Final project

Project Presentations

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Project description

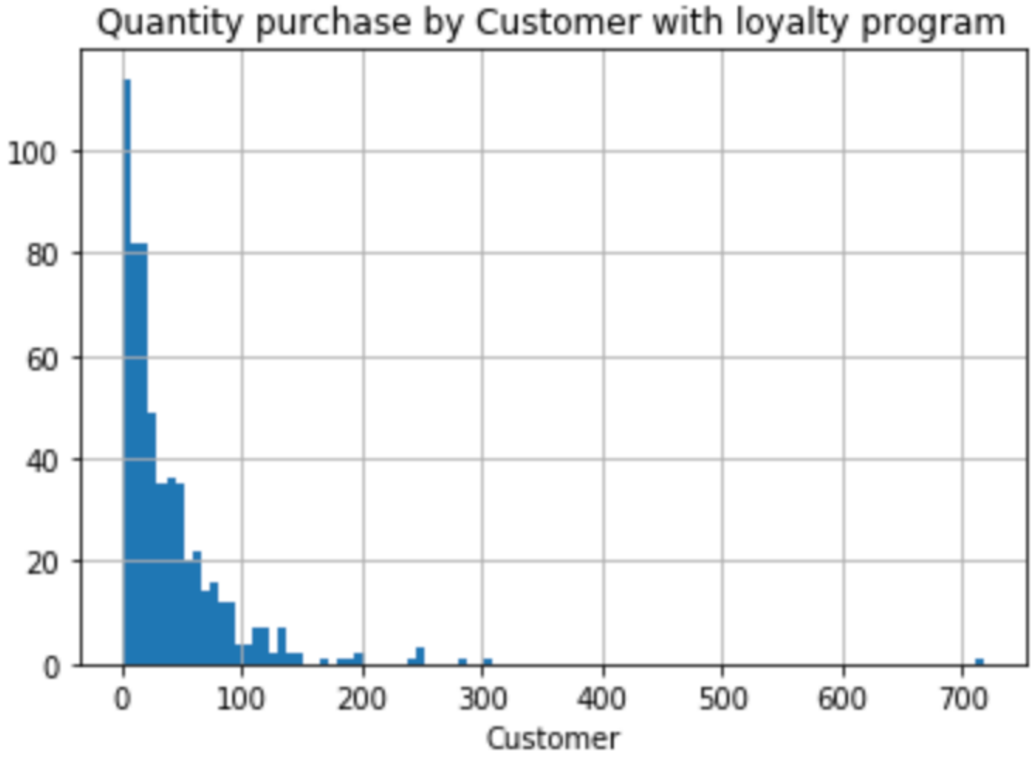
The dataset contains data on purchases made at the building-material retailer Home World.
All of its customers have membership cards. Moreover, they can become members of the store's loyalty program for 20USD per month. The program includes discounts, information on special offers, and gifts.
Timeline of data is from 2016-12-01 08:26:00 until 2017-02-28 17:01:00, was during for 89 days 08:35:00.

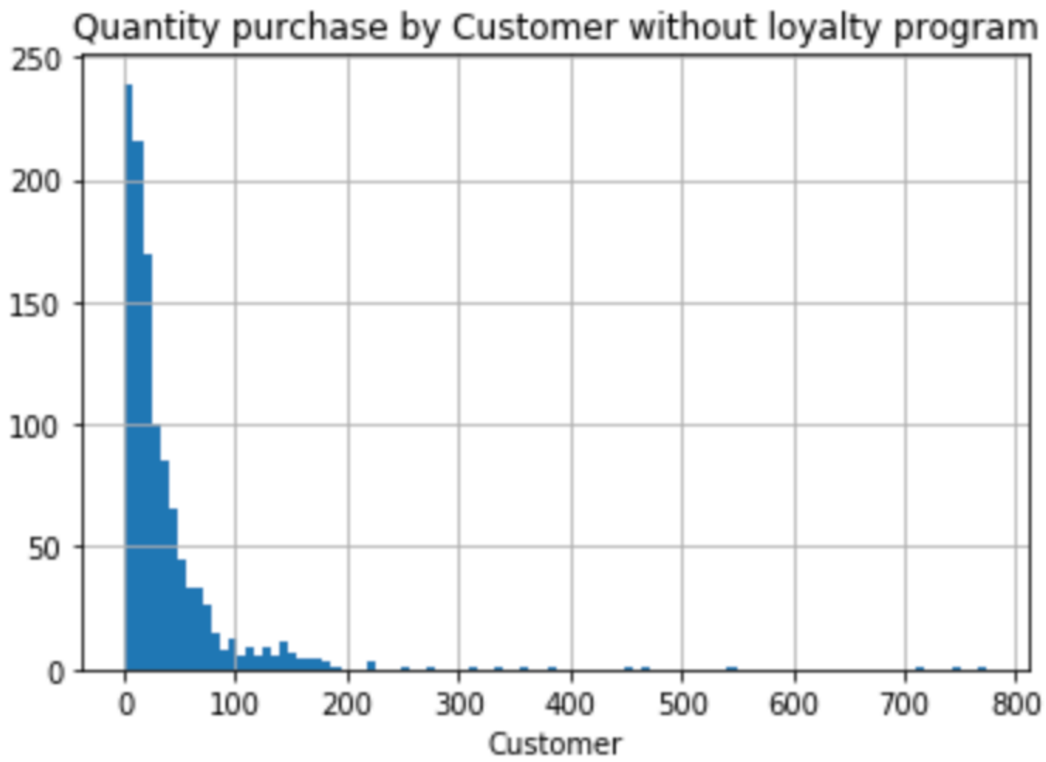
File path: /datasets/rest_data_us.csv.

Project Question:

- How does the loyalty program affect chain store sales?
- Is there a difference between customer purchases with and without the program?

Quantity purchase by Customer:

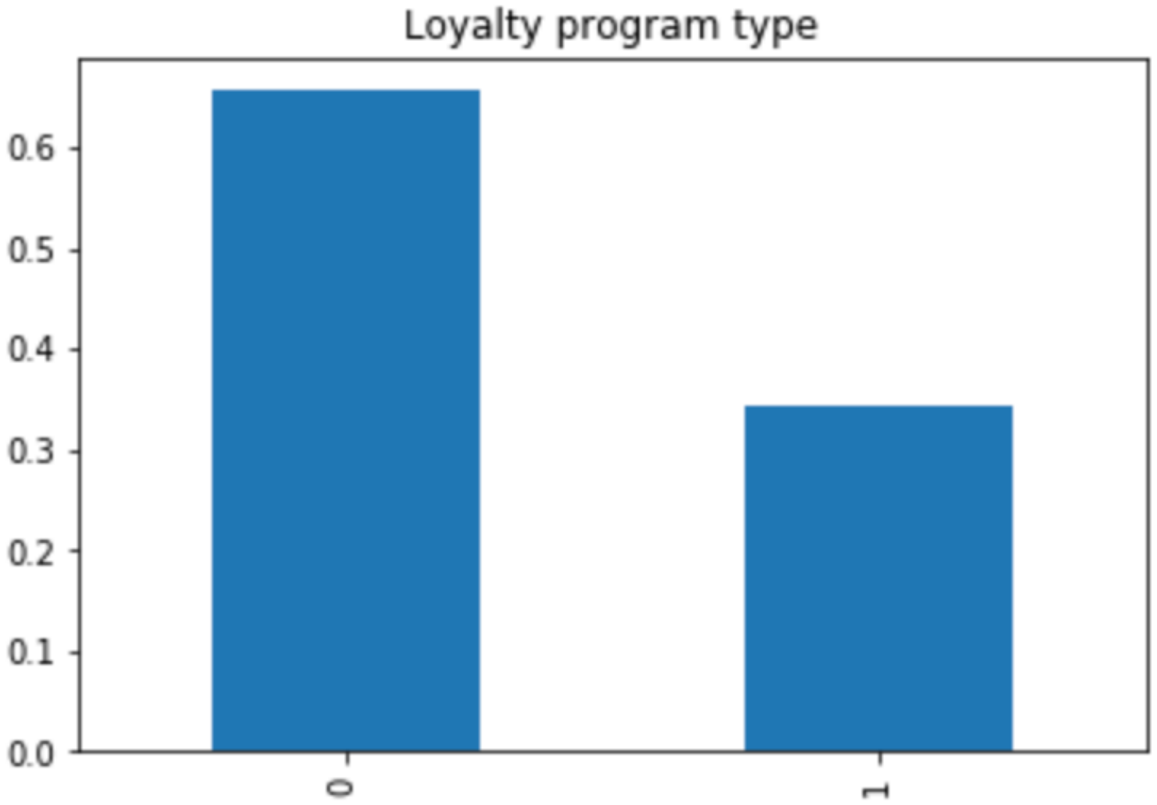




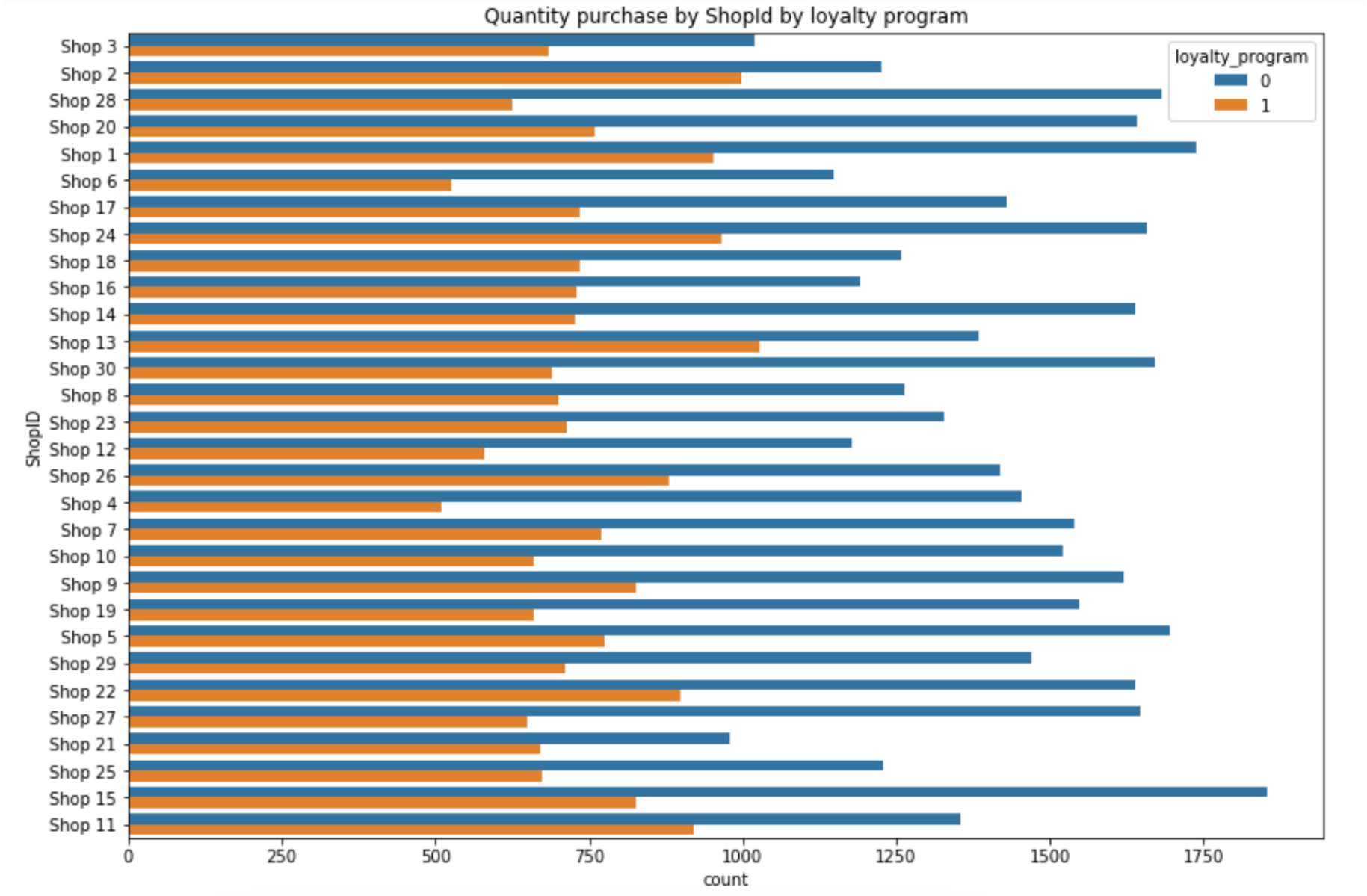
The mean quantity purchase by customer - 23.

Customer without loyalty program make twice as much purchases.

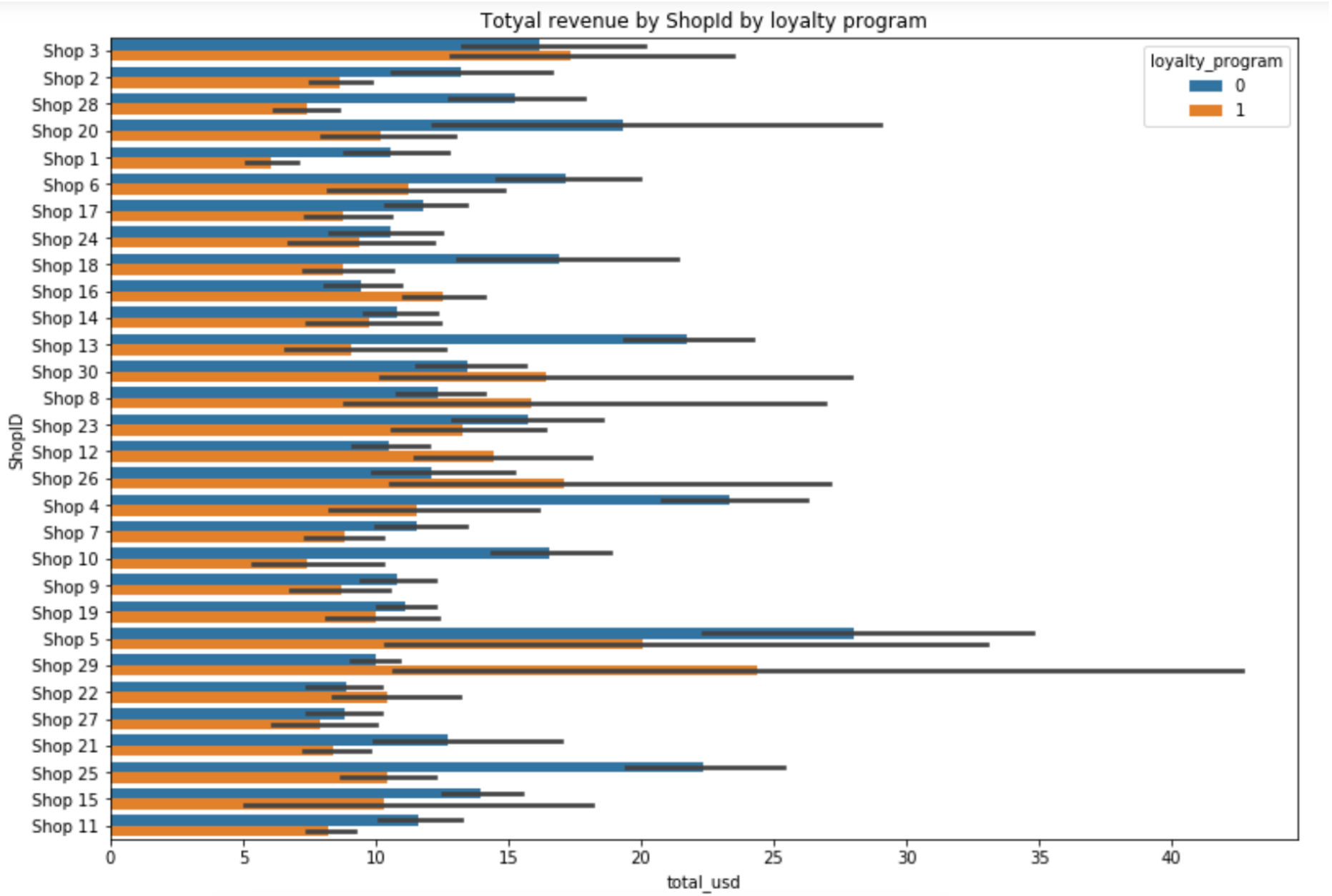
Proportions of loyalty and non-loyalty customers:



The Non loyalty program have the most proportions of purchase.



In all stores, the proportion of non-loyalty_program customers is greater.



Customers without loyalty program spend more money.
Shop 5 generated the most revenue - 63046.14usd.

```
data.groupby('loyalty_program').total_usd.describe()
```

loyalty_program	count	mean	std	min	25%	50%	75%	max
0	43422.0	14.175768	60.932687	-1236.75	0.0	6.48	13.4125	6537.30
1	22575.0	11.284003	72.960571	-589.05	0.0	2.75	10.1500	3821.62

H0: average profits total usd for loyalty program customers = average profits total usd for non loyalty program customers

H1: average profits total usd for loyalty program customers <> average profits total usd for non loyalty program customers

If p_value < alpha, then reject null hypothesis. If p_value > alpha, fail to reject null hypothesis.

```
st.ttest_ind(data[data.loyalty_program==1].total_usd, data[data.loyalty_program==0].total_usd,
```

```
Ttest_indResult(statistic=-5.101554255258241, pvalue=3.384425385035468e-07)
```

p > 0.05 - Null hypothesis confirmed; there's not a statistically significant difference in average profits total usd between loyalty program customers and non loyalty program customers;

I also checked significant difference in average profit between loyalty ana non-loyalty program customers. There are non differense.

General conclusion:

- Sales are evenly distributed among the other shops.
- Customers without loyalty program buy more Quantity of products and more spend money.
- The mean quantity purchase by customer - 23.
- The Non loyalty program have the most proportions of purchase.
- The result statistical tests: there's not a statistically significant difference in average profits total usd between loyalty program customers and non loyalty program customers;

Additional conclusion:

- Shops 10, 24, 27, 22 have the most returns.
- Shop 5 generated the most revenue - 63046.14usd.

Recommendations:

I don’t see some reason to give loyal program to customer.
It not really affect on count of purchase or sum of money that customers spend.

Thank for your attention!

«Company name»
Contacts: email - , tel -