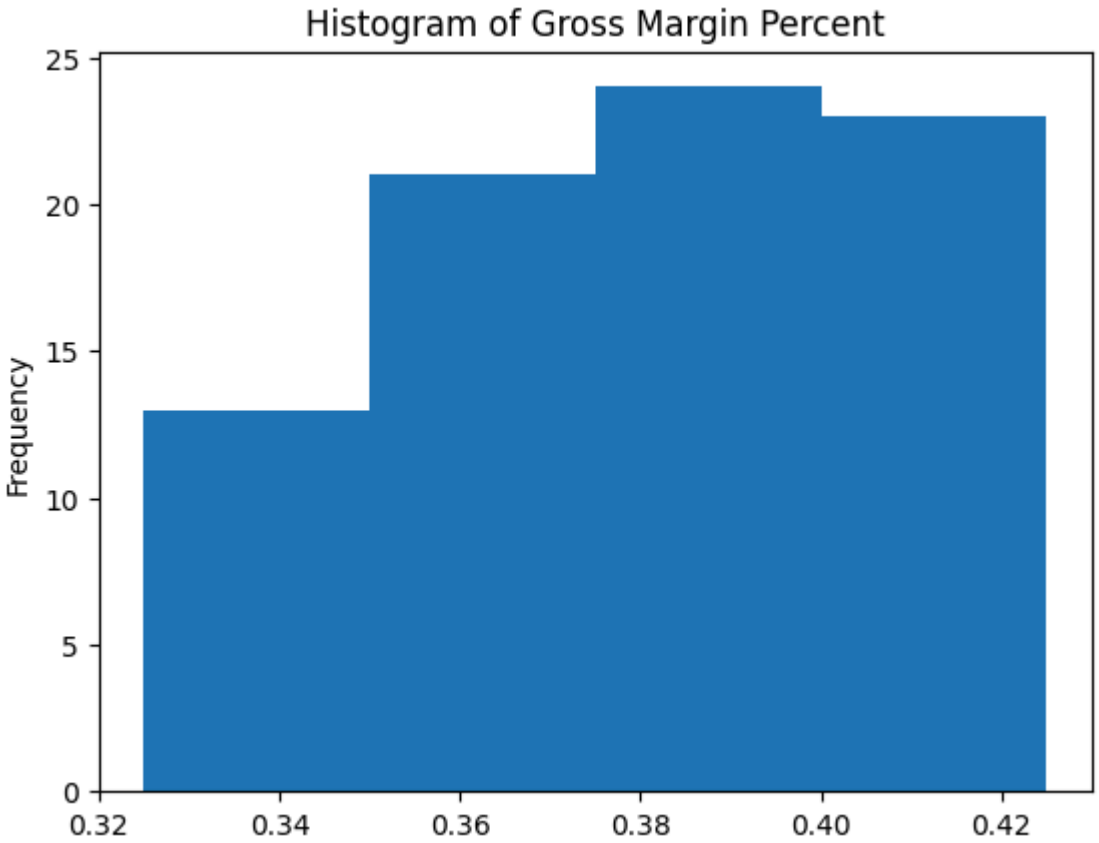


Analysis Task 5

Adjust the histogram of the gross margin percentages so that it uses bins of size .025 and a range of .325 to .425.

In [6]:
```
myBins = np.arange(.325, .45, .025)
```

In [7]:
```
df['Gross Margin Percent'].plot(kind='hist',
                                title = 'Histogram of Gross Margin Percent',
                                bins = myBins);
```



Analysis Task 6

Display a list of SKUs in the highest bin.

In [8]:
```
df[df['Gross Margin Percent'] >= .4]
```

Out[8]:

	SKU	Description	Sales Price per Pound	Cost per Pound	Gross Margin	Gross Margin Percent
33	FRT-JAU	Jambul	1.95	1.13	0.82	0.42
64	FRT-PUE	Purple mangosteen	1.01	0.59	0.42	0.42
31	FRT-JAB	Jabuticaba	0.89	0.52	0.37	0.42
54	FRT-PEA	Pear	1.83	1.07	0.76	0.42
4	FRT-BIT	Bilberry	2.00	1.17	0.83	0.42
46	FRT-MII	Miracle fruit	2.05	1.20	0.85	0.41
32	FRT-JAI	Jackfruit	0.63	0.37	0.26	0.41
60	FRT-PLM	PlumPrune (dried plum)	1.31	0.77	0.54	0.41
9	FRT-CHI	Chico fruit	1.75	1.03	0.72	0.41
71	FRT-SAR	Salal berry	1.12	0.66	0.46	0.41
2	FRT-AVD	Avocado	1.00	0.59	0.41	0.41
6	FRT-BLN	Blackcurrant	2.00	1.18	0.82	0.41
61	FRT-PLT	Plumcot (or Pluot)	2.10	1.24	0.86	0.41
36	FRT-KII	Kiwifruit	2.32	1.37	0.95	0.41
27	FRT-GRI	GrapeRaisin	1.25	0.74	0.51	0.41
39	FRT-LIM	Lime	0.96	0.57	0.39	0.41
16	FRT-CUN	Currant	1.75	1.04	0.71	0.41
53	FRT-PAY	Papaya	1.06	0.63	0.43	0.41
41	FRT-LOG	Longan	1.85	1.10	0.75	0.41
28	FRT-GUV	Guava	0.94	0.56	0.38	0.40

	SKU	Description	Sales Price per Pound	Cost per Pound	Gross Margin	Gross Margin Percent
58	FRT-PIL	Pineapple	0.77	0.46	0.31	0.40
68	FRT-REN	Redcurrant	1.42	0.85	0.57	0.40
15	FRT-CUE	Cucumber	1.82	1.09	0.73	0.40