USA Online Sales

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Executive Summary

- This sales report outlines the data analysis and findings of **online sales** in the **United States** from October 10, 2020 to September 9, 2021

- Questions about sales, customer behavior and demographics will be answered

- A final conclusion will be made at the end of the report

Report

- The report contains the sales of online transactions in the United States

- Scope: sales data from October 10, 2020 to September 9, 2021

- It provides the answers to three sales questions/hypothesis, along with other meaningful insights founded in the dataset

- There will be shown graphs in order to support these answers given

Approach & Analysis

- The dataset is downloaded from www.kaggle.com (unknown source)

- The csv file is cleaned and formatted using the Power Query Editor

- Columns/Fields used to answer the hypothesis are: *age, total, discount_percent* and *state*

- Development of Pivot Tables along with visualizations in Excel for later exposition

Questions

1) Is there a correlation between age and expenditure?

2) Do discounted products influence the quantity a customer buys?

3) Which state has the youngest population?

Visualizations

No correlation has been found between *age* and *expenditure* among customers

Total Expenditure by Age

$R^2 = 0.0023$
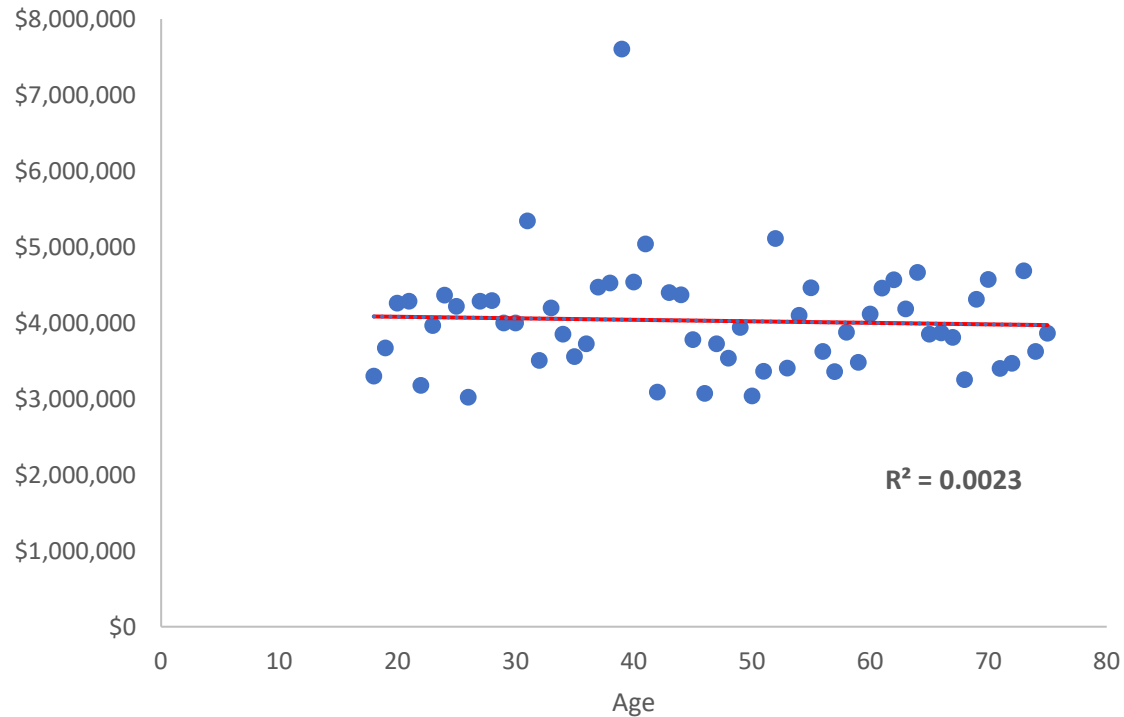
The **red line** represent the slope and a R2 value of **0.0023** which means almost **no correlation** between age and total expenditure

Average expenditure by age group

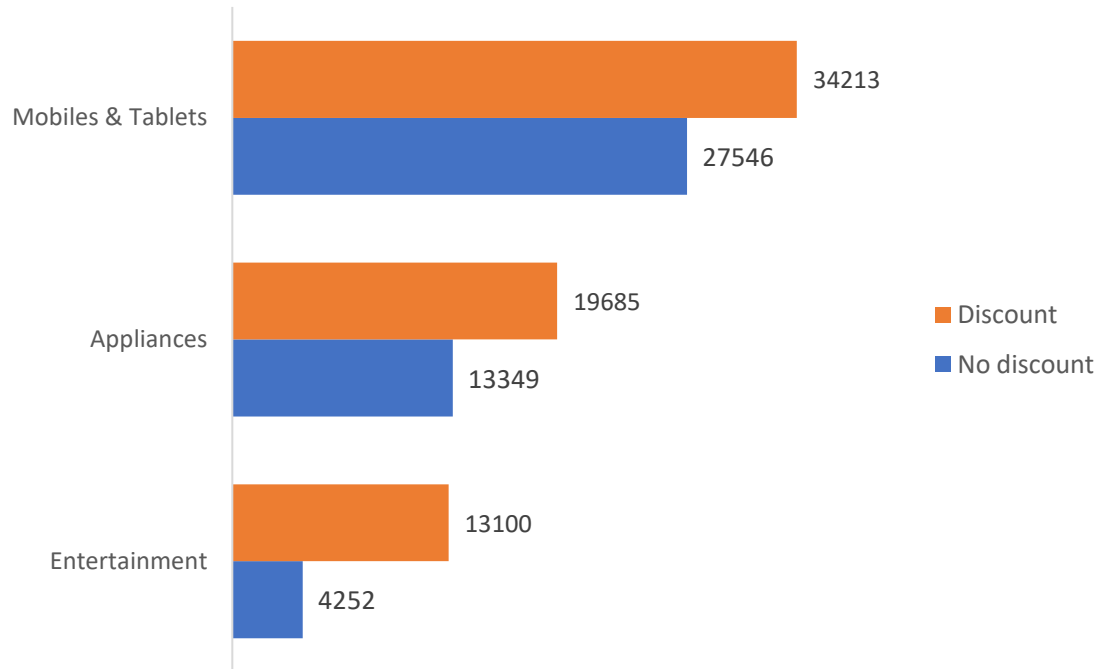| Age group	Average expenditure
Adults	**$823**
Seniors	$801
Young Adults	$794
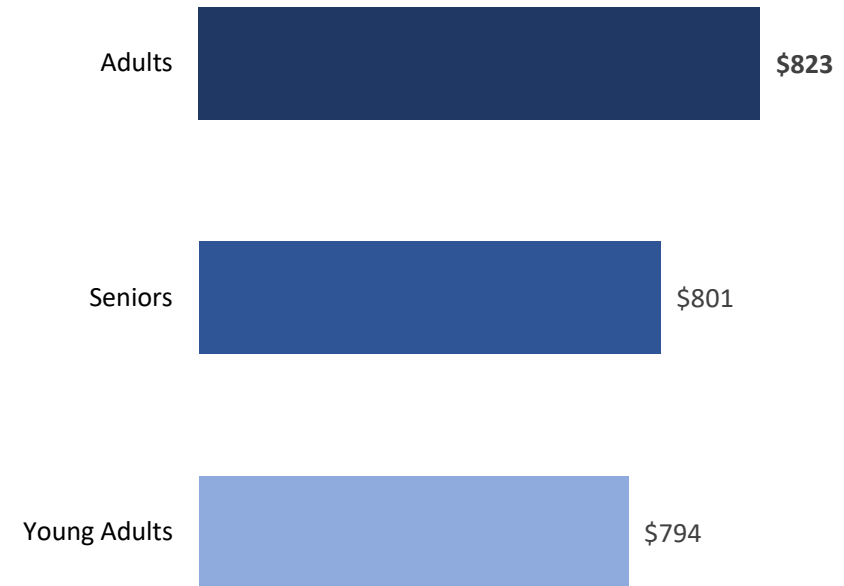
Adults customers expend on average **2.74%** and **3.65%** more than *Seniors* and *Young Adults* respectively
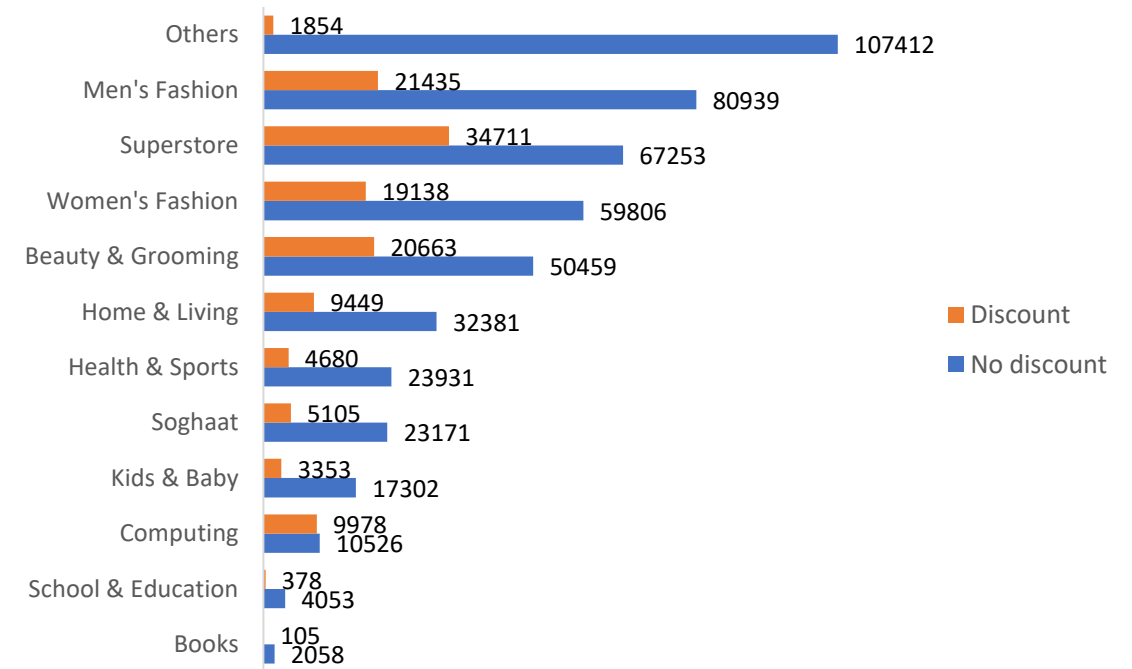
Categories as *entertainment*, *appliance*, *mobile* and *computing* are usually more bought under discounts

Quantity purchased by category and discount

Mobiles & Tablets
- Discount: 34213
- No discount: 27546

Appliances
- Discount: 19685
- No discount: 13349

Entertainment
- Discount: 13100
- No discount: 4252

■ Discount
■ No discount

Quantity purchased by category and discount

Category	Discount	No discount
Others	1854	107412
Men's Fashion	21435	80939
Superstore	34711	67253
Women's Fashion	19138	59806
Beauty & Grooming	20663	50459
Home & Living	9449	32381
Health & Sports	4680	23931
Soghaat	5105	23171
Kids & Baby	3353	17302
Computing	9978	10526
School & Education	378	4053
Books	105	2058

■ Discount
■ No discount

- *Mobile & Tablets* were bought **24.20%** more times under discount
- *Appliances* were bought **47.46%** more times under discount
- *Entertainment* products bought were **208%** higher under discount
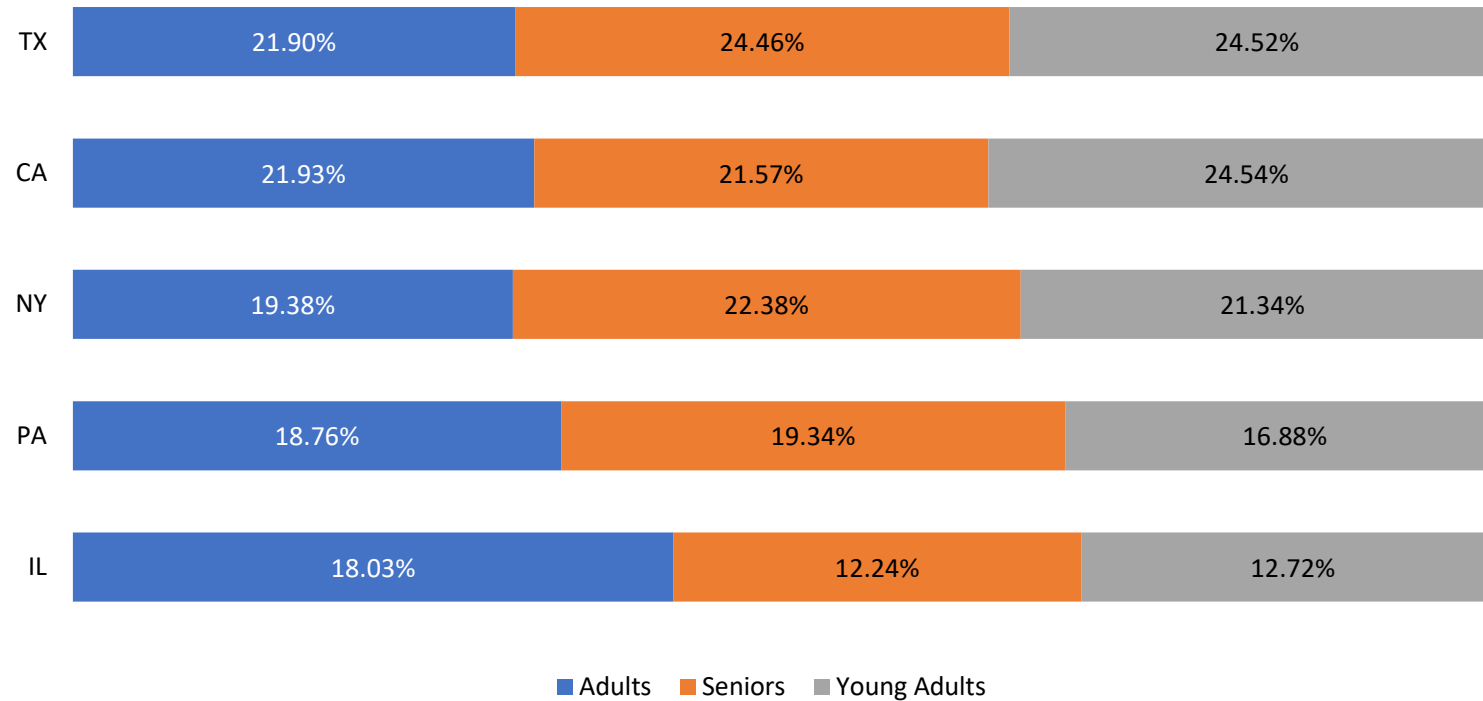
Products in the categories *Others, Home & Living, Health & Sports* and *Men's Fashion* have been purchased the most times without discount

3

California has the 1ˢᵗ place one percentage of *young adults*, *slightly surpassing Texas by 0.02%*

Top 5 states by total customer population

	Adults	Seniors	Young Adults
TX	21.90%	24.46%	24.52%
CA	21.93%	21.57%	24.54%
NY	19.38%	22.38%	21.34%
PA	18.76%	19.34%	16.88%
IL	18.03%	12.24%	12.72%

■ Adults   ■ Seniors   ■ Young Adults

- Texas follows up **2ⁿᵈ** in Young Adults population, while New York, Pennsylvania and Illinois go **3ʳᵈ**, **4ᵗʰ** and **5ᵗʰ** respectively
- Illinois has the highest percentage of Adults in it's population and the lower on Young Adults

Conclusion

1) Customer age and expenditure are not correlated, although Adults expenditure is 3.19% higher than the rest of the age groups

2) Categories as **Entertainment**, **Appliance** and **Mobile** are more bought under discounts while **Others**, **Home & Living**, **Health & Sports** and **Men's Fashion** are more purchased without a discount

3) **Texas** and **California** has the higher quantity of young customers population while **Illinois** have the lowest