```
import pandas as pd
import numpy as np
df = pd.read_csv('/content/drive/MyDrive/A_Z_medicines_dataset_of_India.csv')
df
```

	id	name	price(₹)	Is_discontinued	manufacturer_name	type	pack_size_label	short_composition1	short_composition2
0	1	Augmentin 625 Duo Tablet	223.42	False	Glaxo SmithKline Pharmaceuticals Ltd	allopathy	strip of 10 tablets	Amoxycillin (500mg)	Clavulanic Acid (125mg)
1	2	Azithral 500 Tablet	132.36	False	Alembic Pharmaceuticals Ltd	allopathy	strip of 5 tablets	Azithromycin (500mg)	NaN
2	3	Ascoril LS Syrup	118.00	False	Glenmark Pharmaceuticals Ltd	allopathy	bottle of 100 ml Syrup	Ambroxol (30mg/5ml)	Levosalbutamol (1mg/5ml)
3	4	Allegra 120mg Tablet	218.81	False	Sanofi India Ltd	allopathy	strip of 10 tablets	Fexofenadine (120mg)	NaN
4	5	Avil 25 Tablet	10.96	False	Sanofi India Ltd	allopathy	strip of 15 tablets	Pheniramine (25mg)	NaN
...	...	...	...	...	...	...	...	...	...
41785	41786	Cefastar-CV 200 Tablet	340.00	False	Mankind Pharma Ltd	allopathy	strip of 10 tablets	Cefpodoxime Proxetil (200mg)	Clavulanic Acid (125mg)
41786	41787	Celtos-D Syrup	58.00	False	Beepharma Healthcare (Opc) Pvt Ltd	allopathy	bottle of 60 ml Syrup	Phenylephrine (5mg/5ml)	Chlorpheniramine Maleate (2mg/5ml)
		Citisep-							

```
avg_price=df["price(₹)"].astype("float").mean()
avg_price
```

```
284.4666326872457
```

```
print("Number of Medicines above average are:")
above_average=df[df["price(₹)"]>avg_price]
print(len(above_average))
```

```
Number of Medicines above average are:
3343
```

```
print("Number of Medicines below average are: ")
below_average=df[df["price(₹)"]<avg_price]
print(len(below_average))
```

```
Number of Medicines below average are:
38447
```

```
company_mean_prices = df.groupby('manufacturer_name')['price(₹)'].mean()

highest_price_company = company_mean_prices.idxmax()
highest_mean_price = company_mean_prices.max()

print(f"The company with the highest mean price is {highest_price_company}.")
print(f"The highest mean price is {highest_mean_price:.2f}.")
```

```
The company with the highest mean price is Eli Lilly and Company India Pvt Ltd.
The highest mean price is 70407.00.
```

```
lowest_price_company = company_mean_prices.idxmin()
lowest_mean_price = company_mean_prices.min()

print(f"The company with the lowest mean price is {lowest_price_company}.")
print(f"The lowest mean price is {lowest_mean_price:.2f}.")
```

```
The company with the lowest mean price is Healthy Life Pharma Pvt Ltd.
The lowest mean price is 2.00.
```

```
lowest_price_company = company_mean_prices.idxmin()
lowest_mean_price = company_mean_prices.min()

print(f"The company with the lowest mean price is {lowest_price_company}.")
print(f"The lowest mean price is {lowest_mean_price:.2f}.")
```

```

target_price =2.0

# Filter data for the specified company and target price
filtered_data = df[(df['manufacturer_name'] =='Healthy Life Pharma Pvt Ltd' ) & (df['price(₹)'] == target_price)]

# Check if there are any matching rows
if not filtered_data.empty:
    # Print the filtered data
    print(f"Medicines sold by Healthy Life Pharma Pvt Ltd at price 2.0 rupees:")
    print(filtered_data[['name', 'price(₹)']])
else:
    print(f"No medicines found for {specified_company} at price of 2 rupees.")
```

```
Medicines sold by Healthy Life Pharma Pvt Ltd at price 2.0 rupees:
                         name  price(₹)
30741  Broxine 2mg/8mg Tablet       2.0
```

```
target_price = 2.0

filtered_data = df[df['price(₹)'] == target_price]


print("Displaying name of all companies and name of that medicine which is sold at the given target price")
if not filtered_data.empty:
    # Group data by Company
    grouped_data = filtered_data.groupby('manufacturer_name')['name'].apply(list)

    # Iterate through the groups and print the company and medicines

    for company, medicines in grouped_data.items():
        print(f"Company: {company}")
        print(f"Medicines at price {target_price}:")
        for medicine in medicines:
            print(medicine)
        print("\n")
else:
    print(f"No companies found selling medicines at price {target_price}.")

```

```
Company: Acichem Laboratories
Medicines at price 2.0:
Aciflam Kid 100mg/125mg Tablet


Company: Bevit Pharmaceuticals Ltd
Medicines at price 2.0:
Antacid Tablet


Company: Bini Laboratories Pvt Ltd
Medicines at price 2.0:
Aspirin 300mg Tablet


Company: Healthy Life Pharma Pvt Ltd
Medicines at price 2.0:
Broxine 2mg/8mg Tablet
```

Comparing with minimum target price helps in estimating the risk factor and also the minimum capital.

```
# Specify the target price for filtering
target_price = 2.0  # Replace with the desired target price

# Filter data for the target price
filtered_data = df[df['price(₹)'] == target_price]

# Check if there are any matching rows
if not filtered_data.empty:
    # Group data by both Type and Company
    grouped_data = filtered_data.groupby(['type', 'manufacturer_name'])['name'].apply(list)

    # Iterate through the groups and print the type, company, and medicines
    for (medicine_type, company), medicines in grouped_data.items():
        print(f"Medicine Type: {medicine_type}")
        print(f"Company: {company}")
        print(f"Medicines at price {target_price}:")
        for medicine in medicines:
            print(medicine)
        print("\n")
else:
    print(f"No companies found selling medicines at price {target_price}.")

```

```
Medicine Type: allopathy
Company: Acichem Laboratories
Medicines at price 2.0:
Aciflam Kid 100mg/125mg Tablet


Medicine Type: allopathy
Company: Bevit Pharmaceuticals Ltd
Medicines at price 2.0:
Antacid Tablet


Medicine Type: allopathy
Company: Bini Laboratories Pvt Ltd
Medicines at price 2.0:
Aspirin 300mg Tablet


Medicine Type: allopathy
Company: Healthy Life Pharma Pvt Ltd
Medicines at price 2.0:
Broxine 2mg/8mg Tablet
```

```
homeopathy_data = df[df['type'] == 'homeopathy']

# Check if there are any matching rows
if not homeopathy_data.empty:
    # Get a list of unique company names
    unique_companies = homeopathy_data['manufacturer_name'].unique()

    # Print the list of companies selling Homeopathy medicines
    print("Companies selling Homeopathy medicines:")
    for company in unique_companies:
        print(company)
else:
    print("No companies found selling Homeopathy medicines.")
```

```
No companies found selling Homeopathy medicines.
```

```
composition_company_groups = df.groupby('short_composition1')['manufacturer_name'].unique()

# Iterate through the groups and print the composition and unique companies
for composition, companies in composition_company_groups.items():
    print(f"Composition: {composition}")
    print(f"Companies: {', '.join(companies)}")
    print("\n")
```

```
Streaming output truncated to the last 5000 lines.
Composition: Mefenamic Acid (500mg)
Companies: Alkem Laboratories Ltd
```

```
Composition: Mefenamic Acid (500mg)
Companies: Aamorb Pharmaceuticals Pvt Ltd, Noel Pharma India Pvt Ltd, Alkem Laboratories Ltd, Atlantis Formulations Pvt Ltd, Biochem


Composition: Mefenamic Acid (50mg)
Companies: Positive Medicare Pvt Ltd, Windlas Biotech Ltd, Day Meddy Pharma, Edymax Lifesciences Private Limited, Anevay Pharmaceutic


Composition: Mefenamic Acid (50mg/5ml)
Companies: Axis Labs Pvt Ltd, Azilliane Healthcare, ADZO Lifesciences Pvt Ltd, Denchmed Pharma, Aadi Health Care, Big Laboratories Pv


Composition: Mefloquine (250mg)
Companies: Allenge India


Composition: Megestrol (160mg)
Companies: Biokindle Lifesciences Pvt Ltd, Radiant Pharmaceuticals Ltd., Celon Laboratories Ltd


Composition: Megestrol (40mg)
Companies: Biokindle Lifesciences Pvt Ltd


Composition: Melatonin (0.25mg)
Companies: Alchemist Life Science Ltd


Composition: Melatonin (0.5mg)
Companies: Alchemist Life Science Ltd


Composition: Melatonin (10mg)
Companies: Alteus Biogenics Pvt Ltd


Composition: Melatonin (10mg)
Companies: Alteus Biogenics Pvt Ltd


Composition: Melatonin (3mg)
Companies: Alteus Biogenics Pvt Ltd


Composition: Melatonin (3mg)
Companies: Alteus Biogenics Pvt Ltd


Composition: Melatonin (3mg/5ml)
Companies: Alteus Biogenics Pvt Ltd
```

```
 1
 2 # Use the 'Composition' column to count the frequency of each composition
 3 composition_frequency = df['short_composition1'].value_counts()
 4
 5 # Get the composition(s) with the highest frequency (it could be more than one if there's a tie)
 6 most_common_composition = composition_frequency.index[0]
 7 highest_frequency = composition_frequency.iloc[0]
 8
 9 # Print the most common composition and its frequency
10 print(f"The most common composition is: {most_common_composition}")
11 print(f"It occurs {highest_frequency} times.")
12
```

```
The most common composition is: Aceclofenac (100mg)
It occurs 2756 times.
```

```python
# Use the 'Composition' column to count the frequency of each composition
composition_frequency = df['short_composition1'].value_counts()

# Get the composition(s) with the lowest frequency (it could be more than one if there's a tie)
least_common_composition = composition_frequency.index[-1]
lowest_frequency = composition_frequency.iloc[-1]

# Print the least common composition and its frequency
print(f"The least common composition is: {least_common_composition}")
print(f"It occurs {lowest_frequency} times.")

```

```
The least common composition is: Candesartan (8mg)
It occurs 1 times.
```

```python
composition1_data = df[df['short_composition1'] == 'Aceclofenac (100mg)']

# Check if there are any matching rows
if not composition1_data.empty:
    # Get a list of unique company names
    unique_companies = composition1_data['manufacturer_name'].unique()

    # Print the list of companies selling Homeopathy medicines
    print("Companies selling Aceclofenac (100mg) composition medicines:")
    for company in unique_companies:
        print(company)
else:
    print("No companies found selling Aceclofenac (100mg) composition medicines.")
```

```
Companies selling Aceclofenac (100mg) composition medicines:
Aristo Pharmaceuticals Pvt Ltd
Medley Pharmaceuticals
Lupin Ltd
Cadila Pharmaceuticals Ltd
Unison Pharmaceuticals Pvt Ltd
FDC Ltd
Lesanto Laboratories
MMC Healthcare Ltd
PCI Pharmaceuticals
Pharmatech Healthcare
Sun Pharmaceutical Industries Ltd
Solvis Pharmaceuticals
Abia Pharmaceuticals Pvt. Ltd.
Boots Lifesciences Ltd
Aust Ind Labs
Jackson Laboratories Pvt Ltd
Talent Healthcare
Medichem Pharmceuticals Ltd
Injecto Capta Pvt Ltd
Zee Laboratories
Tavis Lifecare
Ind Swift Laboratories Ltd
Morepen Laboratories Ltd
Zeelab Pharmacy Pvt Ltd
Aishwarya Healthcare
Anthus Pharmaceuticals Pvt Ltd
Parasol Laboratories
Roussel Laboratories Pvt Ltd
Welcure Pharma
Shield Health Care Pvt Ltd
Intas Pharmaceuticals Ltd
East West Pharma
Pharmasynth Formulations Ltd
Adcock Ingram Healthcare Pvt Ltd
Macleods Pharmaceuticals Pvt Ltd
Bharti Life Sciences
Crest Pharma Pvt Ltd
Chicky Pharma Pvt  Ltd
Knoll Pharmaceuticals Ltd
B L Pharma Limited
Pride Healthcare
Ortin Laboratories Ltd
Strides shasun Ltd
Synchem Lab
Genetic Pharma
Shreya Life Sciences Pvt Ltd
Biomed Pharmaceuticals
Finecure Pharmaceuticals Ltd.
Zenon Healthcare Ltd
Intra Labs India Pvt Ltd
```

```
Healers Lab
Aurz Pharmaceuticals Pvt Ltd
Zota Health care Ltd
Acto Pharma Pvt Ltd
East African (India) Overseas
M.M Pharma
Vance   Health Pharmaceuticals Ltd
```

```
y = df.groupby('manufacturer_name')['price(₹)'].sum()
x =df[df['short_composition1'] == 'Aceclofenac (100mg)']
```

```
x
```

	id	name	price(₹)	Is_discontinued	manufacturer_name	type	pack_si
310	311	Aceclo Tablet	52.55	False	Aristo Pharmaceuticals Pvt Ltd	allopathy	strip of
545	546	Acenac Tablet	45.50	False	Medley Pharmaceuticals	allopathy	strip of
800	801	Acemiz 100mg Tablet	67.00	False	Lupin Ltd	allopathy	strip of
933	934	Acenext 100mg Tablet	24.50	False	Cadila Pharmaceuticals Ltd	allopathy	strip of
1397	1398	Akilos Tablet MR	32.70	False	Unison Pharmaceuticals Pvt Ltd	allopathy	strip of
...	...	...	...	...	...	...	
		Aceclocare					

```
y
```

```
manufacturer_name
10 Drug Mart                          60.00
3A Pharmaceuticals                   191.00
3D Healthcare                        618.00
4Care Lifescience Pvt Ltd           1602.44
911 Dermatology Pvt Ltd              300.00
                                     ...
Zytras Life Sciences                 848.00
Zyvieon Healthcare Private Limited   178.00
e-derma  Pharma India Pvt. Ltd.      607.68
kalal & Saiyed Pharma Pvt Ltd        119.00
savoy Biotech                        132.38
Name: price(₹), Length: 4643, dtype: float64
```

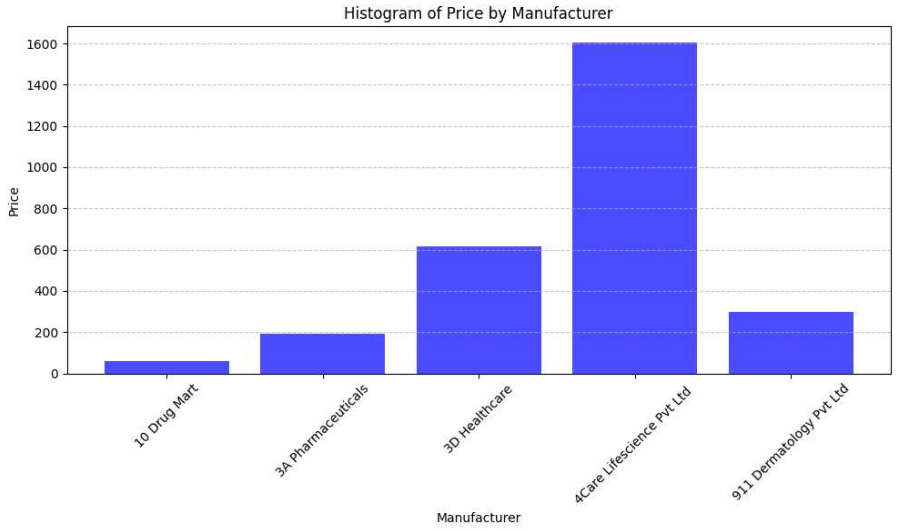
```
import pandas as pd
import matplotlib.pyplot as plt

# Sample dataset (replace this with your actual dataset)
data = {
    "manufacturer": ['10 Drug Mart', '3A Pharmaceuticals', '3D Healthcare', '4Care Lifescience Pvt Ltd ', '911 Dermatology Pvt
    "price": [ 60.00, 191.00,618.00,1602.44,300.00]
}

# Create a DataFrame from the dataset
df = pd.DataFrame(data)

# Create a histogram
plt.figure(figsize=(10, 6))
plt.bar(df['manufacturer'], df['price'], color='blue', alpha=0.7)
plt.xlabel("Manufacturer")
plt.ylabel("Price")
plt.title("Histogram of Price by Manufacturer")
plt.xticks(rotation=45)
plt.grid(axis='y', linestyle='--', alpha=0.7)

# Display the histogram
plt.tight_layout()
plt.show()
```



Aceclofenac is an important derivative because it is most frequently used among pharmaceutical companies. Therfore, it affects the average pricing and plays essential role in controllinf the futures and options. We need to sort companies based on it.