```python
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
import seaborn as sns
```

```python
f = pd.read_csv('Medicine_Details.csv')
f
```

	Medicine Name	Composition	Uses	Side_effects	Image URL	Manufacturer	Excellent Review %
0	Avastin 400mg Injection	Bevacizumab (400mg)	Cancer of colon and rectum Non-small cell lun...	Rectal bleeding Taste change Headache Noseblee...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Roche Products India Pvt Ltd	22
1	Augmentin 625 Duo Tablet	Amoxycillin (500mg) + Clavulanic Acid (125mg)	Treatment of Bacterial infections	Vomiting Nausea Diarrhea Mucocutaneous candidi...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Glaxo SmithKline Pharmaceuticals Ltd	47
2	Azithral 500 Tablet	Azithromycin (500mg)	Treatment of Bacterial infections	Nausea Abdominal pain Diarrhea	https://onemg.gumlet.io/l_watermark_346,w_480,...	Alembic Pharmaceuticals Ltd	39
3	Ascoril LS Syrup	Ambroxol (30mg/5ml) + Levosalbutamol (1mg/5ml)...	Treatment of Cough with mucus	Nausea Vomiting Diarrhea Upset stomach Stomach...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Glenmark Pharmaceuticals Ltd	24
4	Aciloc 150 Tablet	Ranitidine (150mg)	Treatment of Gastroesophageal reflux disease (...	Headache Diarrhea Gastrointestinal disturbance	https://onemg.gumlet.io/l_watermark_346,w_480,...	Cadila Pharmaceuticals Ltd	34
...	...	...	...	...	...	...	...
11820	Zilarta-CT 40/6.25 Tablet	Azilsartan medoxomil (40mg) + Chlorthalidone (...	Hypertension (high blood pressure)	Dizziness Tiredness Decreased potassium level ...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Micro Labs Ltd	67
11821	Zipcoz Tablet	Chromium Picolinate (100mcg) + D-Chiro Inosito...	Polycystic ovarian syndrome (PCOS)	Rash Nausea Paresthesia tingling or pricking s...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Lifeline Remedies India Pvt Ltd	0
11822	Zestasil 100 Tablet	Sildenafil (100mg)	Treatment of Erectile dysfunction	Flushing sense of warmth in the face ears neck...	https://onemg.gumlet.io/l_watermark_346,w_480,...	TBG pharma ltd	25
11823	Zedruff Shampoo	Ketoconazole (2% w/v) + Zinc pyrithione (1% w/v)	Treatment of Dandruff	Application site reactions burning irritation ...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Minova Life Sciences Pvt Ltd	0
11824	Zedruff Shampoo	Ketoconazole (2% w/v) + Zinc pyrithione (1% w/v)	Treatment of Dandruff	Application site reactions burning irritation ...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Minova Life Sciences Pvt Ltd	0

```python
f.head()
```

	Medicine Name	Composition	Uses	Side_effects	Image URL	Manufacturer	Excellent Review %	Averag Revie
0	Avastin 400mg Injection	Bevacizumab (400mg)	Cancer of colon and rectum Non-small cell lun...	Rectal bleeding Taste change Headache Noseblee...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Roche Products India Pvt Ltd	22	5
1	Augmentin 625 Duo Tablet	Amoxycillin (500mg) + Clavulanic Acid (125mg)	Treatment of Bacterial infections	Vomiting Nausea Diarrhea Mucocutaneous candidi...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Glaxo SmithKline Pharmaceuticals Ltd	47	3
2	Azithral 500 Tablet	Azithromycin (500mg)	Treatment of Bacterial infections	Nausea Abdominal pain Diarrhea	https://onemg.gumlet.io/l_watermark_346,w_480,...	Alembic Pharmaceuticals Ltd	39	4

```
f.tail()
```

	Medicine Name	Composition	Uses	Side_effects	
11820	Zilarta-CT 40/6.25 Tablet	Azilsartan medoxomil (40mg) + Chlorthalidone (...	Hypertension (high blood pressure)	Dizziness Tiredness Decreased potassium level ...	https://onemg.gumlet.io/l_watermark
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11822	Zestasil 100 Tablet	Sildenafil (100mg)	Treatment of Erectile dysfunction	Flushing sense of warmth in the face ears neck...	https://onemg.gumlet.io/l_watermark
11823	Zedruff Shampoo	Ketoconazole (2% w/v) + Zinc pyrithione (1% w/v)	Treatment of Dandruff	Application site reactions burning irritation ...	https://onemg.gumlet.io/l_watermark
		Ketoconazole (2% w/v) +		Application	

```
exe_val = f['Excellent Review %']

print("Mean is : ", exe_val.mean())

    Mean is :  38.516025369978856

print("Median is : ", exe_val.median())

    Median is :  34.0

print("Standard Deviation is :", exe_val.std())

    Standard Deviation is : 25.225343025425268

# data pre-processing
f = f.dropna()
f
```

	Medicine Name	Composition	Uses	Side_effects	Image URL	Manufacturer	Excellent Review %
0	Avastin 400mg Injection	Bevacizumab (400mg)	Cancer of colon and rectum Non-small cell lun...	Rectal bleeding Taste change Headache Noseblee...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Roche Products India Pvt Ltd	22
1	Augmentin 625 Duo Tablet	Amoxycillin (500mg) + Clavulanic Acid (125mg)	Treatment of Bacterial infections	Vomiting Nausea Diarrhea Mucocutaneous candidi...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Glaxo SmithKline Pharmaceuticals Ltd	47
2	Azithral 500 Tablet	Azithromycin (500mg)	Treatment of Bacterial infections	Nausea Abdominal pain Diarrhea	https://onemg.gumlet.io/l_watermark_346,w_480,...	Alembic Pharmaceuticals Ltd	39
3	Ascoril LS Syrup	Ambroxol (30mg/5ml) + Levosalbutamol (1mg/5ml)...	Treatment of Cough with mucus	Nausea Vomiting Diarrhea Upset stomach Stomach...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Glenmark Pharmaceuticals Ltd	24
4	Aciloc 150 Tablet	Ranitidine (150mg)	Treatment of Gastroesophageal reflux disease (...	Headache Diarrhea Gastrointestinal disturbance	https://onemg.gumlet.io/l_watermark_346,w_480,...	Cadila Pharmaceuticals Ltd	34
...	...	...	...	...		...	...
11820	Zilarta-CT 40/6.25 Tablet	Azilsartan medoxomil (40mg) + Chlorthalidone (...	Hypertension (high blood pressure)	Dizziness Tiredness Decreased potassium level ...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Micro Labs Ltd	67
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11822	Zestasil 100 Tablet	Sildenafil (100mg)	Treatment of Erectile dysfunction	Flushing sense of warmth in the face ears neck...	https://onemg.gumlet.io/l_watermark_346,w_480,...	TBG pharma ltd	25
11823	Zedruff Shampoo	Ketoconazole (2% w/v) + Zinc pyrithione (1% w/v)	Treatment of Dandruff	Application site reactions burning irritation ...	https://onemg.gumlet.io/l_watermark_346,w_480,...	Minova Life Sciences Pvt Ltd	0

```
comp = f['Composition'].count()
comp
```

```
    11825
```

```
f['Composition'].name == 'Azithromycin (500mg)'
```

```
    False
```

```
average_dosage = f.groupby('Medicine Name')['Average Review %'].mean()
print(average_dosage)
```

```
    Medicine Name
    A Doxid 100mg Capsule     34.0
    A Ret HC Cream            20.0
    A-CN Gel                  33.0
    A-Ret 0.025% Gel          48.0
    A-Ret 0.05% Gel           31.0
                              ...
    Zytrav Eye Drop           58.0
    Zyvac Tcv-PFS Vaccine     33.0
    Zyven OD 100 Tablet ER     0.0
    Zyven-OD 50 Tablet ER     46.0
    leocan 150mg Tablet       33.0
    Name: Average Review %, Length: 11498, dtype: float64
```

```
correlation = f[['Medicine Name', 'Poor Review %']].corr()
print(correlation)
```

```
                    Poor Review %
Poor Review %               1.0
<ipython-input-16-1fec94851cea>:1: FutureWarning: The default value of numeric_only in DataFrame.corr is deprecated. In a future versio
    correlation = f[['Medicine Name', 'Poor Review %']].corr()
```
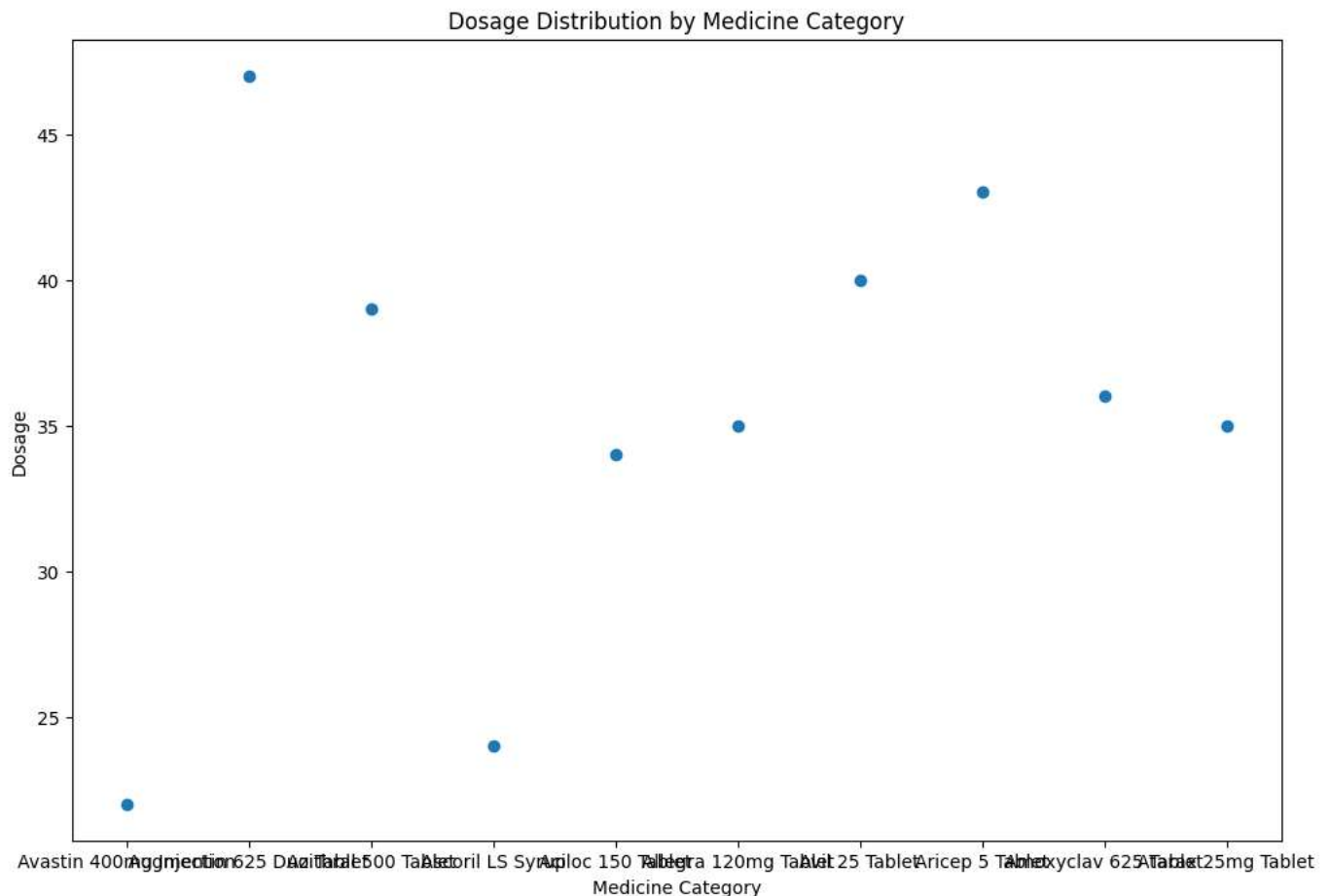
```python
plt.figure(figsize=(12, 8))
plt.scatter(x='Medicine Name', y='Excellent Review %', data=f.head(10))
plt.title('Dosage Distribution by Medicine Category')
plt.xlabel('Medicine Category')
plt.ylabel('Dosage')
plt.show()
```
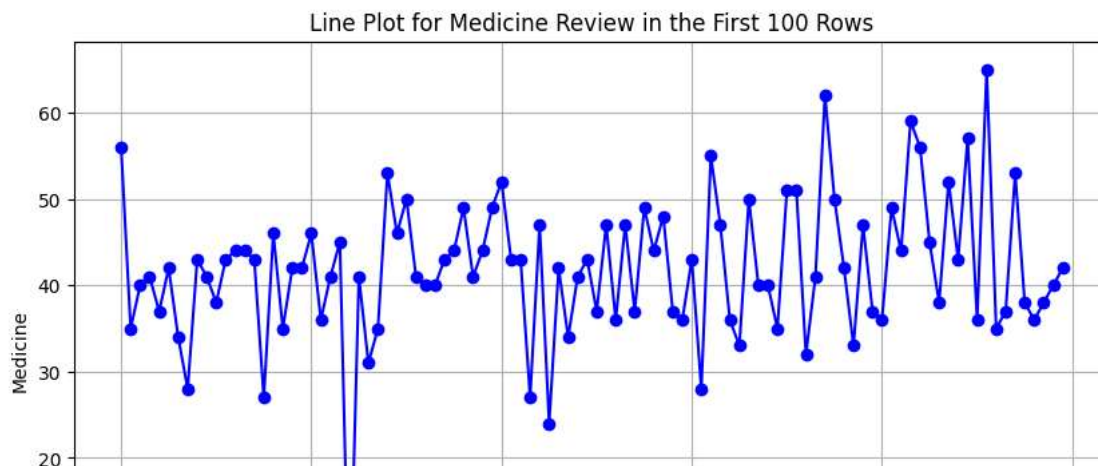


```python
# Read the first 100 rows
first_100_rows = f.head(100)

# Line plot for 'dosage'
plt.figure(figsize=(10, 6))
first_100_rows['Average Review %'].plot(kind='line', marker='o', linestyle='-', color='b')
plt.title('Line Plot for Medicine Review in the First 100 Rows')
plt.xlabel('Index')
plt.ylabel('Medicine')
plt.grid(True)
plt.show()
```

Line Plot for Medicine Review in the First 100 Rows

```
# Group by 'medicine_category' and calculate the count
medicine_category_counts = f.groupby('Medicine Name').size()

# Display the result
print(medicine_category_counts)
```

```
       Medicine Name
       A Doxid 100mg Capsule     1
       A Ret HC Cream            1
       A-CN Gel                  1
       A-Ret 0.025% Gel          1
       A-Ret 0.05% Gel           1
                                ..
       Zytrav Eye Drop           1
       Zyvac Tcv-PFS Vaccine     1
       Zyven OD 100 Tablet ER    1
       Zyven-OD 50 Tablet ER     1
       leocan 150mg Tablet       1
       Length: 11498, dtype: int64
```

```
f_pr = f['Poor Review %']
f_manf = f['Average Review %']
merged_df = pd.merge(f_pr, f_manf, on=f_pr, how='left')
print(merged_df)
```

```
                 key_0  Poor Review %  Average Review %
       0            22             22                56
       1            22             22                46
       2            22             22                47
       3            22             22                56
       4            22             22                37
       ...          ...            ...               ...
       12623934    100            100                 0
       12623935    100            100                 0
       12623936    100            100                 0
       12623937    100            100                 0
       12623938    100            100                 0

       [12623939 rows x 3 columns]
```

```
# Line plot for 'Merged Data'
plt.figure(figsize=(10, 8))
merged_df.head(50).plot(kind='line', marker='o', linestyle='--', color='g')
plt.title('Line Plot for Medicine Review in the First 50 Rows')
plt.xlabel('Poor Review')
plt.ylabel('Average Review')
plt.grid(True)
plt.show()
```

`<Figure size 1000x800 with 0 Axes>`

Line Plot for Medicine Review in the First 50 Rows