

```
In [4]: import pandas as pd

In [5]: import numpy as np

In [6]: import seaborn as sns

In [7]: import matplotlib.pyplot as plt

In [9]: df = pd.read_csv("C:\\Users\\praha\\OneDrive\\Desktop\\Ex-04-EDA-main\\Ex-04-EDA-main\\supermarket.csv")

In [7]: df
```

Out[7]:

	Invoice ID	Branch	City	Customer type	Gender	Product line	Unit price	Quantity	Tax 5%	Total	Date	Time	Payment	cogs	gross margin percentage	gross income
0	750-67-8428	A	Yangon	Member	Female	Health and beauty	74.69	7	26.1415	548.9715	1/5/2019	13:08	Ewallet	522.83	4.761905	26.1415
1	226-31-3081	C	Naypyitaw	Normal	Female	Electronic accessories	15.28	5	3.8200	80.2200	3/8/2019	10:29	Cash	76.40	4.761905	3.8200
2	631-41-3108	A	Yangon	Normal	Male	Home and lifestyle	46.33	7	16.2155	340.5255	3/3/2019	13:23	Credit card	324.31	4.761905	16.2155
3	123-19-1176	A	Yangon	Member	Male	Health and beauty	58.22	8	23.2880	489.0480	1/27/2019	20:33	Ewallet	465.76	4.761905	23.2880
4	373-73-7910	A	Yangon	Normal	Male	Sports and travel	86.31	7	30.2085	634.3785	2/8/2019	10:37	Ewallet	604.17	4.761905	30.2085
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
995	233-67-5758	C	Naypyitaw	Normal	Male	Health and beauty	40.35	1	2.0175	42.3675	1/29/2019	13:46	Ewallet	40.35	4.761905	2.0175
996	303-96-2227	B	Mandalay	Normal	Female	Home and lifestyle	97.38	10	48.6900	1022.4900	3/2/2019	17:16	Ewallet	973.80	4.761905	48.6900
997	727-02-1313	A	Yangon	Member	Male	Food and beverages	31.84	1	1.5920	33.4320	2/9/2019	13:22	Cash	31.84	4.761905	1.5920
998	347-56-2442	A	Yangon	Normal	Male	Home and lifestyle	65.82	1	3.2910	69.1110	2/22/2019	15:33	Cash	65.82	4.761905	3.2910
999	849-09-3807	A	Yangon	Member	Female	Fashion accessories	88.34	7	30.9190	649.2990	2/18/2019	13:28	Cash	618.38	4.761905	30.9190

1000 rows × 17 columns

```
In [10]: df.isnull().sum()

Out[10]: Invoice ID      0
Branch      0
City        0
Customer type      0
Gender       0
Product line      0
Unit price      0
Quantity       0
Tax 5%         0
Total         0
Date          0
Time          0
Payment       0
cogs          0
gross margin percentage      0
gross income      0
Rating        0
dtype: int64

In [11]: cols=[' Invoice ID','Branch','City','Customer type','Gender','Product line','Unit price','Quantity','Tax 5% ','Total','Data','Time'
```

```
In [12]: pd.columns=cols
```

```
In [13]: df.head()
```

Out[13]:

	Invoice ID	Branch	City	Customer type	Gender	Product line	Unit price	Quantity	Tax 5%	Total	Date	Time	Payment	cogs	gross margin percentage	gross income
0	750-67-8428	A	Yangon	Member	Female	Health and beauty	74.69	7	26.1415	548.9715	1/5/2019	13:08	Ewallet	522.83	4.761905	26.1415
1	226-31-3081	C	Naypyitaw	Normal	Female	Electronic accessories	15.28	5	3.8200	80.2200	3/8/2019	10:29	Cash	76.40	4.761905	3.8200
2	631-41-3108	A	Yangon	Normal	Male	Home and lifestyle	46.33	7	16.2155	340.5255	3/3/2019	13:23	Credit card	324.31	4.761905	16.2155
3	123-19-1176	A	Yangon	Member	Male	Health and beauty	58.22	8	23.2880	489.0480	1/27/2019	20:33	Ewallet	465.76	4.761905	23.2880
4	373-73-7910	A	Yangon	Normal	Male	Sports and travel	86.31	7	30.2085	634.3785	2/8/2019	10:37	Ewallet	604.17	4.761905	30.2085

```
In [14]: df.isnull().sum()
```

Out[14]:

Invoice ID	0
Branch	0
City	0
Customer type	0
Gender	0
Product line	0
Unit price	0
Quantity	0
Tax 5%	0
Total	0
Date	0
Time	0
Payment	0
cogs	0
gross margin percentage	0
gross income	0
Rating	0
dtype: int64	

```
In [15]: for col in df.columns:
print('{} : {}'.format(col,df[col].unique()))
```

Invoice ID : ['750-67-8428' '226-31-3081' '631-41-3108' '123-19-1176' '373-73-7910' '699-14-3026' '355-53-5943' '315-22-5665' '665-32-9167' '692-92-5582' '351-62-0822' '529-56-3974' '365-64-0515' '252-56-2699' '829-34-3910' '299-46-1805' '656-95-9349' '765-26-6951' '329-62-1586' '319-50-3348' '300-71-4605' '371-85-5789' '273-16-6619' '636-48-8204' '549-59-1358' '227-03-5010' '649-29-6775' '189-17-4241' '145-94-9061' '848-62-7243' '871-79-8483' '149-71-6266' '640-49-2076' '595-11-5460' '183-56-6882' '232-16-2483' '129-29-8530' '272-65-1806' '333-73-7901' '777-82-7220' '280-35-5823' '554-53-8700' '354-25-5821' '228-96-1411' '617-15-4209' '132-32-9879' '370-41-7321' '727-46-3608' '669-54-1719' '574-22-5561' '326-78-5178' '162-48-8011' '616-24-2851' '778-71-5554' '242-55-6721' '399-46-5918' '106-35-6779' '635-40-6220' '817-48-8732' '120-06-4233' '285-68-5083' '803-83-5989' '347-34-2234' '199-75-8169' '853-23-2453' '877-22-3308' '838-78-4295' '109-28-2512' '232-11-3025' '382-03-4532' '393-65-2792' '796-12-2025' '510-95-6347' '841-35-6630' '287-21-9091' '732-94-0499' '263-10-3913' '381-20-0914' '829-49-1914' '756-01-7507' '870-72-4431' '847-38-7188' '480-63-2856' '787-56-0757' '360-39-5055' '730-50-9884' '362-58-8315' '633-44-8566' '504-35-8843' '318-68-5053' '565-80-5980' '225-32-0908' '873-51-0671' '152-08-9985' '512-91-0811' '594-34-4444' '766-85-7061' '871-39-9221' '865-92-6136' '733-01-9107' '163-56-7055' '189-98-2939' '551-21-3069' '212-62-1842' '716-39-1409' '704-48-3927' '628-34-3388' '630-74-5166' '588-01-7461' '861-77-0145' '479-26-8945' '210-67-5886' '227-78-1148' '645-44-1170' '237-01-6122' '225-98-1496' '291-32-1427' '659-65-8956' '642-32-2990' '378-24-2715' '638-60-7125' '659-36-1684' '219-22-9386' '336-78-2147' '268-27-6179' '668-90-8900' '870-54-3162' '189-08-9157' '663-86-9076' '549-84-7482' '191-10-6171' '802-70-5316' '695-51-0018' '590-83-4591' '483-71-1164' '597-78-7908' '700-81-1757' '354-39-5160' '241-72-9525' '575-30-8091' '731-81-9469' '280-17-4359' '338-65-2210' '488-25-4221' '239-10-7476' '458-41-1477' '685-64-1609' '568-90-5112' '262-47-2794' '238-49-0436' '608-96-3517' '584-86-7256' '746-94-0204' '214-17-6927' '400-89-4171' '782-95-9291' '279-74-2924' '307-85-2293' '743-04-1105' '423-57-2993' '894-41-5205' '275-28-0149' '101-17-6199' '423-80-0988' '548-46-9322' '505-02-0892' '234-65-2137' '687-47-8271' '796-32-9050' '105-31-1824' '249-42-3782' '316-55-4634' '733-33-4967' '608-27-6295' '414-12-7047' '827-26-2100' '175-54-2529' '139-52-2867' '407-63-8975' '342-65-4817']

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'211-05-0490'	'727-75-6477'	'744-02-5987'	'307-83-9164'	'779-06-0012'
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'860-79-0874'	'834-61-8124'	'115-99-4379'	'565-67-6697'	'320-49-6392'
'889-04-9723'	'632-90-0281'	'554-42-2417'	'453-63-6187'	'578-80-7669'
'612-36-5536'	'605-72-4132'	'471-41-2823'	'462-67-9126'	'272-27-9238'
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'201-86-2184'	'261-12-8671'	'730-70-9830'	'382-25-8917'	'422-29-8786'
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'244-08-0162'	'569-71-4390'	'132-23-6451'	'696-90-2548'	'472-15-9636'
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'286-75-7818'	'574-57-9721'	'459-50-7686'	'616-87-0016'	'837-55-7229'
'751-69-0068'	'257-73-1380'	'345-08-4992'	'549-96-4200'	'810-60-6344'
'450-28-2866'	'394-30-3170'	'138-17-5109'	'192-98-7397'	'301-11-9629'
'390-80-5128'	'235-46-8343'	'453-12-7053'	'296-11-7041'	'449-27-2918'
'891-01-7034'	'744-09-5786'	'727-17-0390'	'568-88-3448'	'187-83-5490'
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'541-08-3113'	'246-11-3901'	'674-15-9296'	'305-18-3552'	'493-65-6248'
'438-01-4015'	'709-58-4068'	'795-49-7276'	'556-72-8512'	'627-95-3243'
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'418-05-0656' '678-79-0726' '776-68-1096' '592-46-1692' '434-35-9162'  
'149-14-0304' '442-44-6497' '174-64-0215' '210-74-9613' '299-29-0180'  
'247-11-2470' '635-28-5728' '756-49-0168' '438-23-1242' '238-45-6950'  
'607-65-2441' '386-27-7606' '137-63-5492' '197-77-7132' '805-86-0265'  
'733-29-1227' '451-73-2711' '373-14-0504' '546-80-2899' '345-68-9016'  
'390-17-5806' '457-13-1708' '664-14-2882' '487-79-6868' '314-23-4520'  
'210-30-7976' '585-86-8361' '807-14-7833' '775-72-1988' '288-38-3758'  
'652-43-6591' '785-96-0615' '406-46-7107' '250-17-5703' '156-95-3964'  
'842-40-8179' '525-09-8450' '410-67-1709' '587-73-4862' '787-87-2010'  
'593-14-4239' '801-88-0346' '388-76-2555' '711-31-1234' '886-54-6089'  
'707-32-7409' '759-98-4285' '201-63-8275' '471-06-8611' '200-16-5952'  
'120-54-2248' '102-77-2261' '875-31-8302' '102-06-2002' '457-94-0464'  
'629-42-4133' '534-53-3526' '307-04-2070' '468-99-7231' '516-77-6464'  
'404-91-5964' '886-77-9084' '790-38-4466' '704-10-4056' '497-37-6538'  
'651-96-5970' '400-80-4065' '744-16-7898' '263-12-5321' '702-72-0487'  
'605-83-1050' '443-60-9639' '864-24-7918' '359-94-5395' '401-09-4232'  
'751-15-6198' '324-41-6833' '474-33-8305' '759-29-9521' '831-81-6575'  
'220-68-6701' '618-34-8551' '257-60-7754' '559-61-5987' '189-55-2313'  
'565-91-4567' '380-60-5336' '815-04-6282' '674-56-6360' '778-34-2523'  
'499-27-7781' '477-59-2456' '832-51-6761' '869-11-3082' '190-59-3964'  
'366-43-6862' '186-43-8965' '784-21-9238' '276-75-6884' '109-86-4363'  
'569-76-2760' '222-42-0244' '760-53-9233' '538-22-0304' '416-17-9926'  
'237-44-6163' '636-17-0325' '343-75-9322' '528-14-9470' '427-45-9297'  
'807-34-3742' '288-62-1085' '670-71-7306' '660-29-7083' '271-77-8740'  
'497-36-0989' '291-59-1384' '860-73-6466' '549-23-9016' '896-34-0956'  
'804-38-3935' '585-90-0249' '862-29-5914' '845-94-6841' '125-45-2293'  
'843-73-4724' '409-33-9708' '658-66-3967' '866-70-2814' '160-22-2687'  
'895-03-6665' '770-42-8960' '748-45-2862' '234-36-2483' '316-66-3011'  
'848-95-6252' '840-76-5966' '152-03-4217' '533-66-5566' '124-31-1458'  
'176-78-1170' '361-59-0574' '101-81-4070' '631-34-1880' '852-82-2749'  
'873-14-6353' '584-66-4073' '544-55-9589' '166-19-2553' '737-88-5876'  
'154-87-7367' '885-56-0389' '608-05-3804' '448-61-3783' '761-49-0439'  
'490-95-0021' '115-38-7388' '311-13-6971' '291-55-6563' '548-48-3156'  
'460-93-5834' '325-89-4209' '884-80-6021' '137-74-8729' '880-46-5796'  
'389-70-2397' '114-35-5271' '607-76-6216' '715-20-1673' '811-35-1094'  
'699-88-1972' '781-84-8059' '409-49-6995' '725-54-0677' '146-09-5432'  
'377-79-7592' '509-10-0516' '595-94-9924' '865-41-9075' '545-07-8534'  
'118-62-1812' '450-42-3339' '851-98-3555' '186-71-5196' '624-01-8356'  
'313-66-9943' '151-27-8496' '453-33-6436' '522-57-8364' '459-45-2396'  
'717-96-4189' '722-13-2115' '749-81-8133' '777-67-2495' '636-98-3364'  
'246-55-6923' '181-82-6255' '838-02-1821' '887-42-0517' '457-12-0244'  
'226-34-0034' '321-49-7382' '397-25-8725' '431-66-2305' '825-94-5922'  
'641-62-7288' '756-93-1854' '243-55-8457' '458-10-8612' '501-61-1753'  
'235-06-8510' '433-08-7822' '361-85-2571' '131-70-8179' '500-02-2261'  
'720-72-2436' '702-83-5291' '809-69-9497' '449-16-6770' '333-23-2632'  
'489-82-1237' '859-97-6048' '676-10-2200' '373-88-1424' '365-16-4334'  
'503-21-4385' '305-89-2768' '574-80-1489' '784-08-0310' '200-40-6154'  
'846-10-0341' '577-34-7579' '430-02-3888' '867-47-1948' '384-59-6655'  
'256-58-3609' '324-92-3863' '593-08-5916' '364-34-2972' '794-42-3736'  
'172-42-8274' '558-60-5016' '195-06-0432' '605-03-2706' '214-30-2776'  
'746-04-1077' '448-34-8700' '452-04-8808' '531-56-4728' '744-82-9138'  
'883-69-1285' '221-25-5073' '518-71-6847' '156-20-0370' '151-33-7434'  
'728-47-9078' '809-46-1866' '139-32-4183' '148-41-7930' '189-40-5216'  
'374-38-5555' '764-44-8999' '552-44-5977' '267-62-7380' '430-53-4718'  
'886-18-2897' '602-16-6955' '745-74-0715' '690-01-6631' '652-49-6720'  
'233-67-5758' '303-96-2227' '727-02-1313' '347-56-2442' '849-09-3807']

Branch : ['A' 'C' 'B']

City : ['Yangon' 'Naypyitaw' 'Mandalay']

Customer type : ['Member' 'Normal']

Gender : ['Female' 'Male']

Product line : ['Health and beauty' 'Electronic accessories' 'Home and lifestyle'  
'Sports and travel' 'Food and beverages' 'Fashion accessories']

Unit price : [74.69 15.28 46.33 58.22 86.31 85.39 68.84 73.56 36.26 54.84 14.48 25.51

46.95 43.19 71.38 93.72 68.93 72.61 54.67 40.3 86.04 87.98 33.2 34.56  
88.63 52.59 33.52 87.67 88.36 24.89 94.13 78.07 83.78 96.58 99.42 68.12  
62.62 60.88 54.92 30.12 86.72 56.11 69.12 98.7 15.37 93.96 56.69 20.01  
18.93 82.63 91.4 44.59 17.87 15.43 16.16 85.98 44.34 89.6 72.35 30.61  
24.74 55.73 55.07 15.81 75.74 15.87 33.47 97.61 78.77 18.33 89.48 62.12  
48.52 75.91 74.67 41.65 49.04 78.31 20.38 99.19 96.68 19.25 80.36 48.91  
83.06 76.52 49.38 42.47 76.99 47.38 44.86 21.98 64.36 89.75 97.16 87.87  
12.45 52.75 82.7 48.71 78.55 23.07 58.26 30.35 88.67 27.38 62.13 33.98  
81.97 16.49 98.21 72.84 58.07 80.79 27.02 21.94 51.36 10.96 53.44 99.56  
57.12 99.96 63.91 56.47 93.69 32.25 31.73 68.54 90.28 39.62 92.13 34.84  
87.45 81.3 90.22 26.31 34.42 51.91 72.5 89.8 90.5 68.6 30.41 77.95  
46.26 30.14 66.14 71.86 32.46 91.54 83.24 16.48 80.97 92.29 72.17 50.28  
97.22 93.39 43.18 63.69 45.79 76.4 39.9 42.57 95.58 98.98 51.28 69.52

70.01	80.05	20.85	52.89	19.79	33.84	22.17	22.51	73.88	86.8	64.26	38.47
15.5	34.31	12.34	18.08	94.49	46.47	74.07	69.81	77.04	73.52	87.8	25.55
32.71	74.29	43.7	25.29	41.5	71.39	19.15	57.49	61.41	25.9	17.77	23.03
66.65	28.53	30.37	99.73	26.23	93.26	92.36	46.42	29.61	18.28	24.77	94.64
94.87	57.34	45.35	62.08	11.81	12.54	43.25	87.16	69.37	37.06	90.7	63.42
81.37	10.59	84.09	73.82	51.94	93.14	17.41	44.22	13.22	89.69	24.94	59.77
93.2	62.65	93.87	47.59	81.4	17.94	77.72	73.06	46.55	35.19	14.39	23.75
58.9	32.62	66.35	25.91	65.94	75.06	16.45	38.3	22.24	54.45	98.4	35.47
74.6	70.74	35.54	67.43	21.12	21.54	12.03	99.71	47.97	21.82	95.42	70.99
44.02	69.96	37.	15.34	99.83	47.67	66.68	74.86	48.51	94.88	27.85	62.48
36.36	18.11	51.92	28.84	78.38	60.01	88.61	99.82	39.01	48.61	51.19	14.96
72.2	40.23	88.79	26.48	81.91	79.93	69.33	14.23	15.55	78.13	99.37	21.08
74.79	29.67	44.07	22.93	39.42	15.26	61.77	21.52	97.74	99.78	94.26	51.13
22.02	32.9	77.02	23.48	14.7	28.45	57.95	47.65	42.82	48.09	55.97	76.9
97.03	44.65	77.93	71.95	89.25	26.02	13.5	99.3	51.69	54.73	27.	30.24
89.14	37.55	95.44	27.5	74.97	80.96	94.47	99.79	73.22	41.24	81.68	51.32
14.36	21.5	26.26	60.96	70.11	42.08	67.09	96.7	35.38	95.49	96.98	23.65
82.33	26.61	99.69	74.89	40.94	75.82	46.77	32.32	54.07	18.22	80.48	37.95
76.82	52.26	79.74	77.5	54.27	13.59	41.06	19.24	39.43	46.22	13.98	39.75
97.79	67.26	13.79	68.71	56.53	23.82	34.21	21.87	20.97	25.84	50.93	96.11
45.38	81.51	57.22	25.22	38.6	84.05	97.21	25.42	16.28	40.61	53.17	20.87
67.27	90.65	69.08	43.27	23.46	95.54	47.44	99.24	82.93	33.99	17.04	40.86
17.44	88.43	89.21	12.78	19.1	27.66	45.74	27.07	39.12	74.71	22.01	63.61
25.	20.77	29.56	77.4	79.39	46.57	35.89	40.52	73.05	73.95	22.62	51.34
54.55	37.15	37.02	21.58	98.84	83.77	40.05	43.13	72.57	64.44	65.18	33.26
84.07	34.37	65.97	32.8	37.14	60.38	36.98	49.49	41.09	22.96	77.68	34.7
19.66	25.32	12.12	99.89	75.92	63.22	90.24	98.13	51.52	73.97	31.9	69.4
93.31	88.45	24.18	48.5	61.29	15.95	90.74	42.91	54.28	99.55	58.39	51.47
54.86	39.39	34.73	71.92	45.71	83.17	37.44	62.87	81.71	91.41	39.21	59.86
54.36	98.09	25.43	86.68	22.95	16.31	28.32	16.67	73.96	97.94	87.48	30.68
75.88	20.18	18.77	71.2	38.81	29.42	60.95	51.54	66.06	57.27	54.31	58.24
22.21	19.32	37.48	72.04	98.52	41.66	72.42	89.2	42.42	74.51	99.25	81.21
49.33	65.74	79.86	73.98	82.04	26.67	10.13	72.39	85.91	81.31	60.3	31.77
64.27	69.51	27.22	92.98	63.06	51.71	52.34	43.06	59.61	14.62	46.53	24.24
45.58	75.2	96.8	14.82	52.2	46.66	36.85	70.32	83.08	64.99	77.56	54.51
51.89	31.75	53.65	49.79	57.89	28.96	98.97	93.22	80.93	67.45	38.72	72.6
87.91	98.53	43.46	71.68	91.61	94.59	83.25	91.35	78.88	60.87	82.58	53.3
12.09	64.19	99.7	79.91	66.47	28.95	46.2	17.63	52.42	98.79	88.55	55.67
72.52	12.05	19.36	70.21	33.63	15.49	75.66	55.81	72.78	37.32	60.18	15.69
88.15	27.93	55.45	42.97	17.14	58.75	87.1	98.8	48.63	57.74	17.97	47.71
40.62	56.04	93.4	73.41	33.64	45.48	64.08	73.47	58.95	39.48	34.81	49.32
21.48	23.08	49.1	64.83	63.56	72.88	67.1	70.19	55.04	73.38	52.6	87.37
27.04	62.19	69.58	97.5	60.41	19.77	80.47	88.39	71.77	43.	68.98	15.62
25.7	80.62	75.53	77.63	13.85	35.68	71.46	11.94	17.48	25.56	90.63	44.12
36.77	23.34	28.5	55.57	69.74	97.26	52.18	22.32	56.	19.7	53.72	81.95
81.2	58.76	91.56	55.61	84.83	71.63	37.69	31.67	38.42	65.23	10.53	12.29
81.23	27.28	17.42	73.28	84.87	97.29	35.74	96.52	18.85	55.39	77.2	72.13
63.88	10.69	55.5	95.46	76.06	13.69	95.64	11.43	85.87	67.99	65.65	28.86
65.31	93.38	25.25	21.8	94.76	30.62	44.01	10.16	74.58	71.89	10.99	60.47
58.91	46.41	68.55	97.37	92.6	46.61	27.18	24.49	92.78	86.69	23.01	30.2
67.39	48.96	75.59	77.47	93.18	50.23	17.75	62.18	10.75	40.26	64.97	95.15
48.62	53.21	45.44	33.88	96.16	47.16	47.68	10.17	60.08	72.11	41.28	64.95
74.22	10.56	62.57	11.85	91.3	40.73	52.38	38.54	44.63	55.87	29.22	39.47
14.87	21.32	93.78	73.26	22.38	99.1	74.1	98.48	53.19	52.79	95.95	36.51
28.31	57.59	47.63	86.27	12.76	11.28	51.07	79.59	33.81	90.53	62.82	24.31
64.59	24.82	56.5	21.43	89.06	23.29	65.26	52.35	90.02	12.1	33.21	10.18
31.99	83.34	87.9	12.19	76.92	83.66	57.91	92.49	28.38	50.45	99.16	60.74
47.27	85.6	35.04	44.84	45.97	27.73	11.53	58.32	84.61	82.88	79.54	49.01
29.15	56.13	93.12	99.6	35.49	42.85	94.67	68.97	35.79	16.37	12.73	83.14
35.22	13.78	88.31	88.25	25.31	99.92	83.35	74.44	63.15	85.72	78.89	92.09
57.29	66.52	45.68	50.79	10.08	93.88	84.25	53.78	35.81	26.43	39.91	21.9
62.85	21.04	65.91	50.49	46.02	15.8	98.66	91.98	20.89	96.82	33.33	38.27
33.3	81.01	34.49	84.63	36.91	87.08	80.08	86.13	49.92	74.66	26.6	25.45
67.77	59.59	58.15	97.48	96.37	63.71	14.76	62.	82.34	75.37	56.56	76.6
58.03	17.49	40.35	97.38	31.84	65.82	88.34]					
Quantity : [ 7 5 8 6 10 2 3 4 1 9]											
Tax 5% : [26.1415 3.82 16.2155 23.288 30.2085 29.8865 20.652 36.78 3.626											
8.226	2.896	5.102	11.7375	21.595	35.69	28.116	24.1255	21.783			
8.2005	4.03	21.51	13.197	3.32	8.64	13.2945	21.036	1.676			
8.767	22.09	11.2005	23.5325	35.1315	33.512	9.658	19.884	3.406			
15.655	27.396	21.968	12.048	4.336	5.611	20.736	39.48	1.537			
18.792	25.5105	9.0045	5.679	41.315	31.99	11.1475	3.574	0.7715			
1.616	34.392	4.434	35.84	36.175	9.183	3.711	16.719	24.7815			
7.905	15.148	7.935	3.347	29.283	39.385	0.9165	44.74	31.06			
7.278	22.773	33.6015	20.825	22.068	39.155	5.095	29.757	14.502			
7.7	16.072	12.2275	29.071	19.13	17.283	2.1235	23.097	9.476			
22.43	7.693	28.962	4.4875	4.858	43.935	3.735	7.9125	24.81			
2.4355	35.3475	10.3815	17.478	10.6225	44.335	8.214	18.639	15.291			
40.985	1.649	14.7315	25.494	26.1315	36.3555	4.053	5.485	2.568			
5.48	5.344	39.824	19.992	44.982	25.564	22.588	32.7915	8.0625			
14.2785	27.416	40.626	13.867	27.639	6.968	26.235	24.39	13.533			
6.5775	10.326	25.955	29.	44.9	45.25	34.3	1.5205	23.385			
13.878	15.07	13.228	28.744	12.984	18.308	12.096	37.458	4.944			
32.388	23.0725	3.6085	12.57	43.749	28.017	17.272	3.1845	16.0265			
7.64	19.95	17.028	47.79	49.49	15.384	24.332	17.5025	20.0125			
8.34	15.867	7.916	15.228	8.868	7.8785	22.164	13.02	22.491			
15.388	7.75	13.724	4.319	2.712	37.796	9.294	3.7035	13.962			
11.556	7.352	39.51	5.11	8.1775	3.7145	4.37	1.2645	8.3			
17.8475	5.745	11.498	21.4935	12.95	4.4425	10.3635	29.9925	14.265			
4.5555	44.8785	11.8035	41.967	23.09	6.963	0.914	6.1925	14.196			
37.948	8.601	13.605	21.728	2.9525	0.627	4.325	8.716	31.2165			
7.412	27.21	25.368	8.137	1.5885	37.8405	14.764	25.97	9.314			

4.3525	11.055	3.305	4.4845	11.223	5.977	9.32	12.53	37.548
19.036	12.21	4.485	15.544	25.571	20.9475	17.595	1.439	4.75
23.56	6.524	3.3175	7.773	6.45	13.188	33.777	3.29	7.66
11.12	2.7225	34.44	7.094	37.3	14.148	17.77	16.8575	2.112
9.693	1.203	29.913	16.7895	10.91	19.084	35.495	22.01	27.984
1.85	0.767	29.949	9.534	16.67	3.743	10.6875	16.9785	33.208
20.15	9.7475	3.124	3.636	9.055	12.98	5.768	23.514	12.002
4.4305	9.982	1.9505	2.4305	10.238	5.984	25.27	14.0805	35.516
3.972	8.191	23.979	6.933	3.5575	6.9975	39.065	9.937	3.162
18.6975	10.3845	8.814	10.3185	1.971	4.578	15.4425	6.456	19.548
24.945	18.852	10.226	7.272	9.909	4.935	19.255	2.348	3.675
7.1125	34.38	17.385	7.1475	19.269	7.2135	19.5895	26.915	24.2575
6.6975	35.0685	3.5975	35.7	9.107	6.75	49.65	18.0915	19.1555
12.15	1.512	17.828	18.775	47.72	4.125	3.7485	32.384	37.788
9.979	21.966	8.248	16.336	23.094	7.18	9.675	9.191	6.096
21.033	12.624	16.7725	24.175	15.921	33.4215	19.396	4.73	16.466
2.661	24.9225	14.978	10.235	3.791	14.031	16.16	24.3315	6.377
12.072	18.975	3.841	26.13	3.987	19.375	13.5675	6.1155	12.318
8.658	11.829	9.244	0.699	9.9375	34.2265	13.452	3.4475	13.742
11.306	5.955	17.105	2.187	5.2425	3.876	20.372	4.8055	9.076
4.0755	5.722	8.827	5.79	12.6075	48.605	10.168	0.814	18.2745
18.6095	3.1305	16.8175	45.325	6.908	4.327	7.038	33.439	2.372
44.658	16.586	10.197	3.408	16.344	4.36	35.372	40.1445	0.639
6.685	0.9575	13.83	6.861	1.3535	1.956	22.413	6.603	15.9025
1.25	4.154	7.39	34.83	39.695	23.285	1.7945	10.13	36.525
14.79	1.131	12.835	27.275	13.0025	11.106	1.079	4.942	25.131
8.01	21.565	29.028	16.11	9.777	8.315	16.814	17.185	1.93
26.388	16.4	9.285	30.19	18.49	9.898	20.545	7.43	1.148
34.956	3.47	9.83	10.128	6.06	9.989	30.368	6.322	27.072
4.9065	20.608	3.6985	1.595	6.94	9.331	4.4225	9.672	7.275
25.215	15.3225	4.785	31.759	10.7275	18.998	34.8425	20.4365	2.5735
13.715	9.8475	3.473	17.98	6.8565	24.951	11.232	6.287	24.513
22.8525	7.842	5.986	27.18	44.1405	7.629	34.672	11.475	7.3395
7.08	5.8345	3.698	4.897	14.61	26.244	4.602	3.794	4.036
5.631	3.56	7.762	14.71	27.4275	12.885	19.818	8.5905	24.4395
26.208	6.663	6.762	5.622	7.204	49.26	12.498	10.863	9.711
44.6	16.968	22.353	9.925	40.605	24.665	29.583	27.951	25.893
20.51	13.335	3.5455	7.239	21.4775	28.4585	12.06	6.354	12.854
6.951	4.083	15.536	9.298	3.616	9.459	10.342	7.851	10.765
29.805	3.655	13.959	8.484	2.279	11.28	14.52	2.223	7.83
20.997	9.2125	7.032	3.2495	38.78	16.353	18.1615	6.35	18.7775
9.958	1.5305	5.789	1.448	44.5365	13.983	4.0465	33.725	17.424
21.78	21.9775	29.559	13.038	10.752	4.5805	33.1065	41.625	4.5675
7.888	6.087	41.29	7.995	0.6045	32.095	11.7465	8.377	14.955
11.9865	33.235	10.1325	2.31	4.4075	7.863	14.8185	35.42	5.567
29.008	3.0125	8.712	21.063	1.6815	1.549	12.37	18.915	16.743
36.39	16.794	12.036	2.3535	4.9845	13.2225	6.9825	2.7725	6.4455
5.999	17.625	43.55	9.88	9.726	8.661	3.594	14.313	4.062
28.02	9.34	11.0115	13.456	22.74	22.428	14.694	29.475	14.55
1.974	1.7405	14.796	2.148	6.924	4.91	6.483	31.78	7.288
10.065	31.5855	19.264	24.315	25.683	23.67	21.8425	5.408	12.438
31.311	48.75	24.164	4.848	9.885	36.2115	39.7755	25.1195	8.6
3.449	6.248	3.855	24.186	15.106	34.9335	6.2325	8.92	25.011
1.791	6.807	5.244	8.946	40.7835	6.618	12.8695	4.668	11.4
8.3355	34.87	19.452	18.263	4.464	8.4	0.985	26.558	2.686
40.975	28.42	29.38	36.624	42.282	19.4635	4.2415	7.163	3.769
12.668	1.921	32.615	2.6325	5.5305	28.4305	6.82	8.71	18.32
12.7305	38.916	14.296	28.956	9.425	11.078	38.6	36.065	25.552
2.6725	11.1	38.184	11.409	4.107	19.128	3.429	19.108	30.0545
23.7965	2.621	6.565	7.215	22.8585	4.669	6.3125	39.5415	8.72
18.952	1.531	17.604	2.54	26.103	28.756	2.7475	9.0705	20.6185
2.3205	13.71	48.685	32.41	4.661	2.718	3.0435	12.245	4.639
21.6725	6.903	12.08	23.5865	22.032	34.0155	15.494	9.318	10.046
0.8875	31.09	4.3	20.13	16.2425	4.7575	19.448	21.284	15.904
13.552	19.232	11.79	10.578	4.768	0.5085	10.3065	21.028	4.402
32.4495	6.192	32.475	37.11	4.224	12.514	4.74	4.565	14.2555
2.619	9.635	13.389	27.935	8.766	7.791	3.015	3.947	1.487
1.066	14.067	3.663	1.119	32.796	29.73	3.705	9.848	18.6165
26.395	23.9875	16.4295	8.448	5.662	17.277	21.4335	4.3135	1.276
5.076	17.8745	11.9385	5.0715	36.212	6.282	3.6465	12.918	8.687
2.825	10.715	26.718	4.658	26.104	2.6175	1.9875	36.008	4.84
16.605	4.072	15.995	8.334	15.953	4.395	36.735	4.876	38.46
20.915	23.164	23.1225	7.095	15.135	39.664	21.259	14.181	29.96
15.768	20.178	9.194	6.9325	4.0355	5.832	15.676	42.305	20.72
7.954	24.505	4.3725	11.226	37.248	20.536	14.94	10.647	2.1425
18.934	10.3455	3.939	16.1055	4.911	1.273	29.099	10.566	2.756
4.4155	17.829	39.7125	2.531	29.976	8.335	37.22	18.945	12.858
27.6115	22.37	13.8135	17.187	13.304	44.919	22.84	12.6975	3.528
32.858	8.425	2.689	8.9525	10.572	5.9865	3.285	4.208	19.773
14.8995	22.7205	13.806	7.9	44.397	4.599	2.089	0.775	14.523
3.333	3.827	14.985	12.1515	2.37	8.6225	42.315	12.9185	30.478
12.012	8.613	4.992	14.932	7.98	1.2725	3.3885	11.918	11.63
43.866	34.986	33.7295	15.9275	1.476	24.8	41.17	30.148	14.14
38.3	5.803	8.745	3.0475	2.0175	48.69	1.592	3.291	30.919 ]
Total :	[ 548.9715	80.22	340.5255	489.048	634.3785	627.6165	433.692	
772.38	76.146	172.746	60.816	107.142	246.4875	453.495		
749.49	590.436	506.6355	457.443	172.2105	84.63	451.71		
277.137	69.72	181.44	279.1845	441.756	35.196	184.107		
463.89	235.2105	494.1825	737.7615	703.752	202.818	417.564		
71.526	328.755	575.316	461.328	253.008	91.056	117.831		
435.456	829.08	32.277	394.632	535.7205	189.0945	119.259		
867.615	671.79	234.0975	75.054	16.2015	33.936	722.232		

93.114	752.64	759.675	192.843	77.931	351.099	520.4115
166.005	318.108	166.635	70.287	614.943	827.085	19.2465
939.54	652.26	152.838	478.233	705.6315	437.325	463.428
822.255	106.995	624.897	304.542	161.7	337.512	256.7775
610.491	401.73	362.943	44.5935	485.037	198.996	471.03
161.553	608.202	94.2375	102.018	922.635	78.435	166.1625
521.01	51.1455	742.2975	218.0115	367.038	223.0725	931.035
172.494	391.419	321.111	860.685	34.629	309.3615	535.374
548.7615	763.4655	85.113	115.185	53.928	115.08	112.224
836.304	419.832	944.622	536.844	474.348	688.6215	169.3125
299.8485	575.736	853.146	291.207	580.419	146.328	550.935
512.19	284.193	138.1275	216.846	545.055	609.	942.9
950.25	720.3	31.9305	491.085	291.438	316.47	277.788
603.624	272.664	384.468	254.016	786.618	103.824	680.148
484.5225	75.7785	263.97	918.729	588.357	362.712	66.8745
336.5565	160.44	418.95	357.588	1003.59	1039.29	323.064
510.972	367.5525	420.2625	175.14	333.207	166.236	319.788
186.228	165.4485	465.444	273.42	472.311	323.148	162.75
288.204	90.699	56.952	793.716	195.174	77.7735	293.202
242.676	154.392	829.71	107.31	171.7275	78.0045	91.77
26.5545	174.3	374.7975	120.645	241.458	451.3635	271.95
93.2925	217.6335	629.8425	299.565	95.6655	942.4485	247.8735
881.307	484.89	146.223	19.194	130.0425	298.116	796.908
180.621	285.705	456.288	62.0025	13.167	90.825	183.036
655.5465	155.652	571.41	532.728	170.877	33.3585	794.6505
310.044	545.37	195.594	91.4025	232.155	69.405	94.1745
235.683	125.517	195.72	263.13	788.508	399.756	256.41
94.185	326.424	536.991	439.8975	369.495	30.219	99.75
494.76	137.004	69.6675	163.233	135.45	276.948	709.317
69.09	160.86	233.52	57.1725	723.24	148.974	783.3
297.108	373.17	354.0075	44.352	203.553	25.263	628.173
352.5795	229.11	400.764	745.395	462.21	587.664	38.85
16.107	628.929	200.214	350.07	78.603	224.4375	356.5485
697.368	423.15	204.6975	65.604	76.356	190.155	272.58
121.128	493.794	252.042	93.0405	209.622	40.9605	51.0405
214.998	125.664	530.67	295.6905	745.836	83.412	172.011
503.559	145.593	74.7075	146.9475	820.365	208.677	66.402
392.6475	218.0745	185.094	216.6885	41.391	96.138	324.2925
135.576	410.508	523.845	395.892	214.746	152.712	208.089
103.635	404.355	49.308	77.175	149.3625	721.98	365.085
150.0975	404.649	151.4835	411.3795	565.215	509.4075	140.6475
736.4385	75.5475	749.7	191.247	141.75	1042.65	379.9215
402.2655	255.15	31.752	374.388	394.275	1002.12	86.625
78.7185	680.064	793.548	209.559	461.286	173.208	343.056
484.974	150.78	203.175	193.011	128.016	441.693	265.104
352.2225	507.675	334.341	701.8515	407.316	99.33	345.786
55.881	523.3725	314.538	214.935	79.611	294.651	339.36
510.9615	133.917	253.512	398.475	80.661	548.73	83.727
406.875	284.9175	128.4255	258.678	181.818	248.409	194.124
14.679	208.6875	718.7565	282.492	72.3975	288.582	237.426
125.055	359.205	45.927	110.0925	81.396	427.812	100.9155
190.596	85.5855	120.162	185.367	121.59	264.7575	1020.705
213.528	17.094	383.7645	390.7995	65.7405	353.1675	951.825
145.068	90.867	147.798	702.219	49.812	937.818	348.306
214.137	71.568	343.224	91.56	742.812	843.0345	13.419
140.385	20.1075	290.43	144.081	28.4235	41.076	470.673
138.663	333.9525	26.25	87.234	155.19	731.43	833.595
488.985	37.6845	212.73	767.025	310.59	23.751	269.535
572.775	273.0525	233.226	22.659	103.782	527.751	168.21
452.865	609.588	338.31	205.317	174.615	353.094	360.885
40.53	554.148	344.4	194.985	633.99	388.29	207.858
431.445	156.03	24.108	734.076	72.87	206.43	212.688
127.26	209.769	637.728	132.762	568.512	103.0365	432.768
77.6685	33.495	145.74	195.951	92.8725	203.112	152.775
529.515	321.7725	100.485	666.939	225.2775	398.958	731.6925
429.1665	54.0435	288.015	206.7975	72.933	377.58	143.9865
523.971	235.872	132.027	514.773	479.9025	164.682	125.706
570.78	926.9505	160.209	728.112	240.975	154.1295	148.68
122.5245	77.658	102.837	306.81	551.124	96.642	79.674
84.756	118.251	74.76	163.002	308.91	575.9775	270.585
416.178	180.4005	513.2295	550.368	139.923	142.002	118.062
151.284	1034.46	262.458	228.123	203.931	936.6	356.328
469.413	208.425	852.705	517.965	621.243	586.971	543.753
430.71	280.035	74.4555	152.019	451.0275	597.6285	253.26
133.434	269.934	145.971	85.743	326.256	195.258	75.936
198.639	217.182	164.871	226.065	625.905	76.755	293.139
178.164	47.859	236.88	304.92	46.683	164.43	440.937
193.4625	147.672	68.2395	814.38	343.413	381.3915	133.35
394.3275	209.118	32.1405	121.569	30.408	935.2665	293.643
84.9765	708.225	365.904	457.38	461.5275	620.739	273.798
225.792	96.1905	695.2365	874.125	95.9175	165.648	127.827
867.09	167.895	12.6945	673.995	246.6765	175.917	314.055
251.7165	697.935	212.7825	48.51	92.5575	165.123	311.1885
743.82	116.907	609.168	63.2625	182.952	442.323	35.3115
32.529	259.77	397.215	351.603	764.19	352.674	252.756
49.4235	104.6745	277.6725	146.6325	58.2225	135.3555	125.979
370.125	914.55	207.48	204.246	181.881	75.474	300.573
85.302	588.42	196.14	231.2415	282.576	477.54	470.988
308.574	618.975	305.55	41.454	36.5505	310.716	45.108
145.404	103.11	136.143	667.38	153.048	211.365	663.2955
404.544	510.615	539.343	497.07	458.6925	113.568	261.198
657.531	1023.75	507.444	101.808	207.585	760.4415	835.2855

527.5095	180.6	72.429	131.208	80.955	507.906	317.226
733.6035	130.8825	187.32	525.231	37.611	142.947	110.124
187.866	856.4535	138.978	270.2595	98.028	239.4	175.0455
732.27	408.492	383.523	93.744	176.4	20.685	557.718
56.406	860.475	596.82	616.98	769.104	887.922	408.7335
89.0715	150.423	79.149	266.028	40.341	684.915	55.2825
116.1405	597.0405	143.22	182.91	384.72	267.3405	817.236
300.216	608.076	197.925	232.638	810.6	757.365	536.592
56.1225	233.1	801.864	239.589	86.247	401.688	72.009
401.268	631.1445	499.7265	55.041	137.865	151.515	480.0285
98.049	132.5625	830.3715	183.12	397.992	32.151	369.684
53.34	548.163	603.876	57.6975	190.4805	432.9885	48.7305
287.91	1022.385	680.61	97.881	57.078	63.9135	257.145
97.419	455.1225	144.963	253.68	495.3165	462.672	714.3255
325.374	195.678	210.966	18.6375	652.89	90.3	422.73
341.0925	99.9075	408.408	446.964	333.984	284.592	403.872
247.59	222.138	100.128	10.6785	216.4365	441.588	92.442
681.4395	130.032	681.975	779.31	88.704	262.794	99.54
95.865	299.3655	54.999	202.335	281.169	586.635	184.086
163.611	63.315	82.887	31.227	22.386	295.407	76.923
23.499	688.716	624.33	77.805	206.808	390.9465	554.295
503.7375	345.0195	177.408	118.902	362.817	450.1035	90.5835
26.796	106.596	375.3645	250.7085	106.5015	760.452	131.922
76.5765	271.278	182.427	59.325	225.015	561.078	97.818
548.184	54.9675	41.7375	756.168	101.64	348.705	85.512
335.895	175.014	335.013	92.295	771.435	102.396	807.66
439.215	486.444	485.5725	148.995	317.835	832.944	446.439
297.801	629.16	331.128	423.738	193.074	145.5825	84.7455
122.472	329.196	888.405	435.12	167.034	514.605	91.8225
235.746	782.208	431.256	313.74	223.587	44.9925	397.614
217.2555	82.719	338.2155	103.131	26.733	611.079	221.886
57.876	92.7255	374.409	833.9625	53.151	629.496	175.035
781.62	397.845	270.018	579.8415	469.77	290.0835	360.927
279.384	943.299	479.64	266.6475	74.088	690.018	176.925
56.469	188.0025	222.012	125.7165	68.985	88.368	415.233
312.8895	477.1305	289.926	165.9	932.337	96.579	43.869
16.275	304.983	69.993	80.367	314.685	255.1815	49.77
181.0725	888.615	271.2885	640.038	252.252	180.873	104.832
313.572	167.58	26.7225	71.1585	250.278	244.23	921.186
734.706	708.3195	334.4775	30.996	520.8	864.57	633.108
296.94	804.3	121.863	183.645	63.9975	42.3675	1022.49
33.432	69.111	649.299	]			

Date : ['1/5/2019' '3/8/2019' '3/3/2019' '1/27/2019' '2/8/2019' '3/25/2019'

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'2/11/2019' '1/22/2019' '1/13/2019' '1/9/2019' '1/12/2019' '1/26/2019'  
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'2/26/2019' '3/17/2019' '3/14/2019' '2/4/2019' '2/19/2019']

Time : ['13:08' '10:29' '13:23' '20:33' '10:37' '18:30' '14:36' '11:38' '17:15'

'13:27' '18:07' '17:03' '10:25' '16:48' '19:21' '16:19' '11:03' '10:39'  
'18:00' '15:30' '11:24' '10:40' '12:20' '11:15' '17:36' '19:20' '15:31'  
'12:17' '19:48' '15:36' '19:39' '12:43' '14:49' '10:12' '10:42' '12:28'  
'19:15' '17:17' '13:24' '13:01' '18:45' '10:11' '13:03' '20:39' '19:47'  
'17:24' '15:47' '12:45' '17:08' '10:19' '15:10' '14:42' '15:46' '11:49'  
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'14:35' '16:40' '15:43' '15:01' '10:04' '18:50' '12:46' '18:17' '18:21'  
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'15:17' '19:12']

Payment : ['Ewallet' 'Cash' 'Credit card']

cogs : [522.83 76.4 324.31 465.76 604.17 597.73 413.04 735.6 72.52 164.52  
57.92 102.04 234.75 431.9 713.8 562.32 482.51 435.66 164.01 80.6  
430.2 263.94 66.4 172.8 265.89 420.72 33.52 175.34 441.8 224.01  
470.65 702.63 670.24 193.16 397.68 68.12 313.1 547.92 439.36 240.96  
86.72 112.22 414.72 789.6 30.74 375.84 510.21 180.09 113.58 826.3  
639.8 222.95 71.48 15.43 32.32 687.84 88.68 716.8 723.5 183.66  
74.22 334.38 495.63 158.1 302.96 158.7 66.94 585.66 787.7 18.33  
894.8 621.2 145.56 455.46 672.03 416.5 441.36 783.1 101.9 595.14  
290.04 154. 321.44 244.55 581.42 382.6 345.66 42.47 461.94 189.52  
448.6 153.86 579.24 89.75 97.16 878.7 74.7 158.25 496.2 48.71  
706.95 207.63 349.56 212.45 886.7 164.28 372.78 305.82 819.7 32.98  
294.63 509.88 522.63 727.11 81.06 109.7 51.36 109.6 106.88 796.48  
399.84 899.64 511.28 451.76 655.83 161.25 285.57 548.32 812.52 277.34  
552.78 139.36 524.7 487.8 270.66 131.55 206.52 519.1 580. 898.  
905. 686. 30.41 467.7 277.56 301.4 264.56 574.88 259.68 366.16  
241.92 749.16 98.88 647.76 461.45 72.17 251.4 874.98 560.34 345.44  
63.69 320.53 152.8 399. 340.56 955.8 989.8 307.68 486.64 350.05  
400.25 166.8 317.34 158.32 304.56 177.36 157.57 443.28 260.4 449.82  
307.76 155. 274.48 86.38 54.24 755.92 185.88 74.07 279.24 231.12  
147.04 790.2 102.2 163.55 74.29 87.4 25.29 166. 356.95 114.9  
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839.34 461.8 139.26 18.28 123.85 283.92 758.96 172.02 272.1 434.56  
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28.78 95. 471.2 130.48 66.35 155.46 129. 263.76 675.54 65.8  
153.2 222.4 54.45 688.8 141.88 746. 282.96 355.4 337.15 42.24  
193.86 24.06 598.26 335.79 218.2 381.68 709.9 440.2 559.68 37.  
15.34 598.98 190.68 333.4 74.86 213.75 339.57 664.16 403. 194.95  
62.48 72.72 181.1 259.6 115.36 470.28 240.04 88.61 199.64 39.01  
48.61 204.76 119.68 505.4 281.61 710.32 79.44 163.82 479.58 138.66  
71.15 139.95 781.3 198.74 63.24 373.95 207.69 176.28 206.37 39.42  
91.56 308.85 129.12 390.96 498.9 377.04 204.52 145.44 198.18 98.7  
385.1 46.96 73.5 142.25 687.6 347.7 142.95 385.38 144.27 391.79  
538.3 485.15 133.95 701.37 71.95 714. 182.14 135. 993. 361.83  
383.11 243. 30.24 356.56 375.5 954.4 82.5 74.97 647.68 755.76  
199.58 439.32 164.96 326.72 461.88 143.6 193.5 183.82 121.92 420.66  
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198.75 684.53 269.04 68.95 274.84 226.12 119.1 342.1 43.74 104.85  
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12.78 133.7 19.15 276.6 137.22 27.07 39.12 448.26 132.06 318.05  
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121.2 199.78 607.36 126.44 541.44 98.13 412.16 73.97 31.9 138.8  
186.62 88.45 193.44 145.5 504.3 306.45 95.7 635.18 214.55 379.96  
696.85 408.73 51.47 274.3 196.95 69.46 359.6 137.13 499.02 224.64  
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674.5 348.48 435.6 439.55 591.18 260.76 215.04 91.61 662.13 832.5  
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197.6 194.52 173.22 71.88 286.26 81.24 560.4 186.8 220.23 269.12  
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98.2 129.66 635.6 145.76 201.3 631.71 385.28 486.3 513.66 473.4

436.85	108.16	248.76	626.22	975.	483.28	96.96	197.7	724.23	795.51
502.39	172.	68.98	124.96	77.1	483.72	302.12	698.67	124.65	178.4
500.22	35.82	136.14	104.88	178.92	815.67	132.36	257.39	93.36	228.
166.71	697.4	389.04	365.26	89.28	168.	19.7	531.16	53.72	819.5
568.4	587.6	732.48	845.64	389.27	84.83	143.26	75.38	253.36	38.42
652.3	52.65	110.61	568.61	136.4	174.2	366.4	254.61	778.32	285.92
579.12	188.5	221.56	772.	721.3	511.04	53.45	222.	763.68	228.18
82.14	382.56	68.58	382.16	601.09	475.93	52.42	131.3	144.3	457.17
93.38	126.25	790.83	174.4	379.04	30.62	352.08	50.8	522.06	575.12
54.95	181.41	412.37	46.41	274.2	973.7	648.2	93.22	54.36	60.87
244.9	92.78	433.45	138.06	241.6	471.73	440.64	680.31	309.88	186.36
200.92	17.75	621.8	86.	402.6	324.85	95.15	388.96	425.68	318.08
271.04	384.64	235.8	211.56	95.36	10.17	206.13	420.56	88.04	648.99
123.84	649.5	742.2	84.48	250.28	94.8	91.3	285.11	52.38	192.7
267.78	558.7	175.32	155.82	60.3	78.94	29.74	21.32	281.34	73.26
22.38	655.92	594.6	74.1	196.96	372.33	527.9	479.75	328.59	168.96
113.24	345.54	428.67	86.27	25.52	101.52	357.49	238.77	101.43	724.24
125.64	72.93	258.36	173.74	56.5	214.3	534.36	93.16	522.08	52.35
39.75	720.16	96.8	332.1	81.44	319.9	166.68	319.06	87.9	734.7
97.52	769.2	418.3	463.28	462.45	141.9	302.7	793.28	425.18	283.62
599.2	315.36	403.56	183.88	138.65	80.71	116.64	313.52	846.1	414.4
159.08	490.1	87.45	224.52	744.96	410.72	298.8	212.94	42.85	378.68
206.91	78.78	322.11	98.22	25.46	581.98	211.32	55.12	88.31	356.58
794.25	50.62	599.52	166.7	744.4	378.9	257.16	552.23	447.4	276.27
343.74	266.08	898.38	456.8	253.95	70.56	657.16	168.5	53.78	179.05
211.44	119.73	65.7	84.16	395.46	297.99	454.41	276.12	158.	887.94
91.98	41.78	15.5	290.46	66.66	76.54	299.7	243.03	47.4	172.45
846.3	258.37	609.56	240.24	172.26	99.84	298.64	159.6	25.45	67.77
238.36	232.6	877.32	699.72	674.59	318.55	29.52	496.	823.4	602.96
282.8	766.	116.06	174.9	60.95	40.35	973.8	31.84	65.82	618.38]
gross margin percentage : [4.76190476]									
gross income : [26.1415 3.82 16.2155 23.288 30.2085 29.8865 20.652 36.78 3.626									
8.226	2.896	5.102	11.7375	21.595	35.69	28.116	24.1255	21.783	
8.2005	4.03	21.51	13.197	3.32	8.64	13.2945	21.036	1.676	
8.767	22.09	11.2005	23.5325	35.1315	33.512	9.658	19.884	3.406	
15.655	27.396	21.968	12.048	4.336	5.611	20.736	39.48	1.537	
18.792	25.5105	9.0045	5.679	41.315	31.99	11.1475	3.574	0.7715	
1.616	34.392	4.434	35.84	36.175	9.183	3.711	16.719	24.7815	
7.905	15.148	7.935	3.347	29.283	39.385	0.9165	44.74	31.06	
7.278	22.773	33.6015	20.825	22.068	39.155	5.095	29.757	14.502	
7.7	16.072	12.2275	29.071	19.13	17.283	2.1235	23.097	9.476	
22.43	7.693	28.962	4.4875	4.858	43.935	3.735	7.9125	24.81	
2.4355	35.3475	10.3815	17.478	10.6225	44.335	8.214	18.639	15.291	
40.985	1.649	14.7315	25.494	26.1315	36.3555	4.053	5.485	2.568	
5.48	5.344	39.824	19.992	44.982	25.564	22.588	32.7915	8.0625	
14.2785	27.416	40.626	13.867	27.639	6.968	26.235	24.39	13.533	
6.5775	10.326	25.955	29.	44.9	45.25	34.3	1.5205	23.385	
13.878	15.07	13.228	28.744	12.984	18.308	12.096	37.458	4.944	
32.388	23.0725	3.6085	12.57	43.749	28.017	17.272	3.1845	16.0265	
7.64	19.95	17.028	47.79	49.49	15.384	24.332	17.5025	20.0125	
8.34	15.867	7.916	15.228	8.868	7.8785	22.164	13.02	22.491	
15.388	7.75	13.724	4.319	2.712	37.796	9.294	3.7035	13.962	
11.556	7.352	39.51	5.11	8.1775	3.7145	4.37	1.2645	8.3	
17.8475	5.745	11.498	21.4935	12.95	4.4425	10.3635	29.9925	14.265	
4.5555	44.8785	11.8035	41.967	23.09	6.963	0.914	6.1925	14.196	
37.948	8.601	13.605	21.728	2.9525	0.627	4.325	8.716	31.2165	
7.412	27.21	25.368	8.137	1.5885	37.8405	14.764	25.97	9.314	
4.3525	11.055	3.305	4.4845	11.223	5.977	9.32	12.53	37.548	
19.036	12.21	4.485	15.544	25.571	20.9475	17.595	1.439	4.75	
23.56	6.524	3.3175	7.773	6.45	13.188	33.777	3.29	7.66	
11.12	2.7225	34.44	7.094	37.3	14.148	17.77	16.8575	2.112	
9.693	1.203	29.913	16.7895	10.91	19.084	35.495	22.01	27.984	
1.85	0.767	29.949	9.534	16.67	3.743	10.6875	16.9785	33.208	
20.15	9.7475	3.124	3.636	9.055	12.98	5.768	23.514	12.002	
4.4305	9.982	1.9505	2.4305	10.238	5.984	25.27	14.0805	35.516	
3.972	8.191	23.979	6.933	3.5575	6.9975	39.065	9.937	3.162	
18.6975	10.3845	8.814	10.3185	1.971	4.578	15.4425	6.456	19.548	
24.945	18.852	10.226	7.272	9.909	4.935	19.255	2.348	3.675	
7.1125	34.38	17.385	7.1475	19.269	7.2135	19.5895	26.915	24.2575	
6.6975	35.0685	3.5975	35.7	9.107	6.75	49.65	18.0915	19.1555	
12.15	1.512	17.828	18.775	47.72	4.125	3.7485	32.384	37.788	
9.979	21.966	8.248	16.336	23.094	7.18	9.675	9.191	6.096	
21.033	12.624	16.7725	24.175	15.921	33.4215	19.396	4.73	16.466	
2.661	24.9225	14.978	10.235	3.791	14.031	16.16	24.3315	6.377	
12.072	18.975	3.841	26.13	3.987	19.375	13.5675	6.1155	12.318	
8.658	11.829	9.244	0.699	9.9375	34.2265	13.452	3.4475	13.742	
11.306	5.955	17.105	2.187	5.2425	3.876	20.372	4.8055	9.076	
4.0755	5.722	8.827	5.79	12.6075	48.605	10.168	0.814	18.2745	
18.6095	3.1305	16.8175	45.325	6.908	4.327	7.038	33.439	2.372	
44.658	16.586	10.197	3.408	16.344	4.36	35.372	40.1445	0.639	
6.685	0.9575	13.83	6.861	1.3535	1.956	22.413	6.603	15.9025	
1.25	4.154	7.39	34.83	39.695	23.285	1.7945	10.13	36.525	
14.79	1.131	12.835	27.275	13.0025	11.106	1.079	4.942	25.131	
8.01	21.565	29.028	16.11	9.777	8.315	16.814	17.185	1.93	
26.388	16.4	9.285	30.19	18.49	9.898	20.545	7.43	1.148	
34.956	3.47	9.83	10.128	6.06	9.989	30.368	6.322	27.072	
4.9065	20.608	3.6985	1.595	6.94	9.331	4.4225	9.672	7.275	
25.215	15.3225	4.785	31.759	10.7275	18.998	34.8425	20.4365	2.5735	
13.715	9.8475	3.473	17.98	6.8565	24.951	11.232	6.287	24.513	
22.8525	7.842	5.986	27.18	44.1405	7.629	34.672	11.475	7.3395	
7.08	5.8345	3.698	4.897	14.61	26.244	4.602	3.794	4.036	
5.631	3.56	7.762	14.71	27.4275	12.885	19.818	8.5905	24.4395	

26.208 6.663 6.762 5.622 7.204 49.26 12.498 10.863 9.711  
44.6 16.968 22.353 9.925 40.605 24.665 29.583 27.951 25.893  
20.51 13.335 3.5455 7.239 21.4775 28.4585 12.06 6.354 12.854  
6.951 4.083 15.536 9.298 3.616 9.459 10.342 7.851 10.765  
29.805 3.655 13.959 8.484 2.279 11.28 14.52 2.223 7.83  
20.997 9.2125 7.032 3.2495 38.78 16.353 18.1615 6.35 18.7775  
9.958 1.5305 5.789 1.448 44.5365 13.983 4.0465 33.725 17.424  
21.78 21.9775 29.559 13.038 10.752 4.5805 33.1065 41.625 4.5675  
7.888 6.087 41.29 7.995 0.6045 32.095 11.7465 8.377 14.955  
11.9865 33.235 10.1325 2.31 4.4075 7.863 14.8185 35.42 5.567  
29.008 3.0125 8.712 21.063 1.6815 1.549 12.37 18.915 16.743  
36.39 16.794 12.036 2.3535 4.9845 13.2225 6.9825 2.7725 6.4455  
5.999 17.625 43.55 9.88 9.726 8.661 3.594 14.313 4.062  
28.02 9.34 11.0115 13.456 22.74 22.428 14.694 29.475 14.55  
1.974 1.7405 14.796 2.148 6.924 4.91 6.483 31.78 7.288  
10.065 31.5855 19.264 24.315 25.683 23.67 21.8425 5.408 12.438  
31.311 48.75 24.164 4.848 9.885 36.2115 39.7755 25.1195 8.6  
3.449 6.248 3.855 24.186 15.106 34.9335 6.2325 8.92 25.011  
1.791 6.807 5.244 8.946 40.7835 6.618 12.8695 4.668 11.4  
8.3355 34.87 19.452 18.263 4.464 8.4 0.985 26.558 2.686  
40.975 28.42 29.38 36.624 42.282 19.4635 4.2415 7.163 3.769  
12.668 1.921 32.615 2.6325 5.5305 28.4305 6.82 8.71 18.32  
12.7305 38.916 14.296 28.956 9.425 11.078 38.6 36.065 25.552  
2.6725 11.1 38.184 11.409 4.107 19.128 3.429 19.108 30.0545  
23.7965 2.621 6.565 7.215 22.8585 4.669 6.3125 39.5415 8.72  
18.952 1.531 17.604 2.54 26.103 28.756 2.7475 9.0705 20.6185  
2.3205 13.71 48.685 32.41 4.661 2.718 3.0435 12.245 4.639  
21.6725 6.903 12.08 23.5865 22.032 34.0155 15.494 9.318 10.046  
0.8875 31.09 4.3 20.13 16.2425 4.7575 19.448 21.284 15.904  
13.552 19.232 11.79 10.578 4.768 0.5085 10.3065 21.028 4.402  
32.4495 6.192 32.475 37.11 4.224 12.514 4.74 4.565 14.2555  
2.619 9.635 13.389 27.935 8.766 7.791 3.015 3.947 1.487  
1.066 14.067 3.663 1.119 32.796 29.73 3.705 9.848 18.6165  
26.395 23.9875 16.4295 8.448 5.662 17.277 21.4335 4.3135 1.276  
5.076 17.8745 11.9385 5.0715 36.212 6.282 3.6465 12.918 8.687  
2.825 10.715 26.718 4.658 26.104 2.6175 1.9875 36.008 4.84  
16.605 4.072 15.995 8.334 15.953 4.395 36.735 4.876 38.46  
20.915 23.164 23.1225 7.095 15.135 39.664 21.259 14.181 29.96  
15.768 20.178 9.194 6.9325 4.0355 5.832 15.676 42.305 20.72  
7.954 24.505 4.3725 11.226 37.248 20.536 14.94 10.647 2.1425  
18.934 10.3455 3.939 16.1055 4.911 1.273 29.099 10.566 2.756  
4.4155 17.829 39.7125 2.531 29.976 8.335 37.22 18.945 12.858  
27.6115 22.37 13.8135 17.187 13.304 44.919 22.84 12.6975 3.528  
32.858 8.425 2.689 8.9525 10.572 5.9865 3.285 4.208 19.773  
14.8995 22.7205 13.806 7.9 44.397 4.599 2.089 0.775 14.523  
3.333 3.827 14.985 12.1515 2.37 8.6225 42.315 12.9185 30.478  
12.012 8.613 4.992 14.932 7.98 1.2725 3.3885 11.918 11.63  
43.866 34.986 33.7295 15.9275 1.476 24.8 41.17 30.148 14.14  
38.3 5.803 8.745 3.0475 2.0175 48.69 1.592 3.291 30.919 ]  
Rating : [ 9.1 9.6 7.4 8.4 5.3 4.1 5.8 8. 7.2 5.9 4.5 6.8 7.1 8.2  
5.7 4.6 6.9 8.6 4.4 4.8 5.1 9.9 6. 8.5 6.7 7.7 7.5 7.  
4.7 7.6 7.9 6.3 5.6 9.5 8.1 6.5 6.1 6.6 5.4 9.3 10. 6.4  
4.3 4. 8.7 9.4 5.5 8.3 7.3 4.9 4.2 9.2 7.8 5.2 9. 8.8  
6.2 9.8 9.7 5. 8.9]

In [16]:

```
for col in df.columns:  
    df[col].replace({'?':np.nan},inplace=True)
```

In [17]:

```
df.head()
```

Out[17]:

	Invoice ID	Branch	City	Customer type	Gender	Product line	Unit price	Quantity	Tax 5%	Total	Date	Time	Payment	cogs	gross margin percentage	gross income
0	750-67-8428	A	Yangon	Member	Female	Health and beauty	74.69	7	26.1415	548.9715	1/5/2019	13:08	Ewallet	522.83	4.761905	26.1415
1	226-31-3081	C	Naypyitaw	Normal	Female	Electronic accessories	15.28	5	3.8200	80.2200	3/8/2019	10:29	Cash	76.40	4.761905	3.8200
2	631-41-3108	A	Yangon	Normal	Male	Home and lifestyle	46.33	7	16.2155	340.5255	3/3/2019	13:23	Credit card	324.31	4.761905	16.2155
3	123-19-1176	A	Yangon	Member	Male	Health and beauty	58.22	8	23.2880	489.0480	1/27/2019	20:33	Ewallet	465.76	4.761905	23.2880
4	373-73-7910	A	Yangon	Normal	Male	Sports and travel	86.31	7	30.2085	634.3785	2/8/2019	10:37	Ewallet	604.17	4.761905	30.2085

In [18]:

```
df.isnull().sum()
```

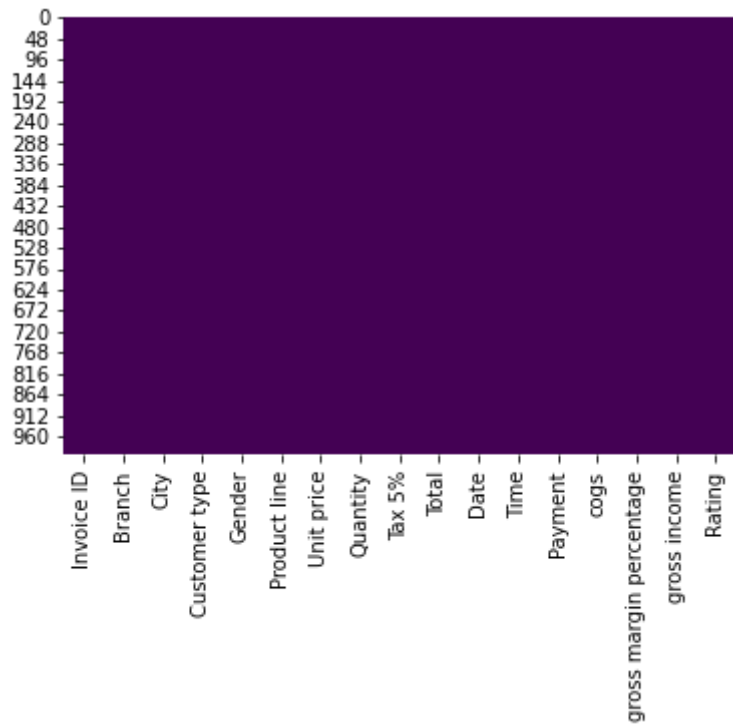
Out[18]:

Invoice ID	0
Branch	0
City	0

Customer type	0
Gender	0
Product line	0
Unit price	0
Quantity	0
Tax 5%	0
Total	0
Date	0
Time	0
Payment	0
cogs	0
gross margin percentage	0
gross income	0
Rating	0
dtype: int64	

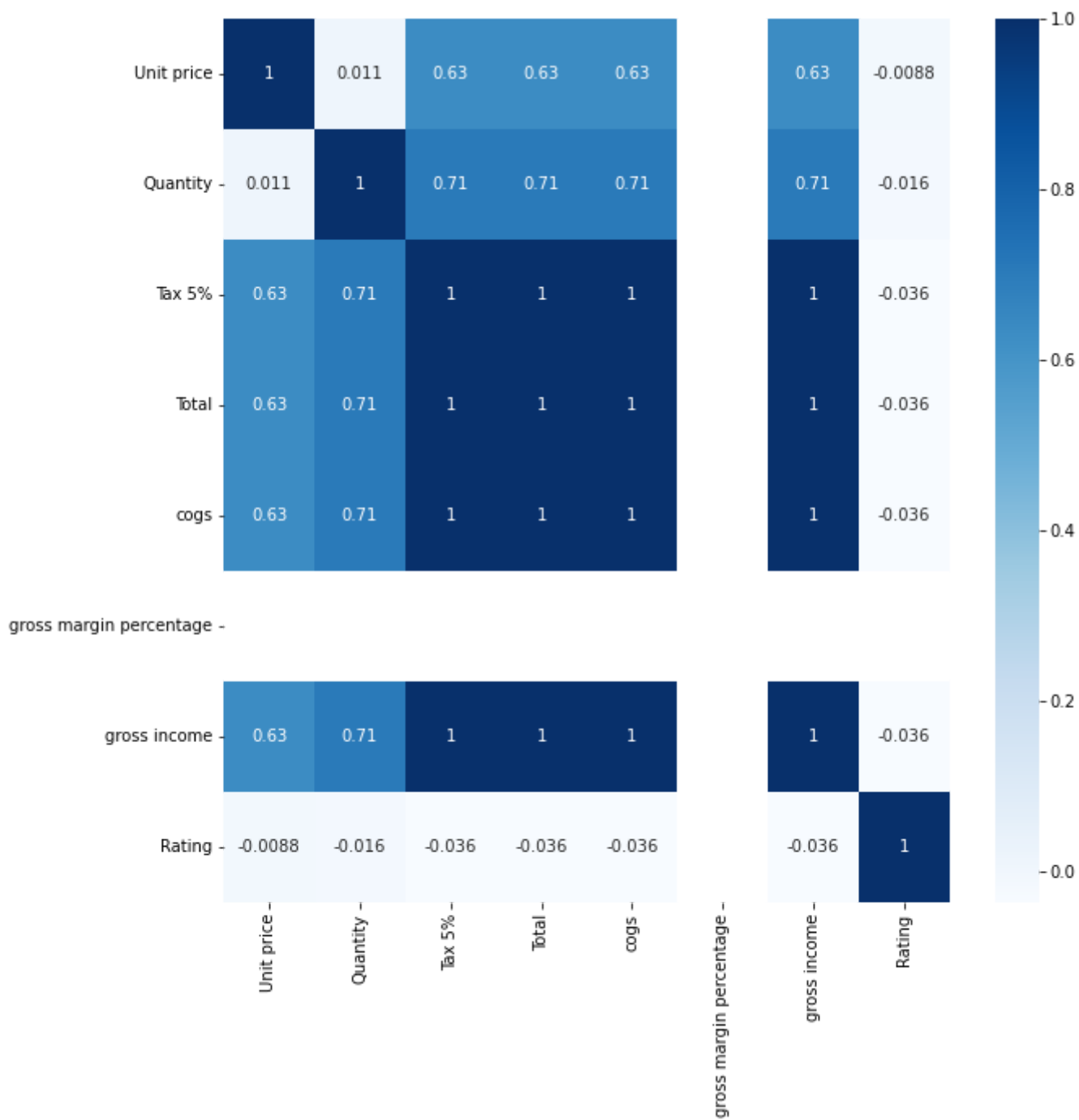
```
In [19]: sns.heatmap(df.isnull(),cbar=False,cmap='viridis')
```

```
Out[19]: <AxesSubplot:>
```



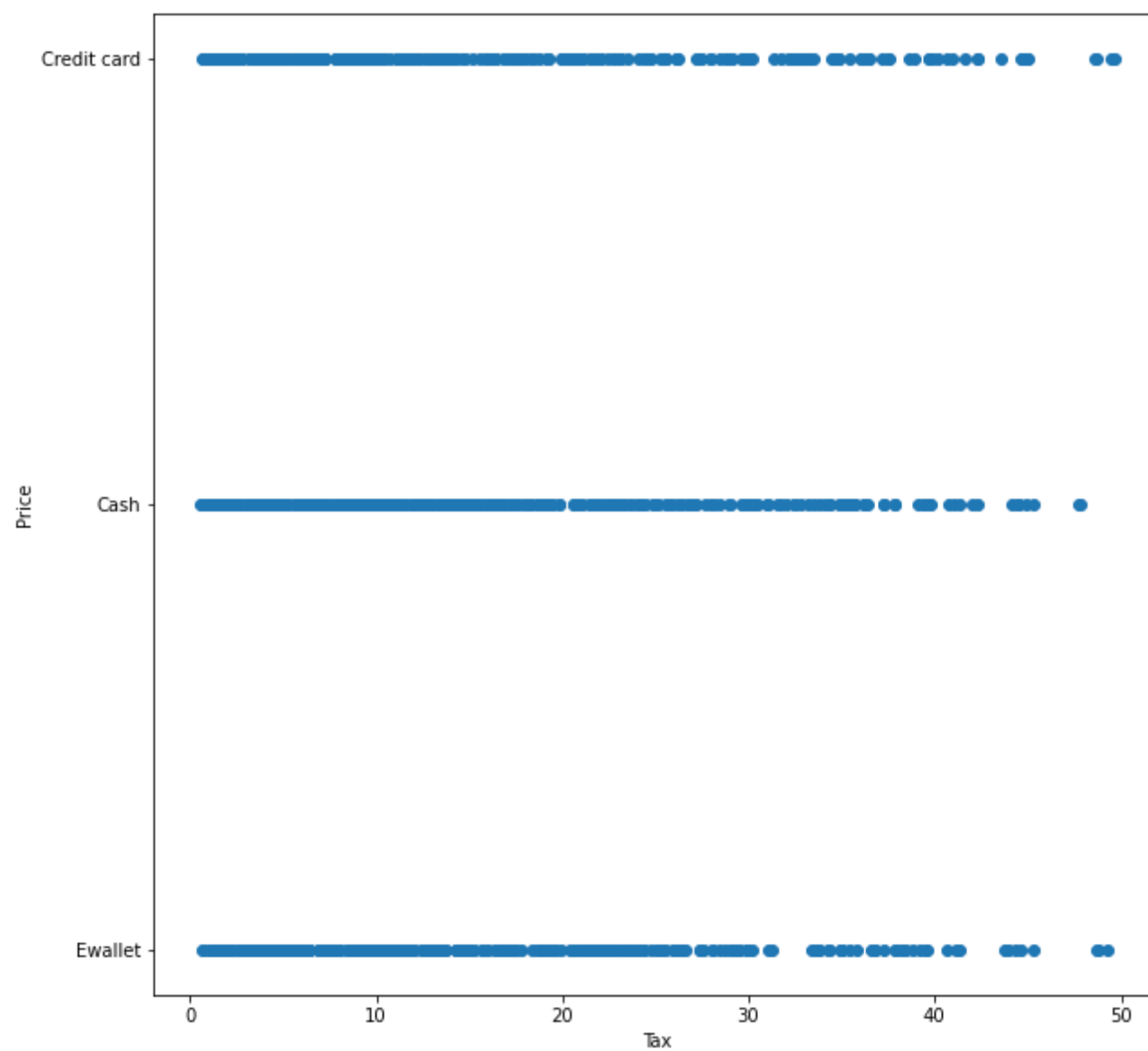
```
In [20]: plt.figure(figsize=(10,10))
sns.heatmap(df.corr(), cbar=True, annot=True, cmap='Blues')
```

```
Out[20]: <AxesSubplot:>
```



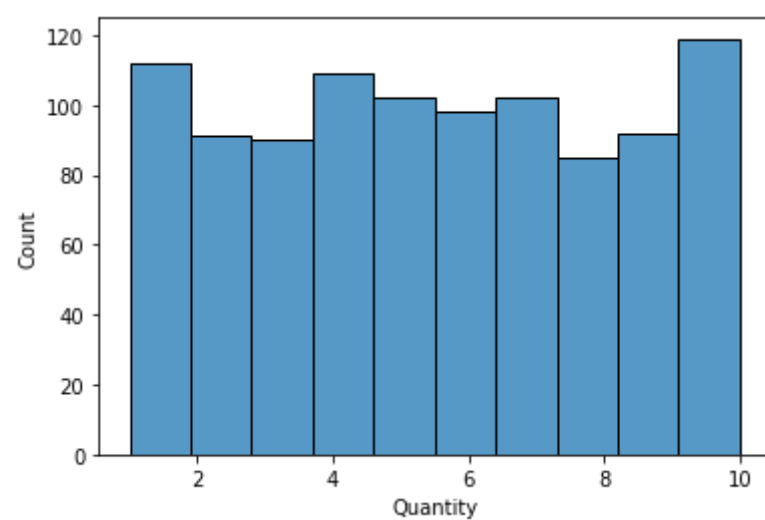
```
In [21]: plt.figure(figsize=(10,10))
plt.scatter(x='Tax 5%',y='Payment',data=df)
plt.xlabel('Tax')
plt.ylabel('Price')
```

```
Out[21]: Text(0, 0.5, 'Price')
```



```
In [22]: sns.histplot(df.Quantity,bins=10)
```

```
Out[22]: <AxesSubplot:xlabel='Quantity', ylabel='Count'>
```

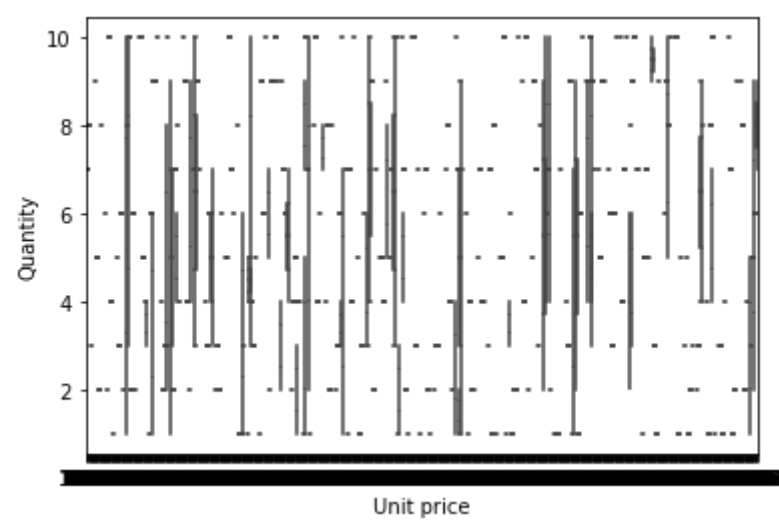


```
In [23]: df.Total.value_counts()
```

```
Out[23]: 216.8460    2
          93.7440    2
          87.2340    2
          189.0945   2
          470.9880   2
          ..
          151.4835    1
          411.3795    1
          565.2150    1
          509.4075    1
          649.2990    1
          Name: Total, Length: 990, dtype: int64
```

```
In [24]: sns.boxplot(x='Unit price',y='Quantity',data=df)
```

```
Out[24]: <AxesSubplot:xlabel='Unit price', ylabel='Quantity'>
```



In [ ]: