



REPORT **DATA GOT TALENT**

2021

Organizational Unit

Electronic Commerce Department

Subordinate

Danang University of Economic

Report by khanhhuyenthai

REQUEST REPORT

Please use the provided dataset to:

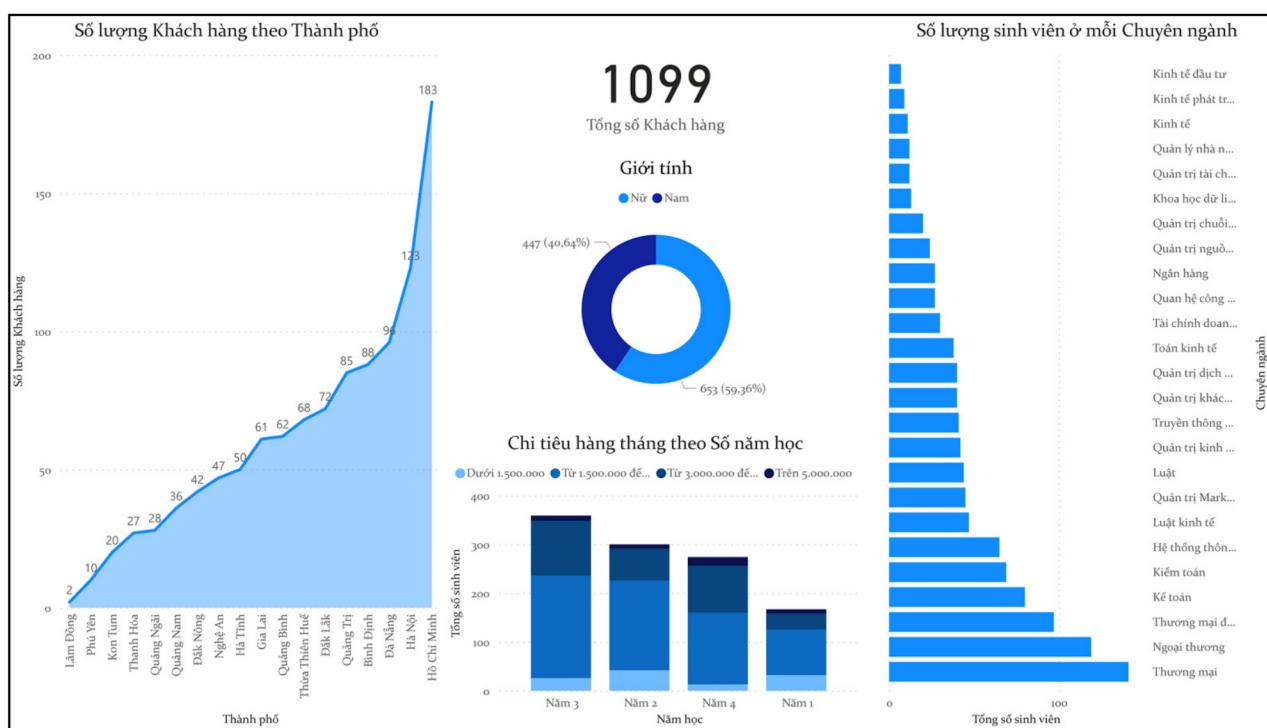
1. Describe the characteristics of customers purchasing computers
2. Comment on the consumption and sales situation of computer stores
3. Advise on how to achieve the highest sales efficiency for buyers
4. From a data analysis perspective, what advice would you give for an electronic transaction in the computer field?

OVERVIEW CUSTOMER

ANALYSIS CUSTOMER

The dataset comprises 1099 customers, among which 59.36% are female, and 40.64% are male. The customer file includes students from year 1 to year 4 from 18 different provinces, with the largest number coming from Ho Chi Minh City, totaling 183 people.

Year 3 students are the most numerous, amounting to 210 individuals, and the majority of students have monthly spending levels ranging from 1,500,000 VND to 3,000,000 VND.



The customer dataset also contains various continuous variables such as Customer Satisfaction, Brand Perception, Configuration Factor, Processing Speed Factor, Price Factor, Design Factor, Retailer Reputation Factor, Security Factor, Warranty Factor, and Promotion Factor.

To delve deeper into the customer satisfaction analysis, perform a multivariate regression analysis with the following steps:

- Formulate the research hypothesis.
- Test the hypothesis.
- Write the regression equation.

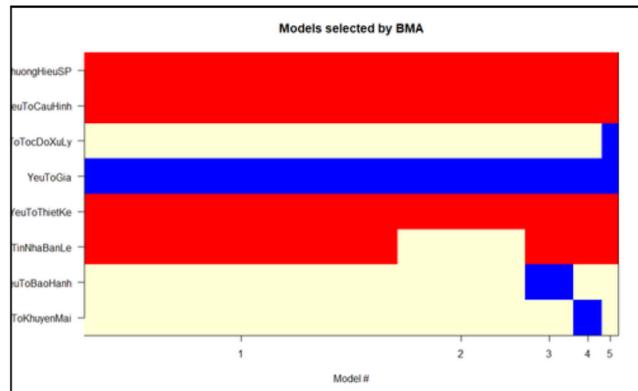


COMPANY INTRODUCTION

To analyze regression, use the Bayes Model Average method to select the regression model.

LINEAR REGRESSION

In the Bayes chart, the top 5 models consistently include variables such as ThuonghieuSP, YeuToCauHinh, YeuToGia, YeuToThietKe in models 1, 2, 3, 4, and 5. Among them, model 1 also includes the variable YeuToUyTinNhaBanLe. Therefore, according to the Bayes chart, model 1 is the optimal model for measuring the impact on the dependent variable MucDoHaiLong of customers.



Here are the selected 5 models (cumulative posterior probability = 1). The R-squared result of model 1 is 14.8%, indicating that the model explains about 14.8% of the variation in the dependent variable. Alternatively, the variables ThuonghieuSP, YeuToCauHinh, YeuToGia, YeuToThietKe, YeuToUyTinNhaBanLe collectively explain 14.8% of the customers' MucDoHaiLong.

Regression equation:

$$\text{MucDoHaiLong} = 2.88 + 0.14\text{ThuonghieuSP} + 0.18\text{YeuToCauHinh} - 2.17\text{YeuToGia} + 0.102\text{YeuToThietKe} + 0.08^*\text{YeuToUyTinNhaBanLe}$$

From the regression equation, it can be concluded that variables such as ThuonghieuSP, YeuToCauHinh, YeuToThietKe, YeuToUyTinNhaBanLe have a positive impact (+), and the variable YeuToGia has a negative impact (-) on customers' MucDoHaiLong.

The p-value < 0.005 meets the requirement for an overall conclusion. However, the independent variables only explain 14.8% of the dependent variable, so the Customer Satisfaction also depends on other factors.

5 models were selected Best 5 models (cumulative posterior probability = 1):					
Intercept	p!=0	EV	SD	model 1	model 2
YeuToThuonghieuSP	100.0	0.141470	0.02755	0.14058	0.14358
YeuToCauHinh	100.0	0.188054	0.02628	0.18319	0.19516
YeuToDoXuly	3.1	-0.001662	0.01274		
YeuToGia	100.0	-0.211419	0.03253	-0.21784	-0.20302
YeuToThietKe	100.0	0.107713	0.02632	0.10252	0.12432
YeuToUyTinNhaBanLe	76.1	0.062483	0.04246	0.08027	.
YeuToBaoHan	9.1	-0.005469	0.02002	.	.
YeuToKhuyenMai	5.3	-0.002428	0.01255	.	.
nVar				5	4
r2				0.148	0.141
BIC				-141.49312	-139.69789
post prob				0.586	0.239
Intercept		model 3	model 4	model 5	
YeuToThuonghieuSP	0.14214	2.96870	2.96077	2.94611	
YeuToCauHinh	0.19400	0.14083	0.14083	0.14120	
YeuToDoXuly				0.22087	
YeuToGia		-0.20198	-0.19070	-0.21744	
YeuToThietKe		0.10258	0.10256	0.10188	
YeuToUyTinNhaBanLe		0.09365	0.08247	0.08225	
YeuToBaoHan		-0.06025	.	.	
YeuToKhuyenMai			-0.04608	.	
nVar	6	6	6	6	
r2	0.151	0.150	0.149	0.149	
BIC	-137.76230	-136.67479	-135.64005	-135.64005	
post prob	0.091	0.053	0.031	0.031	



COMPANY INTRODUCTION

OVERVIEW SALES

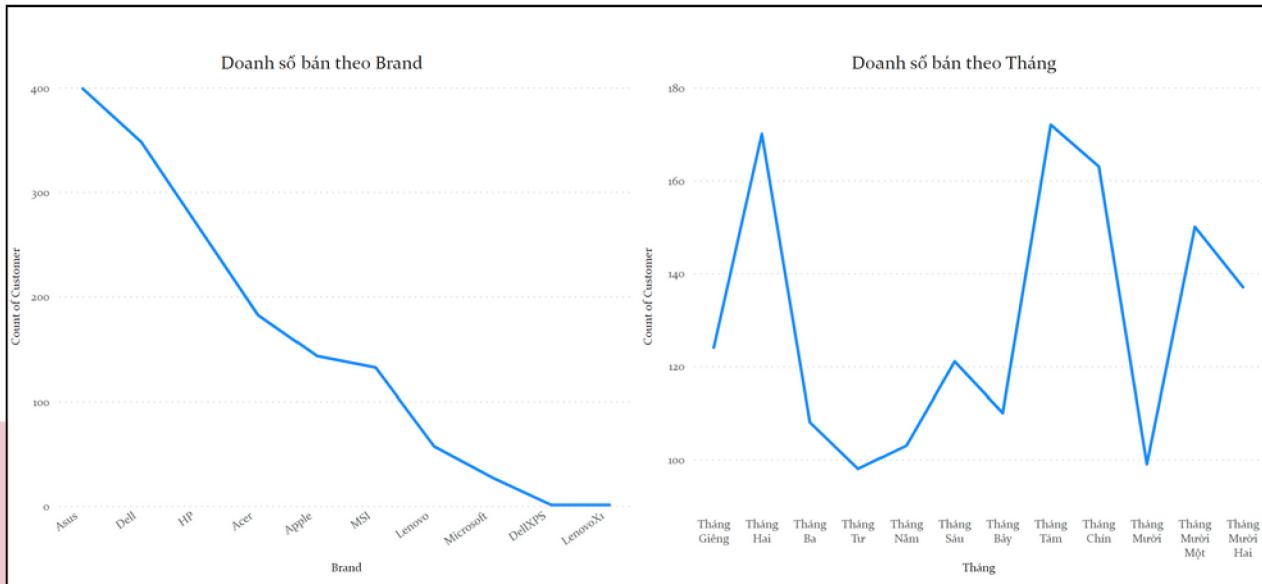
Overview of the Sales dataset: There are 11 shops and 10 brands distributed. The distribution channels include 2 types: online and offline. However, the online channel only distributes 8 brands (excluding LenovoX1 and DellXPS). The specific reason for not distributing the remaining 2 brands online is that the sales volume for the year 2020 only includes 1 product.

FPT Shop has the highest sales volume (293), but it is also the shop with the highest number of promotions (195 times). The brand with the highest sales is Asus (399). Asus has an average selling price of about 12.93 VND. The peak sales months are February (170) and August (178). February marks the beginning of the year, and August is the back-to-school season. Shops often offer promotions during the Tet holiday (Vietnamese New Year) and the start of the school year.

Conclusion: The demand for computer and electronic products increases during the Tet holiday and the beginning of the school year, requiring appropriate plans to boost sales.



SALES MONTH



01. Problem #01

The two months with the lowest sales are in the period from March to May and November. This indicates low customer demand for computers during these times.

02. Conclusion #01

Conclusion: This is the period after high computer demand, and currently, customers may not have a renewed interest. Therefore, a sensible plan is needed during this time.

03. Problem #02

The DellXPS (27,000,000 VND) and LenovoX1 (15,500,000 VND) brands have low sales (1 unit/year). The reason is that the high prices do not align with the target customers, who are students.

04. Conclusion #02

Conclusion: Consideration should be given to the promotion campaign for these two product lines or adjusting the customer segment to boost sales."



OVERVIEW REVENUE

REVENUE SHOP AND BRAND

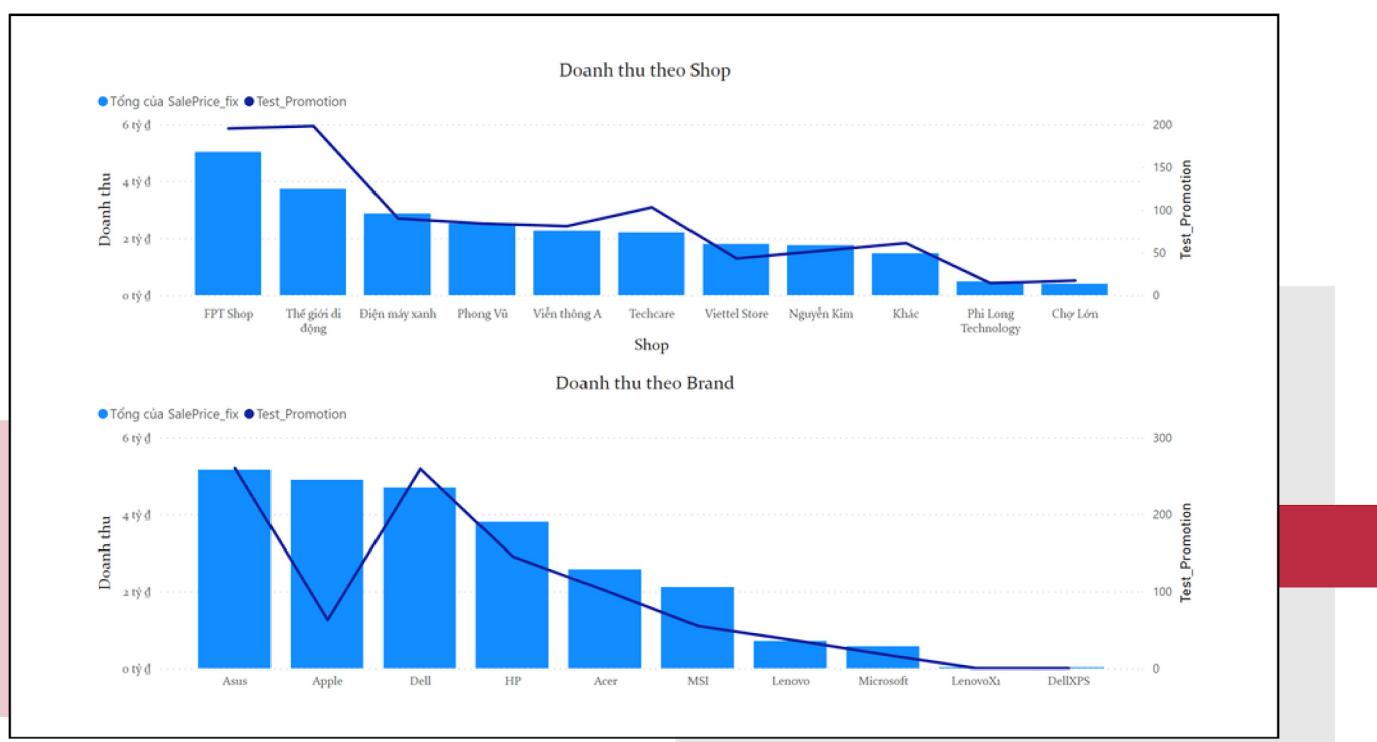
Revenue analysis, brand revenue (top 3): Asus, Apple, and Dell. However, comparing with the sales chart, the top 3 best-selling brands are Asus, Dell, and HP. Therefore, it can be observed that although Apple's sales volume is not high, its revenue is greater (explained by Apple's higher prices compared to other brands).

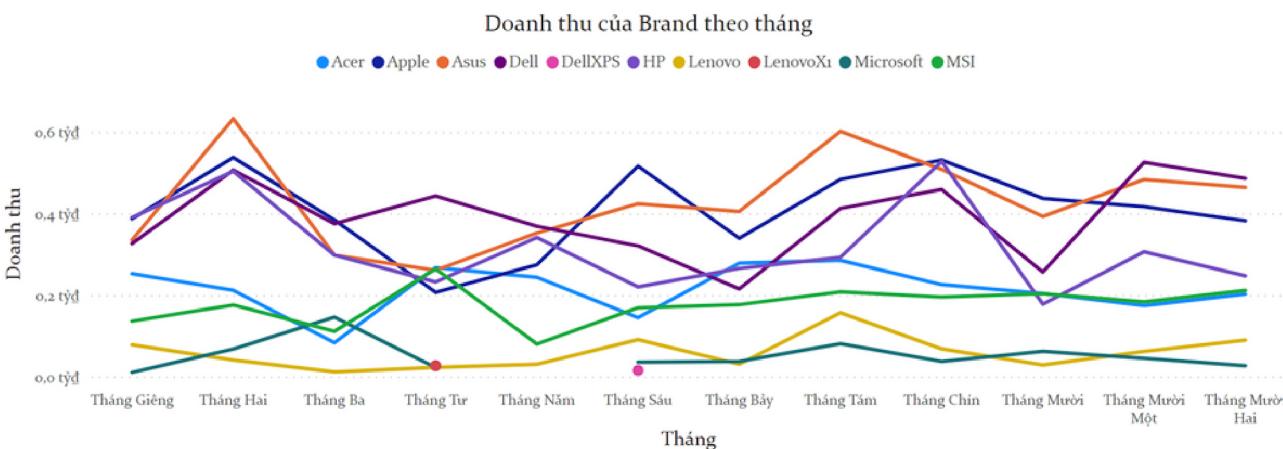
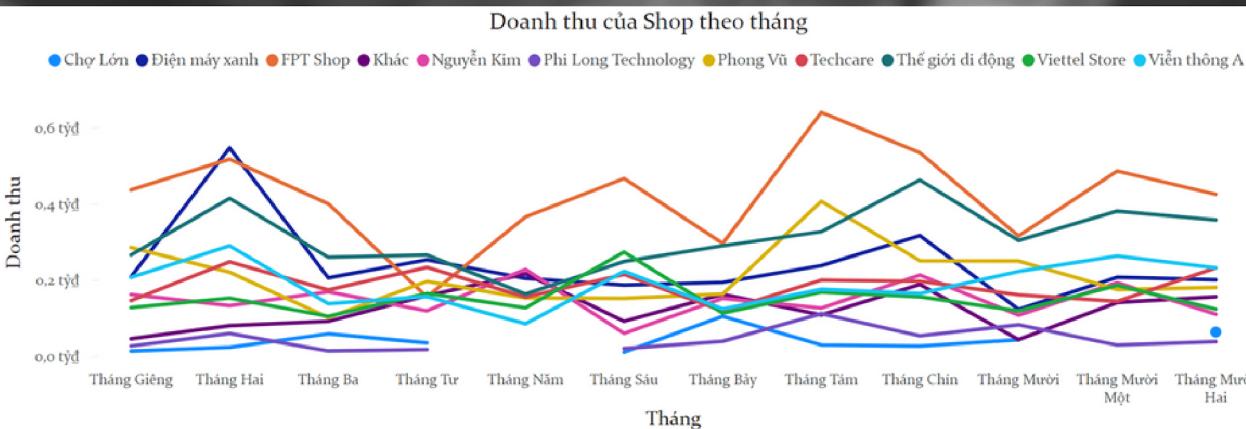
Revenue by store (top 3): FPT, The Gioi Di Dong, and Dien May Xanh (also the top 3 stores with the highest sales).

Specifically, FPT achieves high revenue with Apple, Dell, and Asus; The Gioi Di Dong achieves high revenue with Dell, Asus, and Apple; Dien May Xanh achieves high revenue with Asus and HP.

However, considering the promotion campaigns, it is found that Apple's revenue does not align with the promotion campaigns of the stores.

Conclusion: Evaluate the promotion plan for the Apple brand to boost sales, as Apple belongs to a customer segment willing to pay for premium products.

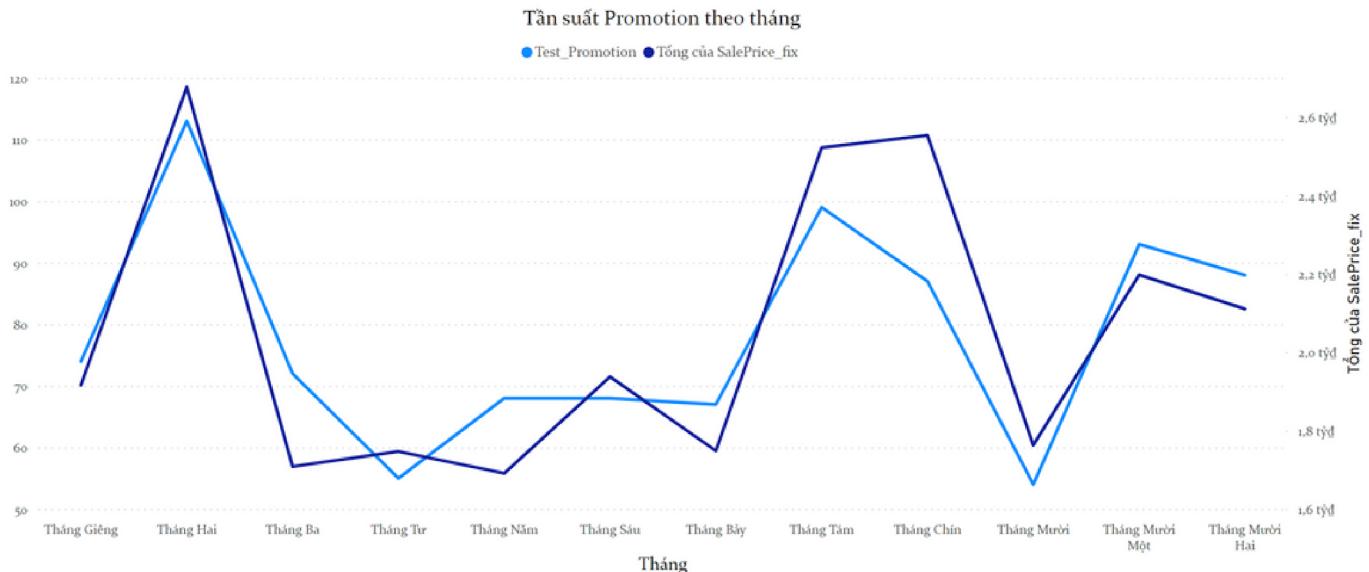




MORE ABOUT REVENUE

Revenue analysis by month for both Shop and Brand reveals:

- Overall, products experience high revenue in Quarter 3 (except for Dell and DellXPS product lines).
- During the period from April to June, overall shop revenue is low, although brands such as Asus, Acer, Apple, and HP show high revenue. Therefore, shops like Phi Long Technology and Cho Lon should devise a strategic plan to promote these brand products to boost revenue during this period for their shops.



ANALYSIS PROMOTION VS REVENUE

From the chart, we observe that promotion is positively correlated with revenue, indicating that promotions have a direct impact on revenue. However, in May, despite high promotion, revenue decreases, further emphasizing the earlier conclusion that customer demand may not be high during this period, and even with promotions, revenue does not improve. Therefore, alongside promotional campaigns, the proposed plan should focus on product offerings and building the shop's image during this time (e.g., product marketing, internal branding, etc.) to enhance brand recognition during this period.

CHANNEL

Channels include two types:

- Online
- Offline

Online and offline channels have equal sales. However, it is noticed that the offline channel with card payments is more popular than cash transactions.

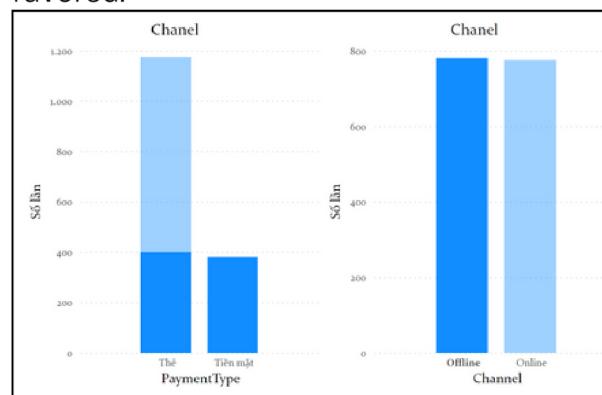
Conclusion: Given the preference for card payments, distributors can leverage partnership programs with payment applications to develop their plans.

PAYMENT

Payment methods include two types:

- Card
- Cash

Among them, card payments are three times more prevalent than cash payments. This means that card payments are favored.



ADVISE FOR **CUSTOMER**

TO ACHIEVE THE HIGHEST SALES EFFICIENCY

"Firstly, identify the target customers as students ranging from year 1 to year 4, with a spending range of 1,500,000 VND to 3,000,000 VND. Therefore, recommend product lines that are suitable, reasonably priced, and popular, such as Asus, Acer, Dell, and Lenovo. Among these four lines, highlight the strengths/features of the products based on customer preferences for durability, pricing, configuration, and current promotions. Secondly, encourage purchases during promotional events, emphasizing not only in February and August but also placing emphasis on May and November. This strategy aims to make customers remember the timing, thereby boosting sales in these two months.

ADVISE FOR E-COMMERCE PLATFORM.

The analysis indicates a growing trend in online shopping demand, with the number of online customers matching that of offline purchases. Because of this, e-commerce platforms can leverage this to boost sales of electronic and computer products.

- **Optimize Promotion Campaigns:** Utilize promotional campaigns, especially during months with lower sales volumes such as April, May, and November. Enhance advertising efforts during special occasions such as post-Tet (February), back-to-school (August), and other festive seasons.
- **Strengthen Product Advertising:** Focus on advertising high-revenue products such as Asus, Apple, and Dell. Particularly emphasize Apple product promotions, even with fewer campaigns, to capitalize on the product's advantages.
- **Diversify Product Lines:** Upgrade promotion efforts for low-revenue product lines like Acer, MSI, LenovoX1 to enhance customer awareness and choice.
- **Engage with Manufacturers:** Explore collaboration opportunities with manufacturers like Apple to secure special promotions or exclusive deals.
- **Monitor and Gather Feedback:** Conduct customer surveys to measure satisfaction and collect feedback. Based on this data, adjust business strategies to meet customer expectations.

