

**Comparing Pop Up Ads and Advertisement Emails. Which is More Impactful?**

**PopRunner Project Report**

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## **1. EXECUTIVE SUMMARY**

We analyzed data from 9,032 individuals, with 76% of individuals being female and 24% being male. The average age of both genders was similar with males skewing slightly older at 32 while females were on average 31.

We reviewed the impact of pop up ads and email advertisements to see if either impacted web traffic or sales. The average sale derived from a pop up ad was \$131.74 and the average sale from an opened email advertisement was \$240.83. While the individual sale from opened emails is higher, the overall total profit from pop up ads was much higher at \$594,929.80 as opposed to \$172,432.00. This is likely due to the fact that the customer was already on the PopRunner website with the intention of purchasing, whereas the customer who opened the advertisement email was not necessarily planning on making a purchase that day.

In conclusion, the customer that spent the most online shopping through PopRunner showed to have opened the email ad, and the customer that spent the least did not get a pop up ad.

## **2. OBJECTIVE AND QUESTIONS**

PopRunner is an online retailer that has concerns about decreases in website traffic and wants to know the effectiveness of their online advertisements. Therefore, the objective of this project is to use data analytics, specifically SQL, to determine whether the two types of online advertisements PopRunner used have an impact on sales.

### **2.1. Project purpose**

#### ***2.1.1. Objective of the project***

The objective is to find out if the data from PopRunner's advertisements show an impact on sales.

#### ***2.1.2 Questions***

1. Is an email blast or pop-up advertisement more influential on sales?
2. What is the main demographic of consumers for PopRunner?
3. Is there a relationship between the amount spent by the consumer and whether they engaged with the advertisement?

#### ***2.1.3 Data***

The data that was used in this study involved information on customer background and engagement with the advertisements. PopRunner provided data tables on the consumers, email blasts, purchases, and pop-up advertisements. The email blast consists of an email advertisement that is sent to all consumers of PopRunner and whether the consumer opens the email or not was measured. The pop-up ad is an advertisement that pops up with a discount code when a selected consumer visits PopRunner's website and whether the consumer saved the pop-up discount in their cart or not was measured.

### 3. DATA ANALYSIS AND RESULTS

#### 3.1. Customer background (Query 5 and 6)

Gender distribution is broken down into two values: *Males* and *Females*. Males make up 24% (2129 individuals) of the gender frequency distribution, and Females make up 76% (6903 individuals). The average age of customers for both genders is close, with Males being slightly older with an average of 32.45 years and Females with an average age of 30.61 years.

Every one of the 9032 entries belongs to a loyalty level. Level 1 is the lowest level and 5 is the highest level. The mean age of each level is close but the value progressively gets larger as the loyalty level increases with a 4.14 average year difference between level 1 and level 5. The largest loyalty group is level 3 with 845 individuals separating it from the next highest level (level 5).

Gender distribution		
Variable	Frequency distribution	Mean (Age)
Gender: Male	2129 (24%) individuals	32.45 years
Gender: Female	6903 (76%) individuals	30.61 years
Loyalty distribution		
Loyalty level = 1	1529 (17%) individuals	29.37 years
Loyalty level = 2	1740 (19%) individuals	30.10 years
Loyalty level = 3	2612 (29%) individuals	30.70 years
Loyalty level = 4	1385 (15%) individuals	31.59 years
Loyalty level = 5	1766 (20%) individuals	33.51 years

**Table 1: Customer background**

#### 3.2. Sample Size (Query 7 and 9)

As a result of the email blast from PopRunner, the data showed that of the 9,032 consumers that received emails, 8,316 (92%) consumers did not open the email while only 716 (8%) did. In regard to the pop-up advertisement, 4,516 consumers did not receive a

pop-up or save the discount code. Furthermore, an equal number of consumers received the pop-up and of those that did, only 1,487 ended up saving the discount code.

Variable	Frequency distribution
Pop-up = 0, discount code = 0	4,516 (50%) individuals
Pop-up = 1, discount code = 0	3,029 (34%) individuals
Pop-up = 1, discount code = 1	1,487 (16%) individuals
Opened email = 0	8,316 (92%) individuals
Opened email = 1	716 (8%) individuals

**Table 2: Sample distribution**

### 3.3. Sales (Query 8, 10 and 12)

Sales averages were compared to determine if pop-up or email advertisement impacted consumer sales (reference Table 3).

Pop-up advertisements did not impact sales from an average transaction or total sales figure perspective as the average sales were nearly the same as the average of total sales; and the sales produced were roughly even.

Although Email Blasts were not successful in impacting sales since the sales generated were substantially lower than sales when consumers did not open the email blast (\$172,432 versus \$1,048,822, respectively), it did impact the average sales per transaction as the average is almost double than if the email was not opened (\$240.83 vs \$126.12). Further analysis should be conducted to determine if there are influencing factors that can entice consumers to open the email and lead to sales dollars.

Variable	Average (in \$)	Total Sales (in \$)
Total sales	\$135.21	\$1,221,254.30
Pop-up = 0	\$138.69	\$626,324.50

Pop-up = 1	\$131.74	\$594,929.80
Opened email = 0	\$126.12	\$1,048,822
Opened email = 1	\$240.83	\$172,432

**Table 3: Sales data by advertisement (pop-up and email)**

### **3.4. Use cases (Query 11 and 13)**

The consumer who spent the most (ID 5955534353) did not receive a pop-up but opened the email blast.

The consumer who spent the least (ID 5887286353) did not receive a pop-up or open the email blast.

## **4. RECOMMENDATIONS AND CONCLUSION**

Concludingly, 76% of the customers are Female and 24% are Male. We conclude that pop-up advertising did not significantly impact sales. As we can see from the descriptive statistics, the average number of sales was approximately \$135.24.

However, 50% of the consumers who received no pop-up ads ended up with no discounts on their cards and there are just approximately 1,400 consumers who ended up with a discount in their carts after receiving a pop-up message. On the other hand, it is evident from the analysis that consumers who checked their emails had a better impact on sales output.

It is recommended to add more female consumers to the email list with an average mean age of 34 compared to pop-up messages. As we can see from the statistics, clients who checked their emails made a better impact on sales than those who received pop-up messages.