

# MINI PROJECT

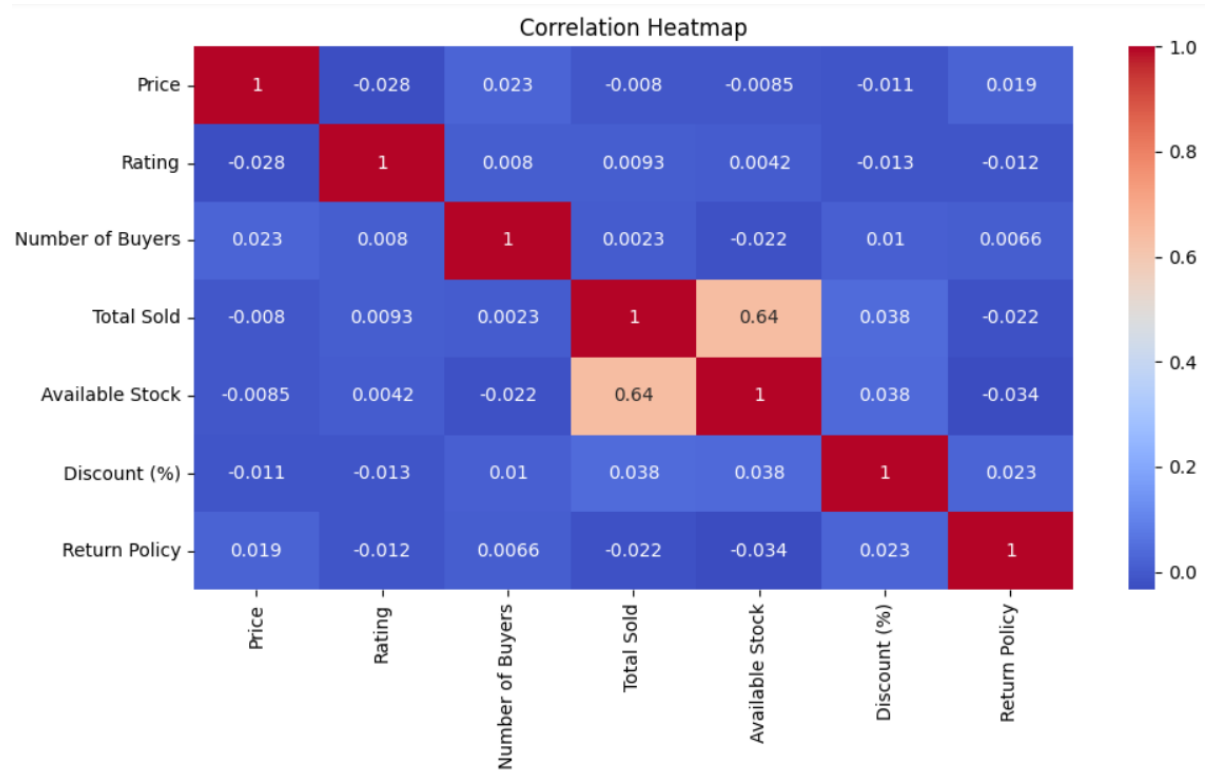
## FLIPKART PRODUCTS ANALYSIS

### Original Data Set:

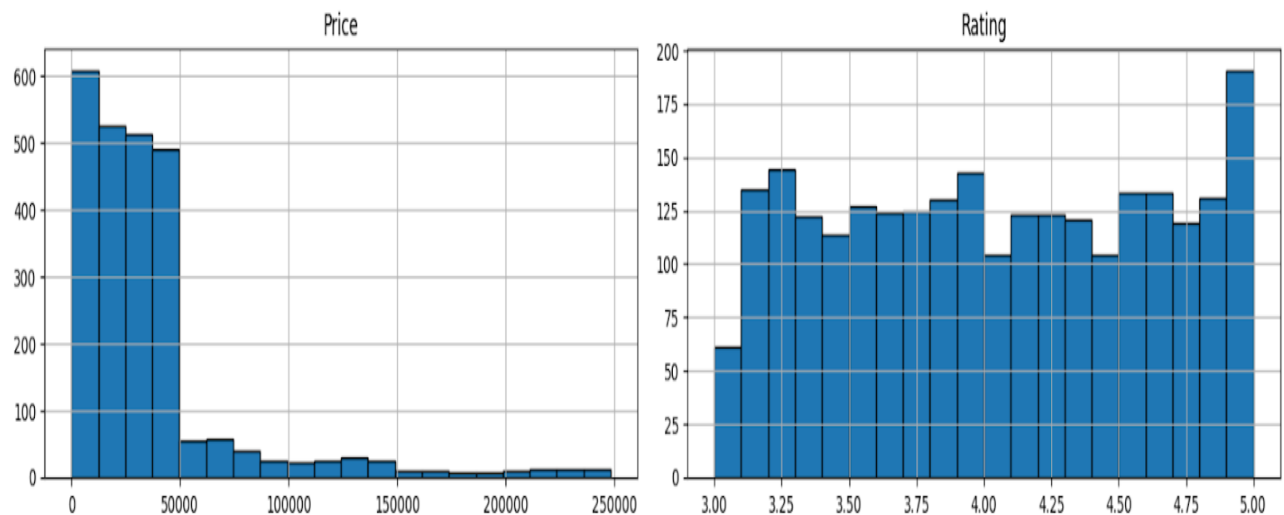
Product Name	Price	Rating	Number of Buyers	Total Sold	Available Stock	Main Category	Sub Category	Discount (%)	Seller	Return Policy	Product URL
Krishnamurthy-Devan Laboriosam Ultra Smartphones 10	142247.04	3.2	7348	4812	364	Electronics	Smartphones	45	RetailNet	FALSE	<a href="https://www.flipkart.com/Krishnamurthy-Devan-Laboriosam-Ultra-Smartphones-10">https://www.flipkart.com/Krishnamurthy-Devan-Laboriosam-Ultra-Smartphones-10</a>
Nanda-Mahal Dignissimos Lite Laptops 1	186922.43	4.1	2342	881	145	Electronics	Laptops	55	Flipkart Assur	FALSE	<a href="https://www.flipkart.com/Nanda-Mahal-Dignissimos-Lite-Laptops-1">https://www.flipkart.com/Nanda-Mahal-Dignissimos-Lite-Laptops-1</a>
Choudhury LLC Amet Plus Decor 15	11843.41	5	739	2580	206	Home	Decor	58	SuperComNe	TRUE	<a href="https://www.flipkart.com/Choudhury-LLC-Amet-Plus-Decor-15">https://www.flipkart.com/Choudhury-LLC-Amet-Plus-Decor-15</a>
Borah LLC Accusantium Lite Smartphones 9	10864.31	4.8	1543	4562	1585	Electronics	Smartphones	0	ElectroWorld	FALSE	<a href="https://www.flipkart.com/Borah-LLC-Accusantium-Lite-Smartphones-9">https://www.flipkart.com/Borah-LLC-Accusantium-Lite-Smartphones-9</a>
Murty Inc Placeat Pro Smartwatches 8	32950.41	4.5	7702	4925	1064	Electronics	Smartwatches	18	MobileHub	FALSE	<a href="https://www.flipkart.com/Murty-Inc-Placeat-Pro-Smartwatches-8">https://www.flipkart.com/Murty-Inc-Placeat-Pro-Smartwatches-8</a>
Verma-Pillai Ipsa Pro Refrigerators 15	26497.18	4.4	7892	6175	1526	Appliances	Refrigerators	0	HomeCare St	FALSE	<a href="https://www.flipkart.com/Verma-Pillai-Ipsa-Pro-Refrigerators-15">https://www.flipkart.com/Verma-Pillai-Ipsa-Pro-Refrigerators-15</a>
Patla-Guha Exerotationem Ultra ACs 5	6837.73	3.8	6518	4984	2324	Appliances	ACs	0	SuperComNe	TRUE	<a href="https://www.flipkart.com/Patla-Guha-Exerotationem-Ultra-ACs-5">https://www.flipkart.com/Patla-Guha-Exerotationem-Ultra-ACs-5</a>
Aggarwal Group Dignissimos Lite ACs 6	40548.35	3.1	5593	8899	2291	Appliances	ACs	52	Flipkart Assur	FALSE	<a href="https://www.flipkart.com/Aggarwal-Group-Dignissimos-Lite-ACs-6">https://www.flipkart.com/Aggarwal-Group-Dignissimos-Lite-ACs-6</a>
Krishna-Tandon Quo Ultra Lighting 12	38045.07	4.9	2140	3857	233	Home	Lighting	32	Flipkart Assur	FALSE	<a href="https://www.flipkart.com/Krishna-Tandon-Quo-Ultra-Lighting-12">https://www.flipkart.com/Krishna-Tandon-Quo-Ultra-Lighting-12</a>
Cheema and Sons Distinctio Pro Decor 1	8370.93	3.8	5554	127	23	Home	Decor	0	Cloudtail Indi	FALSE	<a href="https://www.flipkart.com/Cheema-and-Sons-Distinctio-Pro-Decor-1">https://www.flipkart.com/Cheema-and-Sons-Distinctio-Pro-Decor-1</a>
Bassi, Bail and Purohit A Lite ACs 15	46222.19	4.6	8211	8485	765	Appliances	ACs	37	MobileHub	FALSE	<a href="https://www.flipkart.com/Bassi-Bail-and-Purohit-A-Lite-ACs-15">https://www.flipkart.com/Bassi-Bail-and-Purohit-A-Lite-ACs-15</a>
Hans-Naik Quis Ultra Smartphones 2	10883.63	4.5	2857	5770	2578	Electronics	Smartphones	40	Flipkart Assur	FALSE	<a href="https://www.flipkart.com/Hans-Naik-Quis-Ultra-Smartphones-2">https://www.flipkart.com/Hans-Naik-Quis-Ultra-Smartphones-2</a>
Sura LLC Aperiam Plus Kitchenware 2	6793.37	3.3	1712	2927	1037	Home	Kitchenware	45	HomeCare St	FALSE	<a href="https://www.flipkart.com/Sura-LLC-Aperiam-Plus-Kitchenware-2">https://www.flipkart.com/Sura-LLC-Aperiam-Plus-Kitchenware-2</a>
Swaminathan, Kadakia and Narula Alias Plus Kitchenware 2	48169.05	3.7	8188	3672	796	Home	Kitchenware	0	FashionPlus	FALSE	<a href="https://www.flipkart.com/Swaminathan-Kadakia-and-Narula-Alias-Plus-Kitchenware-2">https://www.flipkart.com/Swaminathan-Kadakia-and-Narula-Alias-Plus-Kitchenware-2</a>
Mand-Ramesh Dolorem Pro Furniture 14	28084.84	3.9	1364	5789	512	Home	Furniture	58	Flipkart Assur	TRUE	<a href="https://www.flipkart.com/Mand-Ramesh-Dolorem-Pro-Furniture-14">https://www.flipkart.com/Mand-Ramesh-Dolorem-Pro-Furniture-14</a>
Suri, Chander and Acharya Dignissimos Plus Smartphones 5	5902.61	3.5	2339	7999	306	Electronics	Smartphones	15	Cloudtail Indi	TRUE	<a href="https://www.flipkart.com/Suri-Chander-and-Acharya-Dignissimos-Plus-Smartphones-5">https://www.flipkart.com/Suri-Chander-and-Acharya-Dignissimos-Plus-Smartphones-5</a>
Bansal, Karpe and Goel Ex Plus Microwaves 11	37137.18	4.6	5049	3214	153	Appliances	Microwaves	30	HomeCare St	TRUE	<a href="https://www.flipkart.com/Bansal-Karpe-and-Goel-Ex-Plus-Microwaves-11">https://www.flipkart.com/Bansal-Karpe-and-Goel-Ex-Plus-Microwaves-11</a>
Mutti, Khosla and Balan Repellat Lite Shoes 8	28715.52	4	323	9154	3285	Fashion	Shoes	33	ElectroWorld	FALSE	<a href="https://www.flipkart.com/Mutti-Khosla-and-Balan-Repellat-Lite-Shoes-8">https://www.flipkart.com/Mutti-Khosla-and-Balan-Repellat-Lite-Shoes-8</a>
Bath PLC Fuga Lite Shoes 13	7918.38	4.5	9290	1005	393	Fashion	Shoes	0	RetailNet	FALSE	<a href="https://www.flipkart.com/Bath-PLC-Fuga-Lite-Shoes-13">https://www.flipkart.com/Bath-PLC-Fuga-Lite-Shoes-13</a>
Parikh Group Nemo Ultra Lighting 4	19701.1	4.8	7491	8808	2998	Home	Lighting	5	Cloudtail Indi	FALSE	<a href="https://www.flipkart.com/Parikh-Group-Nemo-Ultra-Lighting-4">https://www.flipkart.com/Parikh-Group-Nemo-Ultra-Lighting-4</a>
Sama-Chaudry Nulla Plus T-Shirts 2	1838.69	3.6	8331	5888	2458	Fashion	T-Shirts	0	HomeCare St	FALSE	<a href="https://www.flipkart.com/Sama-Chaudry-Nulla-Plus-T-Shirts-2">https://www.flipkart.com/Sama-Chaudry-Nulla-Plus-T-Shirts-2</a>
Sathe-Thakkar Velit Ultra Kitchenware 14	12927.45	3.4	9266	1828	55	Home	Kitchenware	30	ElectroWorld	FALSE	<a href="https://www.flipkart.com/Sathe-Thakkar-Velit-Ultra-Kitchenware-14">https://www.flipkart.com/Sathe-Thakkar-Velit-Ultra-Kitchenware-14</a>
Mittal, Taneja and Bajwa Placeat Plus Lighting 3	12972.39	4.7	9793	3856	453	Home	Lighting	48	HomeCare St	TRUE	<a href="https://www.flipkart.com/Mittal-Taneja-and-Bajwa-Placeat-Plus-Lighting-3">https://www.flipkart.com/Mittal-Taneja-and-Bajwa-Placeat-Plus-Lighting-3</a>
Dara, Oommen and Golla Neque Lite Decor 4	16326.21	4.6	1842	4485	1382	Home	Decor	70	ElectroWorld	TRUE	<a href="https://www.flipkart.com/Dara-Oommen-and-Golla-Neque-Lite-Decor-4">https://www.flipkart.com/Dara-Oommen-and-Golla-Neque-Lite-Decor-4</a>
Sandhu Ltd Et Ultra Jeans 1	23603.85	4.5	2221	3282	47	Fashion	Jeans	14	ElectroWorld	FALSE	<a href="https://www.flipkart.com/Sandhu-Ltd-Et-Ultra-Jeans-1">https://www.flipkart.com/Sandhu-Ltd-Et-Ultra-Jeans-1</a>
Pathak-Balay Tempore Plus Shoes 4	8453.52	4.3	7848	850	61	Fashion	Shoes	70	HomeCare St	TRUE	<a href="https://www.flipkart.com/Pathak-Balay-Tempore-Plus-Shoes-4">https://www.flipkart.com/Pathak-Balay-Tempore-Plus-Shoes-4</a>
Bedi, Gupta and Mukherjee Animi Lite Lighting 2	30491.38	4.9	5874	511	218	Home	Lighting	0	Flipkart Assur	FALSE	<a href="https://www.flipkart.com/Bedi-Gupta-and-Mukherjee-Animi-Lite-Lighting-2">https://www.flipkart.com/Bedi-Gupta-and-Mukherjee-Animi-Lite-Lighting-2</a>
Dua, Badami and Korpall Repellendus Ultra ACs 12	18737.36	4.6	349	52	25	Appliances	ACs	49	RetailNet	TRUE	<a href="https://www.flipkart.com/Dua-Badami-and-Korpall-Repellendus-Ultra-ACs-12">https://www.flipkart.com/Dua-Badami-and-Korpall-Repellendus-Ultra-ACs-12</a>
Varma, Yohannan and Thakkar Autem Lite Microwaves 13	4557.63	4.6	4589	1327	245	Appliances	Microwaves	24	SuperComNe	TRUE	<a href="https://www.flipkart.com/Varma-Yohannan-and-Thakkar-Autem-Lite-Microwaves-13">https://www.flipkart.com/Varma-Yohannan-and-Thakkar-Autem-Lite-Microwaves-13</a>
Gopal and Sons Atque Pro Kitchenware 5	20689.42	3.8	7107	9524	2565	Home	Kitchenware	43	MobileHub	FALSE	<a href="https://www.flipkart.com/Gopal-and-Sons-Atque-Pro-Kitchenware-5">https://www.flipkart.com/Gopal-and-Sons-Atque-Pro-Kitchenware-5</a>
Mahal, Sahota and Dutt Similique Lite Lighting 14	30804.73	4	2479	1843	722	Home	Lighting	5	HomeCare St	TRUE	<a href="https://www.flipkart.com/Mahal-Sahota-and-Dutt-Similique-Lite-Lighting-14">https://www.flipkart.com/Mahal-Sahota-and-Dutt-Similique-Lite-Lighting-14</a>
Nanda, Choudhary and Reddy Accusantium Pro Kitchenware 11	3430.15	3.8	7513	5329	1844	Home	Kitchenware	68	SuperComNe	FALSE	<a href="https://www.flipkart.com/Nanda-Choudhary-and-Reddy-Accusantium-Pro-Kitchenware-11">https://www.flipkart.com/Nanda-Choudhary-and-Reddy-Accusantium-Pro-Kitchenware-11</a>
Raj-Mukhopadhyay Amet Pro Smartphones 6	128170.95	4.4	1610	3341	930	Electronics	Smartphones	24	MobileHub	TRUE	<a href="https://www.flipkart.com/Raj-Mukhopadhyay-Amet-Pro-Smartphones-6">https://www.flipkart.com/Raj-Mukhopadhyay-Amet-Pro-Smartphones-6</a>
Chander-Brahmbhatt Numquam Pro Headphones 7	30211.46	3	8083	7968	3601	Electronics	Headphones	0	FashionPlus	TRUE	<a href="https://www.flipkart.com/Chander-Brahmbhatt-Numquam-Pro-Headphones-7">https://www.flipkart.com/Chander-Brahmbhatt-Numquam-Pro-Headphones-7</a>
Jaggi Ltd Dolor Pro Refrigerators 3	21313.74	3.2	317	9809	1542	Appliances	Refrigerators	40	HomeCare St	TRUE	<a href="https://www.flipkart.com/Jaggi-Ltd-Dolor-Pro-Refrigerators-3">https://www.flipkart.com/Jaggi-Ltd-Dolor-Pro-Refrigerators-3</a>
Karan Inc Numquam Plus Microwaves 3	14143.21	3.9	4585	8076	1805	Appliances	Microwaves	45	FashionPlus	TRUE	<a href="https://www.flipkart.com/Karan-Inc-Numquam-Plus-Microwaves-3">https://www.flipkart.com/Karan-Inc-Numquam-Plus-Microwaves-3</a>
Toor, Rastogi and Edwin Voluptatibus Pro ACs 3	35055.07	3	1847	1720	398	Appliances	ACs	37	Flipkart Assur	FALSE	<a href="https://www.flipkart.com/Toor-Rastogi-and-Edwin-Voluptatibus-Pro-ACs-3">https://www.flipkart.com/Toor-Rastogi-and-Edwin-Voluptatibus-Pro-ACs-3</a>
Malhotra and Sons Aspermat Plus Shoes 14	27302.79	4.3	1745	7299	2490	Fashion	Shoes	27	HomeCare St	FALSE	<a href="https://www.flipkart.com/Malhotra-and-Sons-Aspermat-Plus-Shoes-14">https://www.flipkart.com/Malhotra-and-Sons-Aspermat-Plus-Shoes-14</a>
Sachdeva-Varma Optio Ultra ACs 12	22152.62	3.5	7693	189	17	Appliances	ACs	56	Cloudtail Indi	FALSE	<a href="https://www.flipkart.com/Sachdeva-Varma-Optio-Ultra-ACs-12">https://www.flipkart.com/Sachdeva-Varma-Optio-Ultra-ACs-12</a>
Guha, Ben and Kapoor Ducimus Plus Decor 10	30807.75	4.1	3166	1808	756	Home	Decor	0	HomeCare St	TRUE	<a href="https://www.flipkart.com/Guha-Ben-and-Kapoor-Ducimus-Plus-Decor-10">https://www.flipkart.com/Guha-Ben-and-Kapoor-Ducimus-Plus-Decor-10</a>
Reddy, Dhillon and Ganesan Soluta Lite Smartwatches 4	37323.65	4.1	6708	6336	2929	Electronics	Smartwatches	27	Flipkart Assur	TRUE	<a href="https://www.flipkart.com/Reddy-Dhillon-and-Ganesan-Soluta-Lite-Smartwatches-4">https://www.flipkart.com/Reddy-Dhillon-and-Ganesan-Soluta-Lite-Smartwatches-4</a>
Patla-Swamy Quos Plus Decor 13	18322.12	5	9373	5651	2163	Home	Decor	52	SuperComNe	TRUE	<a href="https://www.flipkart.com/Patla-Swamy-Quos-Plus-Decor-13">https://www.flipkart.com/Patla-Swamy-Quos-Plus-Decor-13</a>
Dara Inc Quasi Plus Lighting 8	20470.5	4.2	2770	8088	1087	Home	Lighting	27	RetailNet	TRUE	<a href="https://www.flipkart.com/Dara-Inc-Quasi-Plus-Lighting-8">https://www.flipkart.com/Dara-Inc-Quasi-Plus-Lighting-8</a>

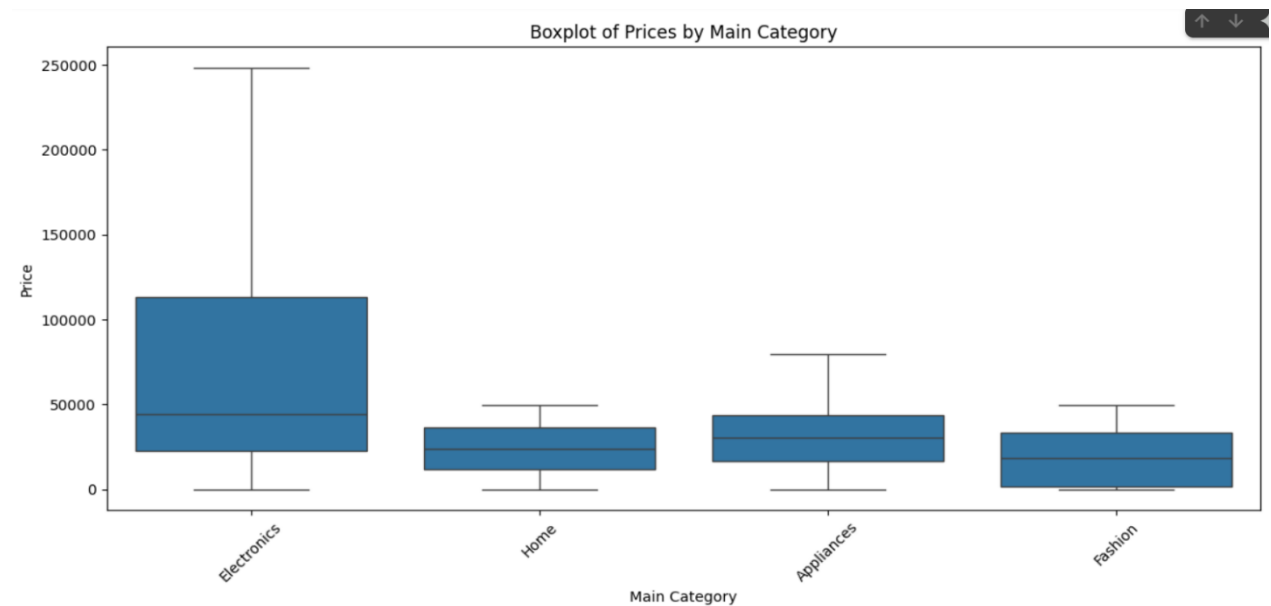
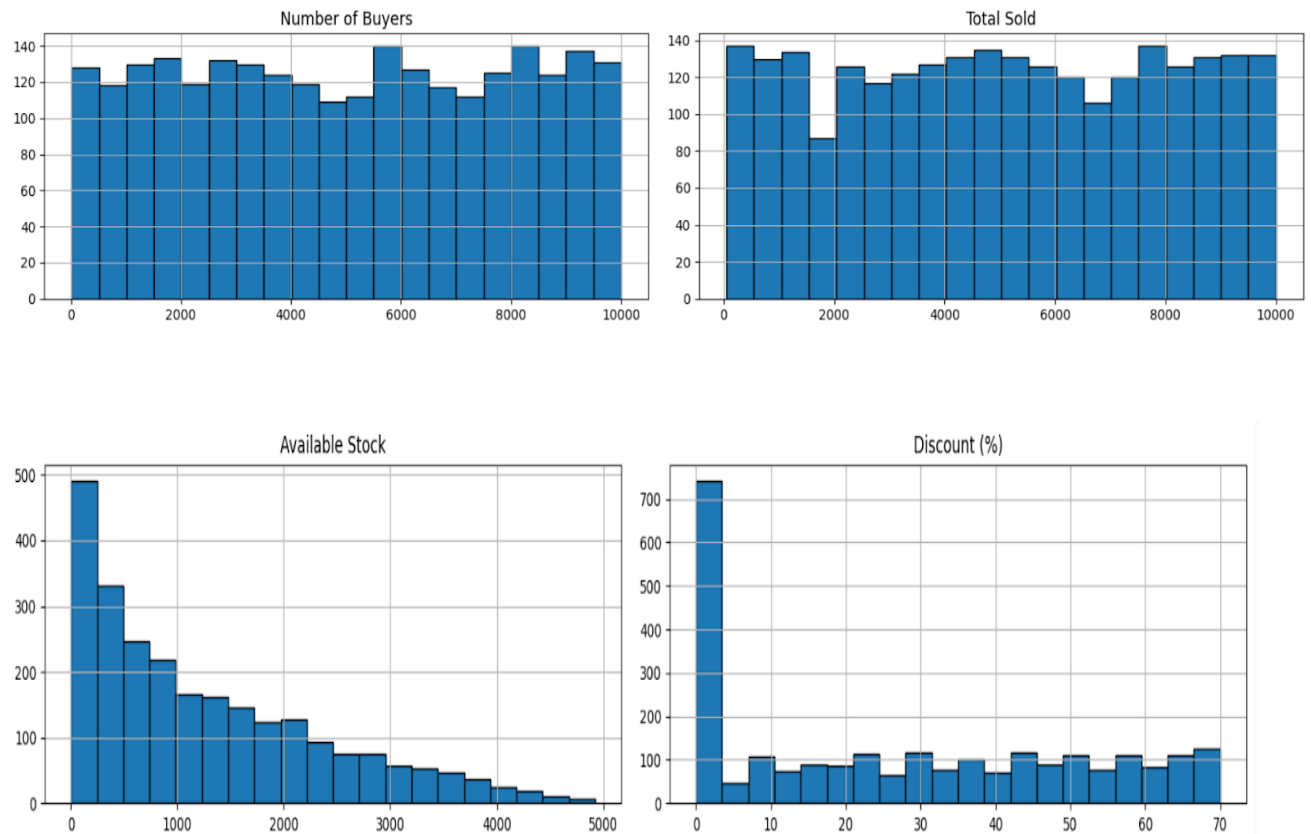
## 1. Descriptive Statistics

Descriptive statistics summarize and describe the main features of a dataset. They provide a snapshot of the data without drawing inferences about a larger population



Distribution of Numerical Features





## CONCLUSION:

### Correlation:

- Available Stock and Total Sold have a positive correlation, indicating a relationship between these two variables.
- The correlation heatmap provides a summary of how variables relate to each other in the dataset.

### Feature Distributions:

- Price, Number of Buyers, and Total Sold are right-skewed, showing that most values are on the lower end with fewer high values.
- Rating is left-skewed, indicating that most items have higher ratings.

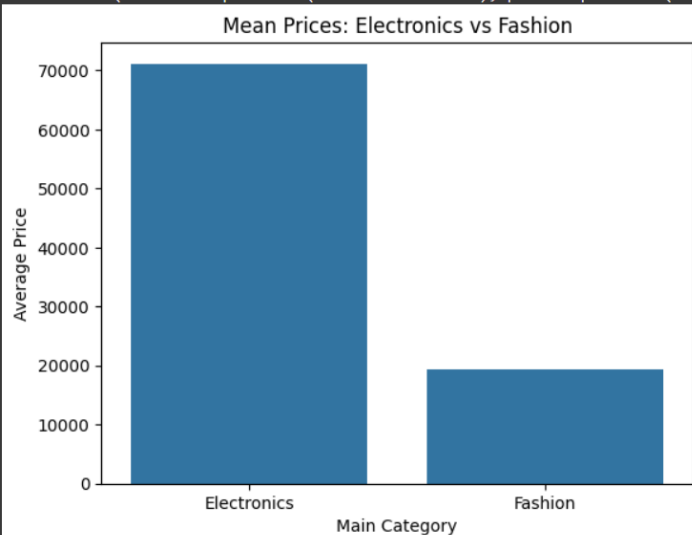
### Category Price Comparison:

- The boxplot visually displays the differences in price ranges and medians across different product categories.
- The mean price bar chart provides a direct comparison of average prices for Electronics and Fashion

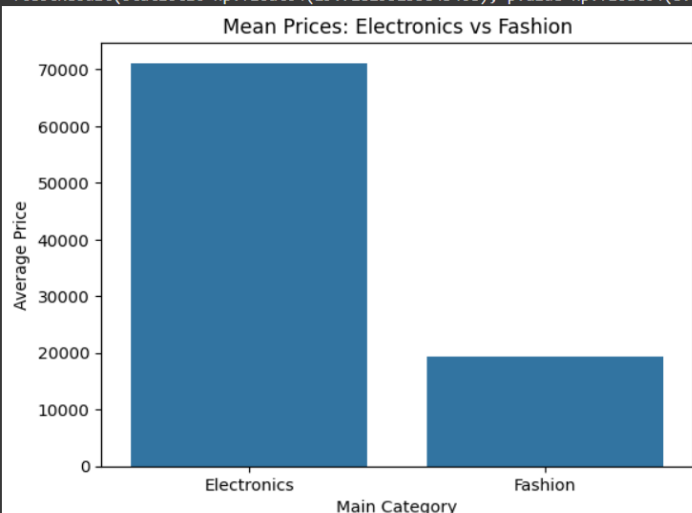
## 2. Inferential Statistics

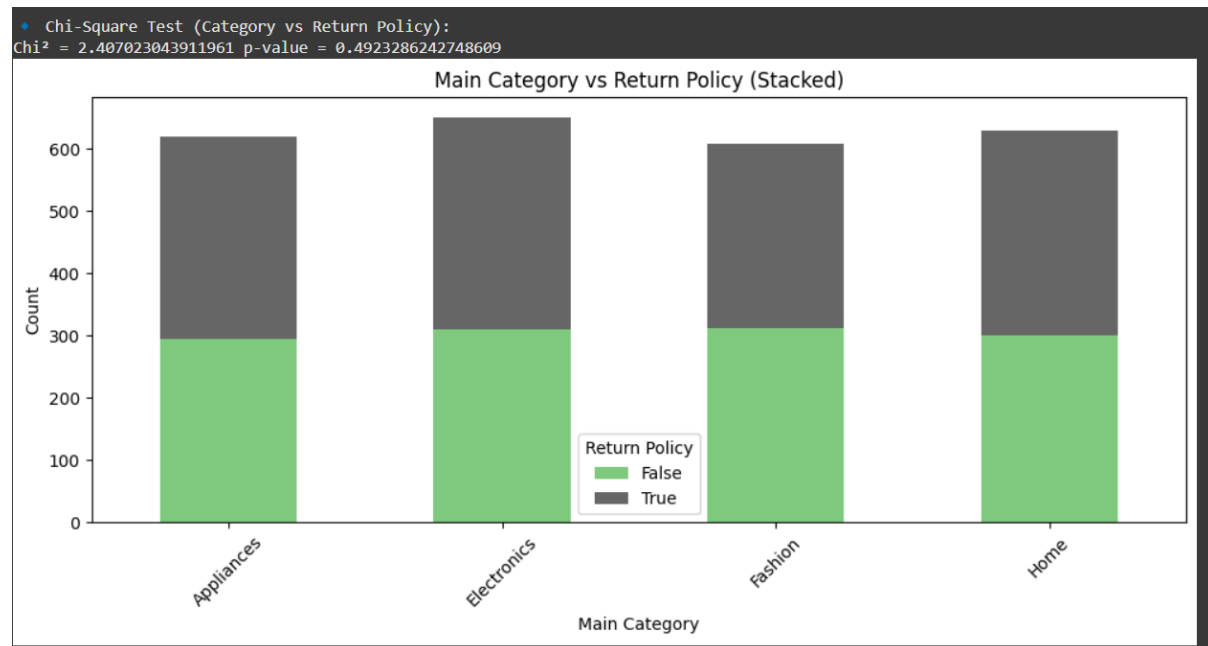
Inferential statistics are used to draw conclusions and make predictions about a population based on a sample of data. They help us generalize findings beyond the specific dataset.

```
• T-Test (Electronics vs Fashion):  
TtestResult(statistic=np.float64(19.718295253843408), pvalue=np.float64(8.664605074312661e-70), df=np.float64(734.4800415599138))
```



```
• T-Test (Electronics vs Fashion):  
TtestResult(statistic=np.float64(19.718295253843408), pvalue=np.float64(8.664605074312661e-70), df=np.float64(734.4800415599138))
```





## CONCLUSION:

### T-test Result:

- The T-test provides statistical evidence that the average prices of Electronics and Fashion are significantly different.
- This inference allows us to generalize that, in the larger population, Electronics items likely cost more than Fashion items.

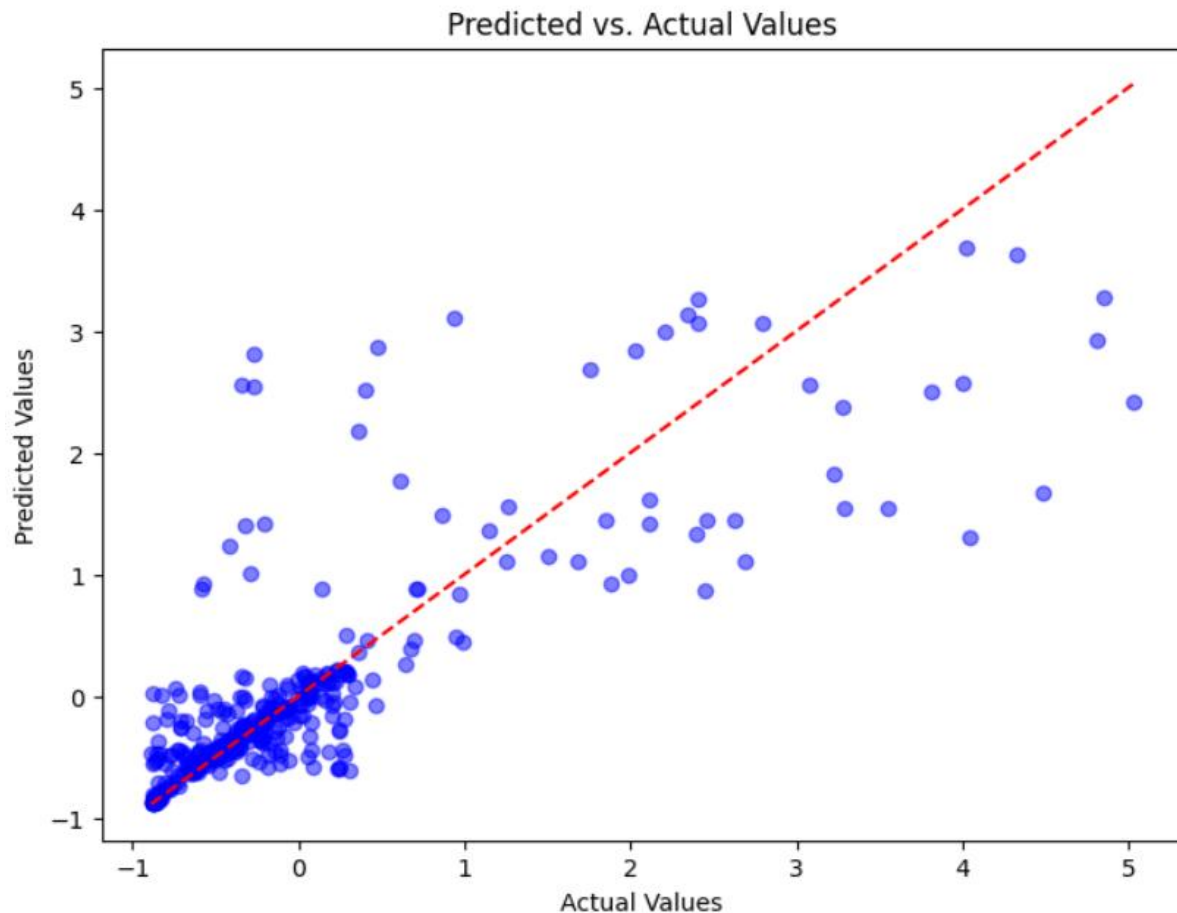
### Average Price Interval:

- The confidence interval estimates a range where the true average price of *all* items is likely to fall, not just those in the sample.
- This allows us to make a probabilistic statement about the population mean.

### Category vs. Return Policy:

- The Chi-Square test helps us infer whether there's a relationship between product category and return policy across the entire population of items.
- The conclusion that there's no significant association is an inference about the broader population.

### 3. Machine Learning Program



#### CONCLUSION:

1. **Moderate Accuracy:** The model shows moderate predictive accuracy for product prices, explaining ~66% of the variance (R-squared of 0.6648).
2. **Potential Overfitting:** There's a possibility of overfitting, as the model performs better on validation data than on unseen test data.
3. **Room for Refinement:** Further analysis and optimization are needed to improve accuracy and generalization ability for real-world scenarios.

Faculty Name: Dr Sheetal Pandya

Signature- \_\_\_\_\_