

# Business Analytics Open Source Group Project - Customer Gambling Marketing Data Manual

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# Contents

<b>User Guideline</b>	<b>3</b>
<b>Data Overview</b>	<b>3</b>
Demographics Information . . . . .	3
Gambling Behavior & Summary Statistics . . . . .	4
Marketing Metrics . . . . .	5
Length of Relationship . . . . .	5
Customer Lifetime Value . . . . .	5
Recency, Frequency, and Monetary . . . . .	5
Engagement . . . . .	6
<b>Customer Profiling &amp; Analysis</b>	<b>6</b>
Demographics . . . . .	7
Gambling Behavior . . . . .	9
Marketing Metrics . . . . .	10
Customer Profile/ Conclusion . . . . .	12

## List of Tables

1	Customer Gambling Behavior . . . . .	4
2	Customer Lifetime Value & Length of Relationship . . . . .	5
3	Customer Recency, Frequency, and Monetary . . . . .	5
4	Customer Engagement per Game . . . . .	6

## User Guideline

This Data Manual serves as a guideline for Marketing Analysts and contains all the necessary information regarding Marketing Metrics that had been previously calculated within the customer gambling data.

For the purpose of Marketing Analytics, only relevant variables will be explained within this Data Manual.

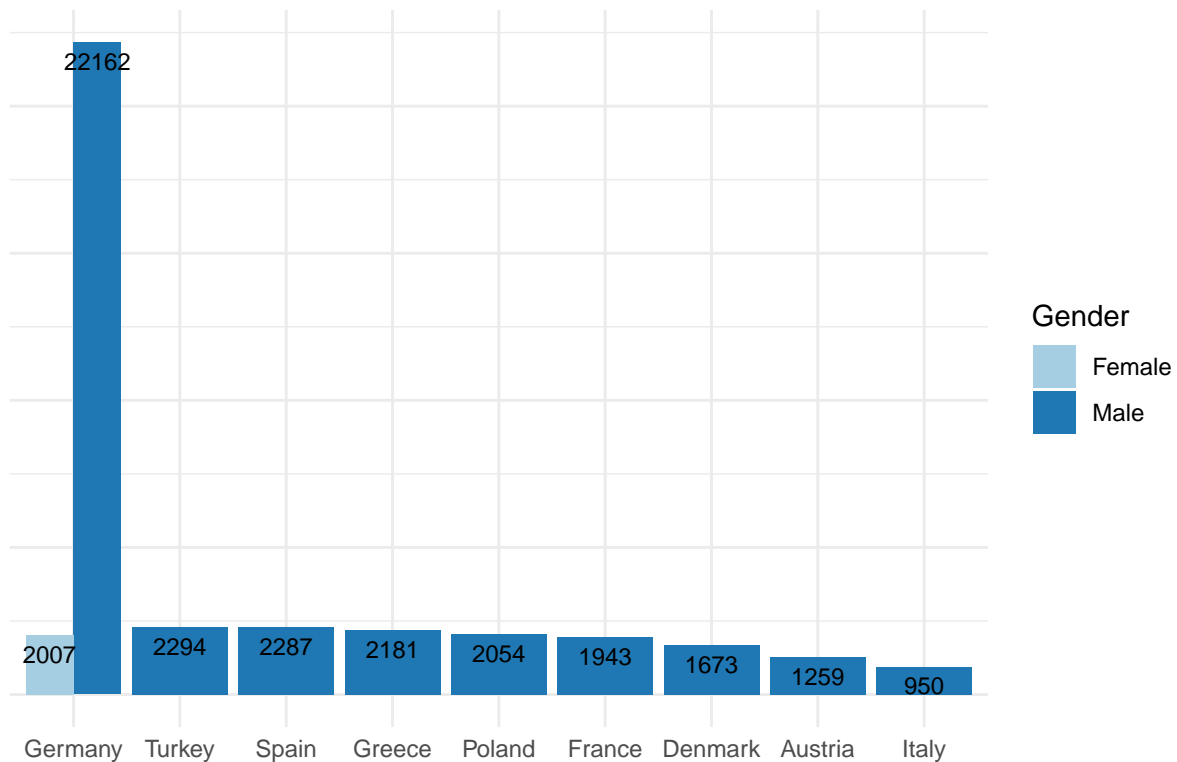
## Data Overview

Our data consists the information from more than 40,000 gamblers in which their gambling activities has been recorded for 8 months. This includes their demographic information, gambling behavior, summary statistics, and marketing metrics.

### Demographics Information

We have 2 variables related to Demographics: **Gender** and **Country**. Both of these variables could be used to gain deeper insight especially on certain group of subjects, and for strategic targeting as well. The plot below shows that most of our customers are based in Germany.

Top Countries with the highest Number of Customers



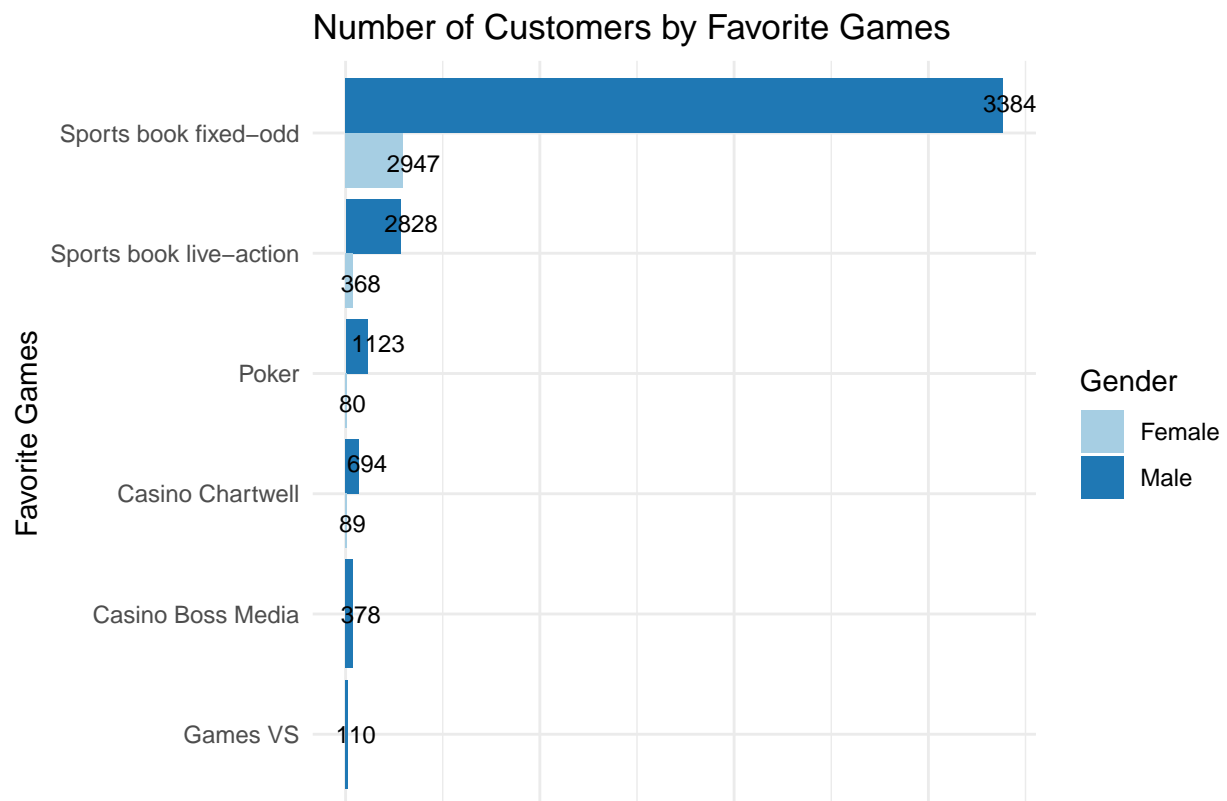
## Gambling Behavior & Summary Statistics

The gambling behavior was obtained by calculating the summary statistics of the variables. This includes variables such as **Total Winnings**, **Total Winnings per Bet**, **Total Products**, **Favorite Game**, etc. These Summary Statistics & Gambling behavior are also available for each games.

Table 1: Customer Gambling Behavior

UserID	Total_Winnings	Total_Winningsperbet	Total_Products	fav_game
1324354	11,737€	78.50€	2	Sports book fixed-odd
1324355	473€	6.63€	3	Sports book fixed-odd
1324356	911€	8.30€	2	Sports book fixed-odd
1324358	210€	35.98€	2	Sports book fixed-odd
1324360	43€	1.90€	3	Sports book fixed-odd

The plot below shows that most of our customer's favorite game is Sports Book Fixed-odd.



## Marketing Metrics

Some of the Marketing Metrics available within the dataset are: **LOR**, **RFM**, **Engagement**, and **Customer Lifetime Value**.

### Length of Relationship

**LOR**, or Length of Relationship is defined as how long does a customer has been with us since the first time they joined. In business, LOR is an important metric to determine the loyalty of a certain customer. Of course, LOR by itself doesn't give us any indication of how active / engaged a certain customer is. So in practice, this metric is often combined with other metrics that are available. In our case, LOR is calculated from the end of 2005 (31/12/2005) and since the Date of registration.

### Customer Lifetime Value

**Customer Lifetime Value** defines how valuable a customer is to the business. Customer Lifetime Value is evaluated not only based on how much money a customer spend to the business, but also how much money does the business spend to that particular customer. To put it simply, it's like calculating the profit generated from one particular customer. In our case, it is calculated by subtracting the amount of money a customer spend with the amount of money they won, and then multiplied by the average Length of Relationship.

Table 2: Customer Lifetime Value & Length of Relationship

UserID	LOR	Cust_lifetime_value
1324354	333 days	76,486€
1324355	333 days	-5,217€
1324356	333 days	144,877€
1324358	333 days	40,293€
1324360	333 days	7,198€

### Recency, Frequency, and Monetary

**RFM** is the acronym of Recency, Frequency, and Monetary. **Recency** is defined as the time period since the last time a particular customer made a transaction. **Frequency** is defined as how many times a customer did a transaction within our period of analysis. While **Monetary** is defined as the total amount of Money a customer spend within our period of analysis. RFM is a critical metric to calculate and is widely used to investigate customer churn. One could determine how important / valuable a customer is based on their RFM values. A combination of Recency & Frequency could tell us how active a customer is. While a combination of Frequency & Monetary could help us segment our customer better. In our case, Recency is calculated from the end of 2005 (31/12/2005) and since the last date of the transaction, Frequency is calculated from the number of transactions in each game, while Monetary is calculated from the amount of money spend in each game.

Table 3: Customer Recency, Frequency, and Monetary

UserID	Recency	Frequency	Monetary
1324354	92 days	136	11,977€
1324355	93 days	108	456€
1324356	110 days	75	1,365€
1324358	239 days	9	336€
1324360	97 days	32	66€

## Engagement

**Engagement** defines how engaged / active a customer is to a certain product / game. In our case, it is calculated by dividing the frequency of a particular game to the customer's active period. In general, An active / engaged customer would have a high engagement value. But it is important to note that a one-time visit customer could have a high engagement value as well. In gambling business, we probably prefer seeing returning customers rather than a one-time visitors, so it's important not to misinterpret customers with high engagement values. In addition, engagement value could also help us understand our customer product / game preferences.

Table 4: Customer Engagement per Game

UserID	SBFO	SBLA	Poker	CasinoBM	CasinoCW	Supertoto	GamesVS	Gamesbwin
1324354	0.5366972	0.1310345	0.000000	0	0.000	0	0	0
1324355	0.4125000	1.1666667	1.333333	0	0.000	0	0	0
1324356	0.2297297	0.1085973	0.000000	0	0.000	0	0	0
1324358	0.0851064	0.0010000	0.000000	0	0.000	0	0	0
1324360	0.1234043	0.0090498	0.000000	0	0.001	0	0	0

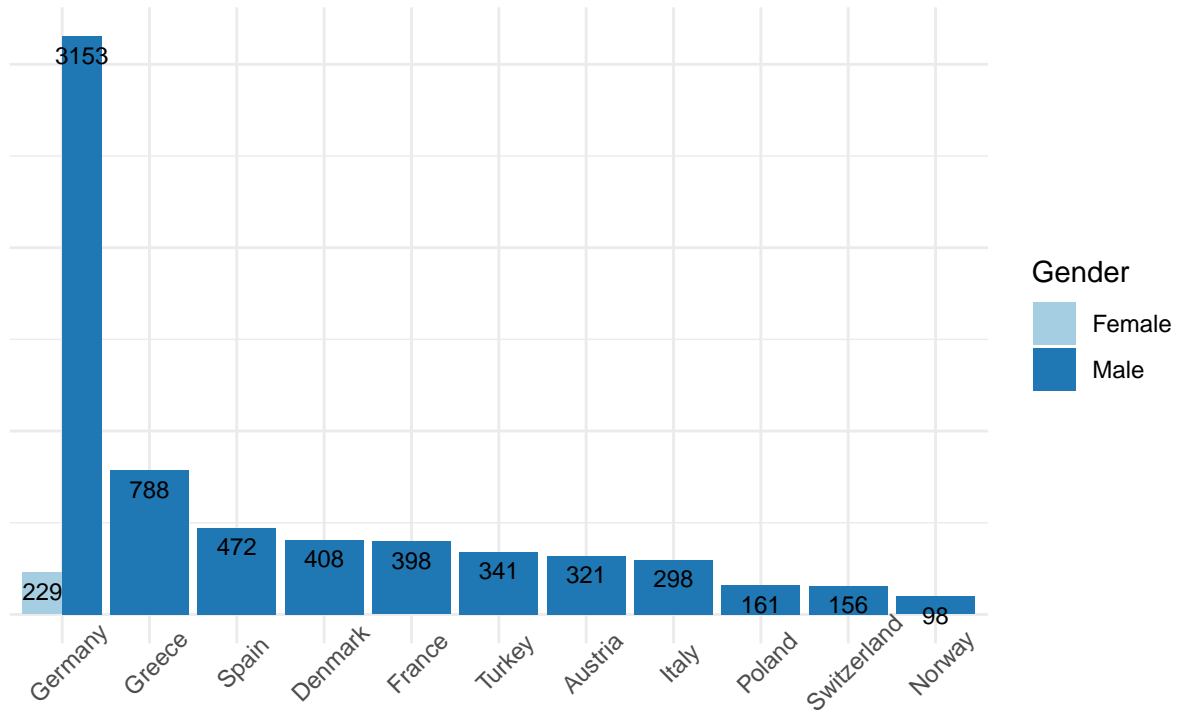
Note that an Engagement value of 0 simply means that the corresponding customer doesn't play the corresponding game at all within our period of analysis.

## Customer Profiling & Analysis

After calculating Summary statistics & Marketing metrics, Customer profiling & analysis could be done based on them. In this case, we're going to analyse & profile our most profitable customers, that is defined as customers who generates more than the average profit (200€) to the business.

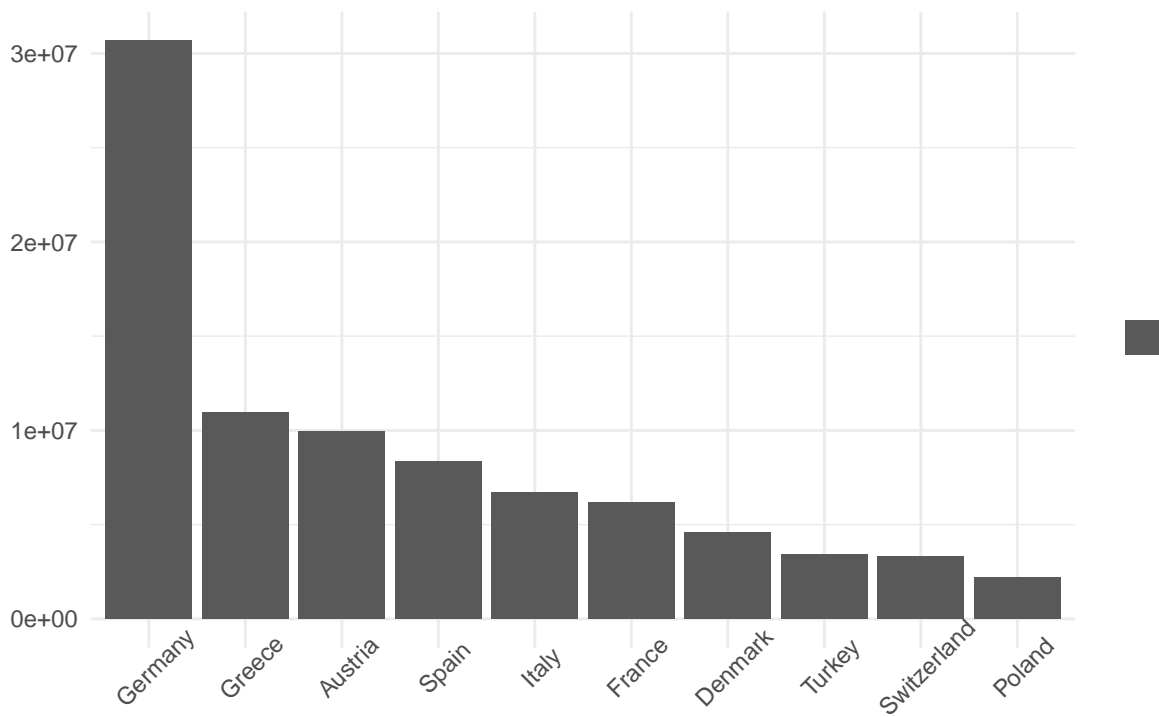
## Demographics

### Countries with the highest Number of Profitable Customers



From the graph above, We can see that most of our profitable customers are located in Germany. Although it is worth mentioning that there might be a little bias here knowing that most of our customers are indeed also from Germany. Interesting thing here is that there are 788 profitable customers from Greece, this represents around 30% of the entire customer from Greece. It is clear that most of the customers are male, which is a very important thing to know when managing and launching marketing and advertising campaigns, since the company can launch stronger advertising campaign in different countries depending of the country/countries they want to target more through demographic segmentation, etc.

Top Countries with the highest Customer Spending

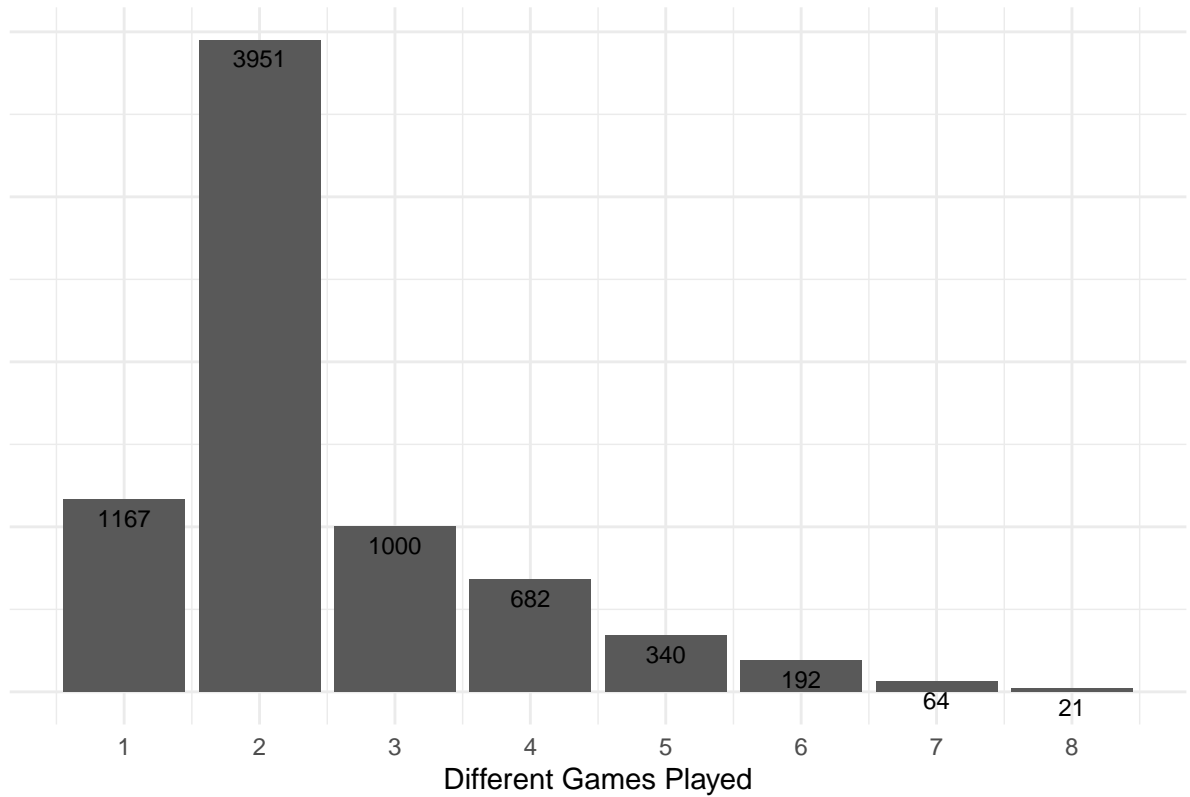


The graph above shows that the country that spends the most at the casino is Germany, with a very significant difference in comparison to other countries. After Germany, the remaining countries do not have a significant difference in numbers as for spending. This graph explains why these two countries (Germany and Greece) have the most profitable customers to the casino in the graph above.



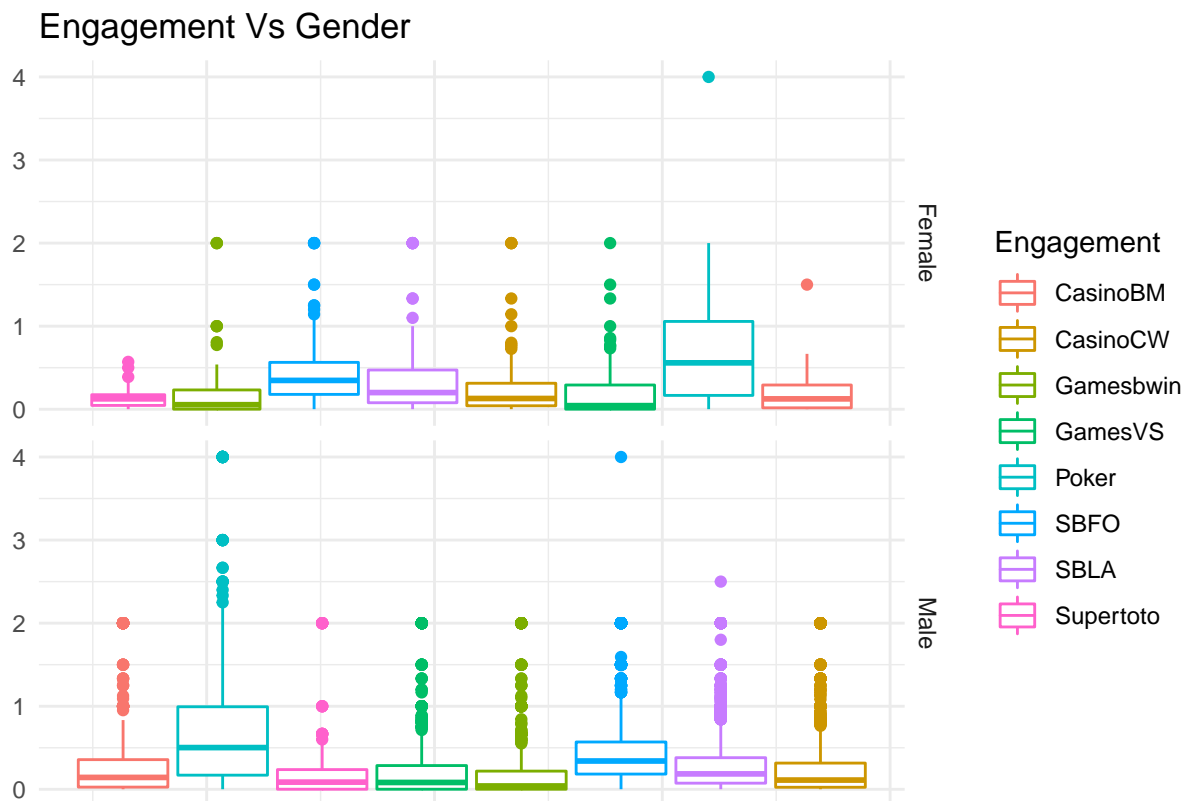
## Gambling Behavior

### Different Number of Games Played by the Most profitable Customers



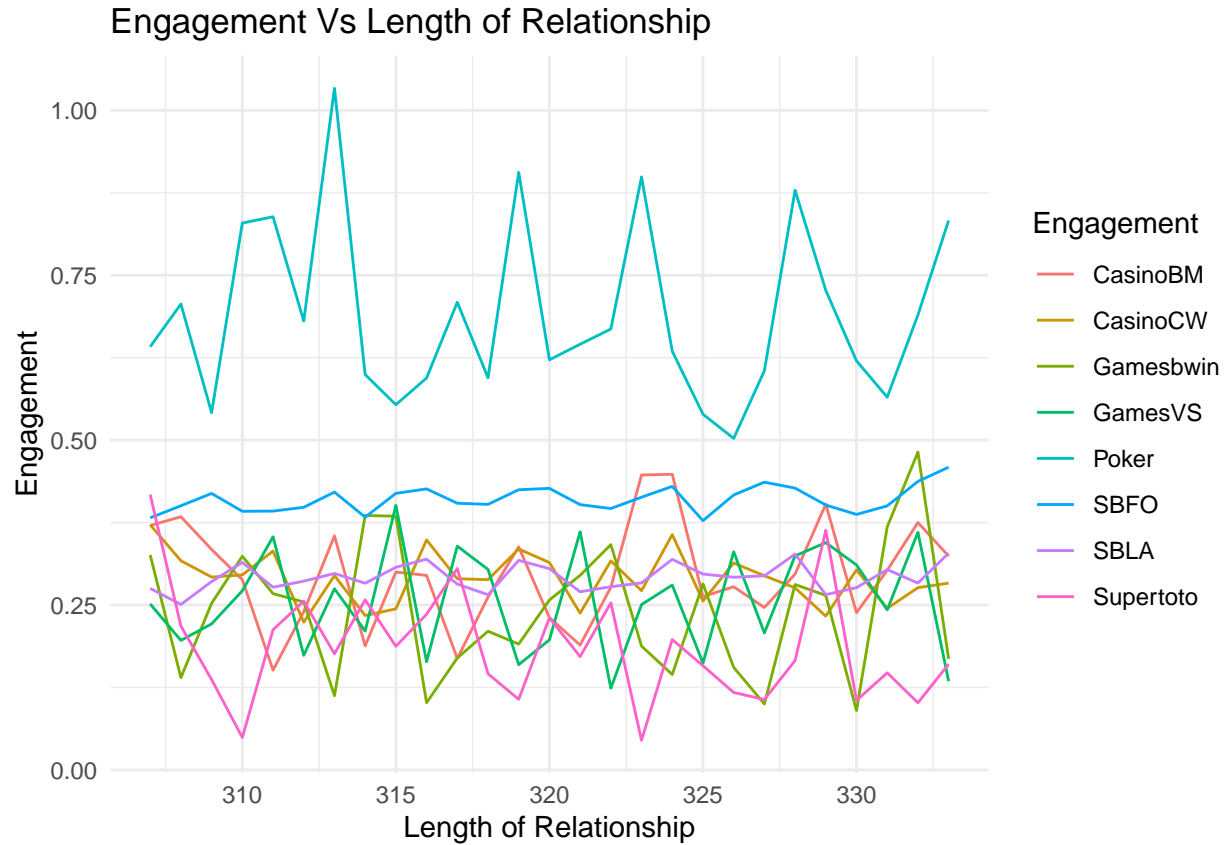
From the graph above, We can see that most of our profitable customers played 2 different games, most of these are the combination of Sports Book Fixed-odd and Sports Book Live-Action.

## Marketing Metrics



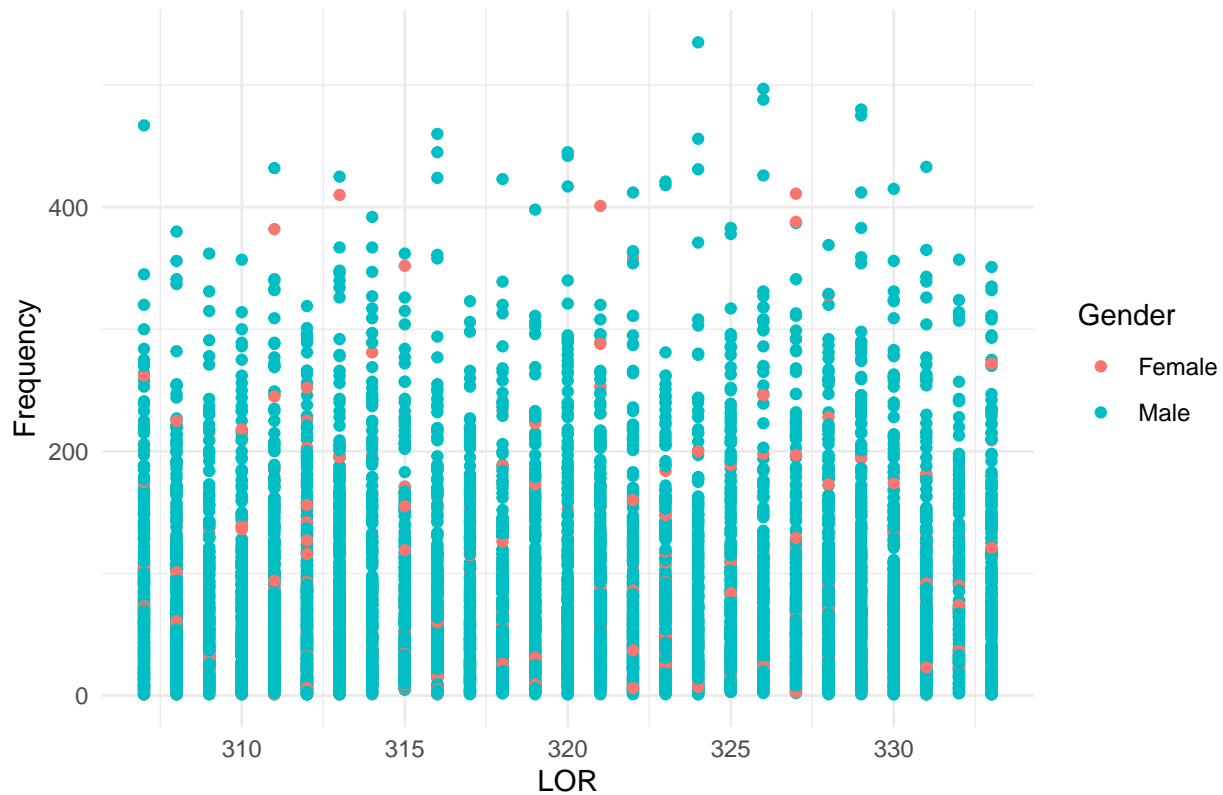
The graph above represents the created engagement of each of the games of the casino, along with the gender of most profitable clients of the casino. According to the graph above, the game that created the highest engagement among the male most profitable clients is Poker, where as Sports Book fixed odd and Casino CW are the games that create the lowest engagement. However, it is relevant to mention that even though the engagement of Sport Book fixed odd is low, many profitable clients play this game, which means the game plays a role in engagement creation.

As for the female most profitable clients, which are clearly considerably lower than the males, there is a mix of games that create the highest engagement, there is no specific trend (game) identified. However, it is clear that most of the engagement from women is coming from Sports Book fixed off and Sports Book live action.



In the graph above, the engagement vs the length of relationship is presented, with the goal of identifying any trends or relationships between both variables. The graph shows that between a LOR of 310 and 315 days, the engagement is at its peak, however, no clear trend is identified. This means not because the length of relationship of clients is higher it necessarily means their engagement will be too; in fact, clients with the highest LOR have the lowest engagement. This is an important insight to take into account for market and business research in terms of how the casino can improve and what they can propose clients with a high LOR in order to retain them and engage them more to their business.

Frequency Vs Length of Relationship



Above, the frequency and the LOR are presented for most profitable customers. The frequency with which most profitable customers visit the casino drops after a LOR of around 328 days and its at its peak between 310 and 315 days. The graph overall has peaks and lows regardless of the LOR of the customer, which means once again, that the frequency with which a profitable customer visits the casino has no direct relation to whether he/she is a new or old customer. There is however the same trend than the past graph which is, customers with the highest LOR tend to lose interest in visiting the casino as often. As previously mentioned, this suggests that the casino could implement specific marketing strategies targeted to improve frequency of old customers and reactivate them.

### Customer Profile/ Conclusion

Along most profitable customers, it is known that most of the casino's customers are men, and that an important amount of profitable customers are concentrated in Germany by far, followed then by Greece. Germany has the highest spending power in the casino. The most popular games in all countries and genders include Sports Book fixed odd, Sport Book live action and poker respectively. After studying the length of relationship of customers, frequency and engagement, it is fair to say that customers that have been clients in the casino for a long time tend to lose interest in the casino and consequently are less engaged.