

PRICING, POSITIONING AND PRODUCT ANALYSIS OF DISNEY THEME PARKS-MARKETING ANALYTICS

MKT617: Marketing Analytics

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EXECUTIVE SUMMARY

This project intends to address the real-time marketing challenges of Disney Theme parks by applying marketing analytics. The industry profile in which Disney Parks is associated is highly competitive and exigent regarding innovations and experiences. Several challenges were discovered covering external matters towards customers' satisfaction and preferences. But also, internal issues aligning with technological advancements, competition, and costs. These problems were narrowed to four statements that will envelop our research project's report. Our first question will concern one of the significant points that stimulates Disney's development and advancements in the customers' perspectives of Disney's parks. This matter envelops several ones that we will involve in our study. Along with the previous issue, a comparison of preferences between Disney parks and its competitors is significant. Additionally, a crucial problem that always reappears is the price question directly related to any costs Disney Parks holds. Eventually, the breakthrough and development of these parks are inevitable. These issues will be confronted using distinct techniques: sentiment analysis, positioning analysis, price optimization analysis, and GE McKinsey matrix analysis, respectively, following this order. The approach of these techniques with a clear research plan will be discussed further in the report. Certainly, the collection of data through online websites and surveys, along with the implications of each analysis, will be presented with a coherent understanding of the results issued from the Enginius software. Unavoidably, the matter of limitations and constraints of the study will have to be addressed to accurately provide possible directions from the parks to follow. Accordingly, guidance and recommendations associated with the outcomes will be suggested to the company's benefit. Wrapping it all up, confining the project reports' research problem with a consistent and compatible conclusion that will conduct a strong resolution for Disney Parks. Accordingly, as a broader concluding perspective, some strategic areas, linked to pricing, positioning, and product developments will be addressed to implement actions upon the enhancement of innovation and advancements.

RESEARCH PROBLEM AND RELEVANT BACKGROUND

RESEARCH PROBLEMS

The project's scope is to identify a few marketing challenges that Disney Theme Parks is currently experiencing and address them using real-time data that supports the problem statements, analysis, and recommendations from a marketing analytics standpoint. A few opportunities we have from this project's standpoint would be Disney's challenges on:

- Aiming to achieve better customer engagement and satisfaction levels using *sentiment analysis* of Disney Theme Parks' customer reviews on products and services.

- Identifying key challenges and product opportunities for Disney Theme Parks by analyzing consumer preferences through ***positioning analysis***.
- Building a new pricing model using the marketing analytics ***price optimization*** technique.
- Analyze Disney theme parks' new product and market opportunities using ***GE McKinsey matrix analysis***.

THE WALT DISNEY COMPANY PROFILE

Disney Entertainment, ESPN, and Disney Parks are the three main business sectors of The Walt Disney Company. Along with its affiliates and subsidiaries, the company is a globally recognized and diverse family entertainment and media conglomerate. Disney sustains its position in people's minds and is consistent over time. Its consistency is supported by the company's numerous acquisitions and creative innovations across the organization. However, similarly to all businesses worldwide, The Walt Disney Company could be subject to economic uncertainty and social shifts in the population. Accordingly, the company represents one of the most valuable brands worldwide. Despite reporting impressive revenues at the beginning of 2023, Disney joined other prominent industry players in announcing future mass layoffs, affecting thousands of employees at Disney Animation, Parks, networks such as ESPN and ABC, and more. Additionally, the company made headlines when it revealed plans to cancel and remove shows and movies from Disney+, ESPN, and Freeform. It remains to be seen if there is any other restructuring in the future and how it will influence the company itself and the media industry.

DISNEY PARKS, EXPERIENCES, AND PRODUCTS

The Walt Disney Company's iconic brands and franchises, such as Disney, Pixar, Marvel, Star Wars, ESPN, Twentieth Century Studios, and National Geographic, are brought to life through Disney Parks, Experiences, and Products, enabling families and fans worldwide to create lifelong magical memories.

Walt Disney launched a new age of family entertainment with the July 17, 1955, opening of Disneyland in Anaheim, California. The park is a unique destination centered around narrative and immersive experiences. With six main resort destinations that cover twelve theme parks and fifty-three resorts across the US, Europe, and Asia; a highly regarded cruise line fleet of five ships, with three more scheduled for the near future; an opulent family beach resort in Hawaii; a well-liked vacation ownership program; and two award-winning guided tour adventure businesses, Disney has expanded into one of the world's leading providers of family travel and leisure experiences after more than sixty years. Worldwide Disney theme parks, resort hotels, and cruise ships are all created by Disney Imagineers.

Through more than 65 years in business, they have brought joy and optimism to parks, experiences, and products and built lovely moments that visitors may enjoy with their loved ones. Disney personnel are always thinking of new and creative ways to do what they do best, which is to continue the legacy of incredible storytelling by developing experiences that are unique to Disney.

THE DISNEY EXPERIENCE

STORYTELLING: Disney is reimagining what the Disney experience can be. Finding new ways to take guests on adventures and immerse them in their favorite stories Through exciting attractions, immersive products, and unique digital experiences, the company brings magic to guests wherever they are.

TECHNOLOGY AND INNOVATION: Disney Imagineers and technologists constantly look for new ways to bring magic to life for guests and their families. They are pushing boundaries to reach new heights, from innovative ride systems to cutting-edge innovations across various technologies. Disney looks forward to bringing more magic to more places—at home, in our parks, and beyond.

EXPLORING NEW MAGIC: Disney is persistent with their work. Always foresighted in developing the next generation of theme park entertainment and exploring innovative experiences with new effects and modern, relevant stories. That encourages all guests to connect and be inspired by it. Disney continues to evolve, revolutionize, and reimagine their work to create rich, impactful, and personalized experiences for guests.

CONVENIENCE AND CONNECTION: Disney is creating unique experiences with innovations that enhance vacation flexibility, connectivity, and enchantment. Disney's prominent use of online services simplifies customers' experiences. Services like online food ordering, resort check-in, and the soon-to-be-launched Disney Genie vacation planning application aid Disney in developing enjoyable vacations for their guests.

RELEVANT BACKGROUND

- A potential barrier that Disney may be facing is the exorbitant admission prices to the parks. Those prices have significantly increased faster than the inflation rate over the previous forty years.
- It appears that Disney greatly misjudged the number of parents who would be willing to pay thousands of dollars to have their children spend two nights with aliens and droids at their recently opened "Galactic Star Cruiser" attraction covering the Star Wars theme.

- Disney's theme park businesses have quietly and subtly become luxury brands. There is likely a connection between Disney's decision to cater to a smaller, wealthier, and more elite customer base and its shifting into more ideological and emotional entertainment content.
- Accordingly, Disney seems to detach their interest in attracting middle-class Americans. Yet, it encourages their creative section to adopt more antagonistic stances on contentious cultural topics.
- This summer, visitors to the Disney theme parks are experiencing a new phenomenon: more space than ever before, elbow room.
- Travel analysts and advisers have reported that visitation to Disney's U.S. and some of its competitor parks has significantly decreased this summer. According to a travel company that monitors line-waiting times at Walt Disney World, the holiday weekend of July 4th was among the slowest in almost a decade.
- Disney leaders anticipate a more fragile profit from their U.S. parks this year. The Orlando-region resort began offering hotel discounts around the Christmas season, ordinarily a peak period.
- In recent years, theme park fans have complained loudly about Disney raising admission fees and cutting free services. Current ticket prices for Walt Disney World and its affiliated theme parks are as follows:

Disney's Animal Kingdom: \$109-\$159

Disney's Hollywood Studios: \$124-\$179

EPCOT: \$114-\$179

Magic Kingdom: \$124-\$189

- Disney prices vary by holiday and season. It covers three distinct categories: value, regular, and peak prices. The above prices represent a one-day ticket admission; most families may travel to Disney World for several days; for instance, a person spending five days in their parks may pay a minimum of \$600. This is only an admission price without external fees such as taxes, meals, souvenirs, or lodgings.

The following section will cover the methodology and the research plan for our main topic, addressing the real-time marketing challenges of Disney theme parks by applying marketing analytics.

RESEARCH PLAN AND METHODOLOGY

As mentioned above, four distinct techniques will be used to provide solutions to our problems.

OBJECTIVE AND APPROACH

We had an interesting approach to answering our business questions about revamping Disney Parks' marketing strategy.

First, to understand customer perceptions of Disney Parks, we decided to start with the **sentiment analysis** of customer reviews and incident reports data.

Taking cues from the sentiment analysis, we could outline 7 major attributes that define consumer preferences towards theme parks, from it we thought it would be ideal to perform positioning analysis, which would help us with insights on the brand perception and consumer behavior towards theme parks. Thus, when we did this, we decided to bring in the elements of competition and the customer's perception of an Ideal theme park.

Furthermore, after critically thinking of the **Positioning Analysis**, it was derived that ticket pricing was one of the major differentiating factors and one of the biggest business challenges of Disney Parks. Moving a step further, we included the **Price Optimization** technique considering different scenarios of theme park visits.

Lastly, positioning analysis also identified huge market potential and a number of product development opportunities for Disney parks given its strength and size of operations. Hence, we thought **GE McKinsey Matrix analysis** would help us dive deeper into this area and identify those product opportunities more precisely.

Hence, the ultimate objective of the study was to redefine Disney Parks' marketing strategy in terms of pricing, positioning, and product development. Accordingly, we will discuss sentiment analysis, positioning analysis, price optimization analysis, and the GE McKinsey matrix analysis. A general explanation of each technique and a research plan and methodology will be delivered.

I. SENTIMENT ANALYSIS OF CUSTOMER REVIEWS

Sentiment analysis, also known as opinion mining, is a natural language processing (NLP) technique used to determine the feeling of text-based data; it gives an idea of whether the sentiment is positive, negative, or neutral. More in debt, natural language processing is a branch of computer science that implements artificial intelligence in computers to give them the ability to understand text and words approximately comparable to human beings. Helping management and marketing teams develop knowledge and insights on customers' wants, needs, products, companies, or services based on a text corpus. Corpus texts can be found in diverse sources, throughout the internet, emails, comments,

recorded calls, tweets, or any website. This analysis aims to identify, extract, and evaluate value judgments, subjective opinions, and the emotional contents in text data. These subjective aspects of textual content make up sentiments and emotions, not just their objective contents.

Methodology

We aim to achieve better customer engagement and satisfaction levels using sentiment analysis of Disney theme parks' customer review information.

With the help of cutting-edge data mining tools, it was considered to mine insights from the data, such as online reviews, comments, and discussions available through social media. The favorable insights would ideally relate to the customer's experiences towards the experience or services of Disney Theme Parks. Furthermore, implementing the sentiment analysis would permit us to uncover how customers respond to Disney Theme Park's experiences and services. Thus, actions may be applied to the insights derived from the analysis and work towards achieving a better customer experience.

Research Plan

The data for the sentiment analysis is taken from a well-known travel research platform, Trip Advisor, which is mostly utilized as a social media platform for reviews and opinions on travel destinations, restaurants, vacation places, and vacation activities.

Customers' reviews have been utilized as primary data. Through these reviews, there is a possibility of foreseeing a collective voice of customers toward memorable experiences or services. Therefore, it is essential to detect customers' pain points regarding rides, products, prices, and the atmosphere of Disney Park to increase customer satisfaction. Due to the indirect availability of the data on 'Trip Advisor'; Python's libraries 'Beautiful Soup,' 'Scrapy', and 'Selenium' were implemented to extract the raw data from the platform.

Disney has a total of twelve theme parks in the world across six different locations. The scope of the customer review data is limited to the Disney Theme Parks in the United States. Disney maintains two Theme Park locations in the United States: California and Florida.

In California, Disney operates two parks in the Disneyland Resort:

Park Name	Total Tripadvisor Reviews
Disneyland Park	27,965
Disney California Adventure Park	15,726

In Florida, Disney has six parks (four theme parks & two water parks) in the Walt Disney World Resort:

Park Name	Total Tripadvisor Reviews
Magic Kingdom	69,478
EPCOT	29,674
Disney's Hollywood Studios	29,145
Disney's Animal Kingdom	34,775
Disney's Typhoon Lagoon	9,182
Disney's Blizzard Beach	6,600

All the customer reviews extracted through the web scrap are in raw format (JSON), and data-cleaning is performed on all these data points to prepare the data for sentiment analysis.

The resulting Excel spreadsheet contains eight tabs of the customer reviews of each theme park, and an additional tab is available that groups all the customer reviews (approx. 53,000 customer reviews).

The data description of the TripAdvisor Customer reviews is as follows:

Field Name	Description	Data Type	Required?	Accepts Null Values?
Reviewer Profile	URL of a Tripadvisor Profile of Reviewer	Text	Yes	No
Reviewer Name	Name of a Tripadvisor Reviewer	Text	Yes	No
City	City of a Reviewer	Text	No	Yes
Country	Country of a Reviewer	Text	Yes	No
Number of Contributions	Number of total contribution of a reviewer towards Tripadvisor platform	Number	No	Yes
ReviewURL	URL of a Review on a Tripadvisor	Text	Yes	No
Review Heading	Short subject header of a review	Text	Yes	No
Short Review	Review text provided in one word/sentence	Text	Yes	No
Long Review	Review text described in long text/paragraphs	Text	No	Yes
Date	Date of the Review	Date	Yes	No
Reviewer Category	Showing how they visited the park (Family/Couple/Solo)	Text	No	Yes

Advanced sentiment classification techniques such as Lexicon-based, Linguistic rules-based, contextual embedding, and ensemble will be utilized to compare the outcomes and select the best analysis representative of the domain and scope of the problem.

Below is the explanation of each of the classification techniques:

Lexicon-based sentiment analysis counts the number of positive, neutral, and negative words in a body of text and assigns a sentiment score based on the intensity and frequency of such words.

Linguistic rules-based sentiment analysis provides a set of predefined, handcrafted rules and patterns to identify sentiment-bearing words.

Contextual embedding sentiment analysis is a neural network-based approach that extracts the complexity and nuance of words within a given document based on iterations of unsupervised machine learning training models.

Ensemble sentiment analysis can extend models between different domains, such as applying a model well-trained on social listening to analyze financial reporting data and produce more accurate and reliable overall results.

Following the sentiment analysis discussion, the methodology and search plan of the positioning analysis will be presented.

II. POSITIONING ANALYSIS OF THE OFFERINGS

Methodology

A survey was conducted based on a few key attributes that usually determine customer preferences toward a theme park. We have asked our respondents to rate the five theme parks, namely, Disney, Universal Studios, Lego Land, Six Flags, and Hershey Park, on these dimensions on a scale of 5 (1 being the lowest and 5 being the highest). We also asked them to imagine an Ideal theme park and rate it according to the same attributes.

The attributes that were considered for positioning analysis were as follows:

- 1) Brand and Popularity
- 2) Kid-friendly attractions
- 3) Thrill and Adventure experiences
- 4) Live Entertainment and special shows
- 5) A day-out/vacation
- 6) Ride wait-times
- 7) Ticket Pricing
- 8) Overall Rating

The objective of conducting positioning analysis based on the above attributes is to determine what attributes make customers choose Disney theme parks over others, what characteristics and at what magnitude of these characteristics of theme parks would customers find Ideal, and most importantly, to define new product development strategy of Disney theme parks based on this analysis.

Research Plan

After describing the positioning analysis, a similar representation of the price optimization analysis will be conducted.

III. PRICE OPTIMIZATION ANALYSIS

The price optimization analysis permits us to estimate the most optimal price a customer is willing to pay for a product or a service. Its main goals are to attract customers, maximize sales, and increase profits by determining the best price.

This analysis represents a mathematical approach that results in calculating the alternance of demand

at multiple price levels. The resulting data will then be combined with costs to recommend the optimal prices to improve profits. It will be based on respondents' responses to a survey related to their buying intentions for a service or a product. These data will then be converted into purchasing probabilities that will be used in the analysis.

Methodology

For this analysis, the data determined will be extracted from a survey built following three distinct scenarios: the: "Holiday Scenario", "Typical Scenario" and "Modest Scenario".

In Enginius, the first table of data describes a purchase likelihood scale, and 5 options were chosen for this purchase- of the 1-day ticket admission- labeled as follows: "Very Unlikely," "Moderately Unlikely", "Neither likely nor unlikely", "Moderately Likely", and "Very Likely". The second data table represents the number of tested prices; it was decided to determine 4 different sets of costs.

Finally, the last table shows the number of respondents. From the survey, we were able to acquire 81 respondents, but only 77 of them were maintained.

In our survey, we will have three main categories displaying the above scenarios, and each of these scenarios will have 4 questions covering the prices. Therefore, three price optimization models will be implemented to answer one of our problem statements.

The Scenarios :

To begin with, we have the '**Holiday Scenario**'. Any holiday season or day can be considered part of the 'Holiday Scenario'. This situation is the busiest, and corporations will try to get the most out of it; there will be an increase in crowds, foreigners, hotel bookings...etc. Indeed, corporations have to differentiate themselves from past years and competitors to attract new customers and amaze returning ones. From the customer's perspective, it will be a great time to travel with the family, meet new people, and, most importantly, undergo new experiences. Moreover, some may say that it is a once-in-a-lifetime experience. As a customer, I would love for me and my family to be part of this adventure, but at what cost?

Then, we have the '**Typical Scenario**'. This scenario can cover any standard day outside of the 'Holiday Scenario', such as a regular weekend or an unexpected trip. For instance, people who reside near Disney World may host family or friends throughout the year; therefore, Disney World is a top must-go as an entertainment option. Crowds are loose from non-residents and foreigners; attractions are ample, and the area is roomy. Furthermore, corporations are still innovating with events but not as extensively as the 'Holiday Scenario'. However, myriad entertainment alternatives are yet to be explored, setting aside Disney World. As a customer, I would love to entertain my entourage, but again, at what cost?

Finally, we have the '**Modest Scenario**'. Most of the time, it will cover the moments directly after the 'Holiday Scenario', where individuals fall back into their life routine. This situation reflects the aftermath of the 'Holiday Scenario'; children are returning to school, and parents and adults are returning to work. Here, we could consider that the crowds are modest; customers may be from countries with disparate holiday calendars from Western countries or individuals who decided to ease off after the actual holidays. But also as the above, unexpected trips. Corporations are already preparing for the upcoming holiday season and are not highly impactful with current events; it would be a typical day at Disney World. As a customer, I would love to go to Disney World, but at what cost?

Research Plan

The 4 price levels will be determined based on low, medium, and high side ranges of prices that we believe Disney could consider.

According to the touristplan.com website, in the past 4 years (2017-2021), Disney's admission tickets have increased by an average of \$3 to 5 each year from 2017 to 2021. Moreover, the company followed a specific pricing policy with three distinct types of set days: value, regular, and peak prices. Nonetheless, the approach has differed since 2022. A range from low to high is still there, though prices fluctuate daily based on demand. Considering a one-day ticket admission, one day, the pre-tax price can be as low as \$109, and the next day, it could boom to \$194 (for adults), depending on the park and the number of days (Brophy, 2023). Furthermore, the one-ticket admission prices are raised by between 4% to 9% (Brophy, 2023). For our level prices to fluctuate from the base price by -5% for the low end, 0% for the medium, and 5% for the high price range.

Accordingly, the first scenario will have a base of \$194 (medium), a low of \$184.3, and a high of \$203.70. The second scenario will have a base of \$159 (medium), a low of \$151.05, and a high of \$166.95. Finally, the third scenario will have a base of \$109 (medium), a low of \$103.55, and a high of \$114.45. Those prices primarily represent a one-day admission ticket for adults; children's prices will be \$6 lower than adults.

We were not aware of the price amount obligations of Enginius. The program will be feasible only with a lower price limit of 4 and up. In our survey, we only had three prices. Thus, we decided to add a new price with a lower rating than the post-upper price because randomizing it could highly affect our analysis. This price will be randomly chosen at the high end of the prices in each scenario. Therefore, the added prices are for the holiday scenario \$206, for the typical scenario \$170, and for the modest scenario \$117.

Furthermore, in Enginius, the optional parameters information will be used. We will be working with financial information dating from 2022. According to the fiscal year 2022 annual financial report, the

fixed and variable costs will be determined in millions of dollars. The fixed costs are represented by the selling, general, and administrative costs. This information will be found on page 43, with fixed costs equating to \$3,403 million for all entertainment parks (6 Disney Resorts and 12 parks). We decided to assume that each park delivers the same amount of fixed costs as the other ones. Giving us a modified fixed cost of \$ 283.58 million. However, fixed costs include direct and indirect costs; we are primarily looking for indirect costs that cover machinery, attractions, salary costs...etc. Thus, we also decided to assume that the indirect fixed costs account for 25% of the total fixed costs, resulting to \$18.25 million. Moreover, no specific unit costs were found to calculate the company's market size. Additionally, the company's marginal cost regarding people and tickets will be assumed to be 0 because we believe that no actual costs are used to produce the tickets (mostly electronic). Finally, for the market size per unit of the company, the average daily attendance at Disney World is around 160,000 people visiting each day in 2019 (*Walt et al. Attendance by Day Is Going Up! - Disney Park Nerds*, 2022). We decided to assume an additional 40,000 after the pandemic and the need for people to explore new environments. Therefore, the yearly amount will be used; 73 million people, on average, visit Disney World yearly.

Finalizing this section, a further discussion of our last technique the GE McKinsey matrix will be formulated as follows.

IV. GE MCKINSEY PRODUCT DEVELOPMENT ANALYSIS

McKinsey matrix analysis helps prioritize strategic investments for decision-making organizations based on two dimensions: industry attractiveness, such as market size, growth rate, and competitive intensity, and business strength, such as market share, share growth, and product quality. It permits analysts to determine the position of the business and if it has room for potential and growth.

The McKinsey analysis provides guidance for a corporation affiliated to over three scenarios: invest, selectivity and harvest/divest. It is a 3 by 3-matrix consisting of the four scenarios mentioned previously. The invest blocks refer to a strong attractive industry and business performance. Then, the selectivity blocks present a scenario of an unattractive industry, or the business is not performing optimally. The third mentions the harvest blocks that encourage a divestment strategy due to an unattractive industry and an underperforming business. The higher the industry's attractiveness, the more it would be advisable for the company to invest, and the lower it is, the more protection would be preferred. On the competitive strength side, the higher it is, the more protected the company should be, and the higher it is, the more preferable it would be to divest the unit.

Methodology

The entertainment industry at theme parks is always changing, which makes strategic decision-making necessary to maintain market competitiveness and sustained growth. Disney Theme Parks, which is

well-known for transforming magical moments from movies into immersive experiences, must constantly innovate its product line and spot profitable market niches. In order to promote long-term profitability and market domination, the GE McKinsey Matrix must be applied in order to prioritize resource allocation, guide strategic investments, and improve decision-making processes.

Disney's diverse theme park attractions, experiences, and possible new initiatives will be analyzed and categorized using the GE McKinsey Matrix analysis based on two crucial dimensions: industry attractiveness and business strength.

Research Plan

Tables and Attributes:

The data will be based on the following attributes:

- ***Animation Attractions:*** These are amusements with animated characters and stories at their core, most likely drawn from Disney's vast collection of animated movies. They can have rides, entertainment, and interactive activities and are usually family friendly.
- ***Action Attractions:*** These attractions will probably be more exciting and might be based on Disney action-packed films or properties. These could include live stunt performances, roller coasters, and simulated rides.
- ***Family Rides:*** All guests, even little ones, should be able to enjoy and easily access these rides. They may feature interactive play areas, gentle rides, and carousels, but they will probably be less dramatic than thrill rides.
- ***Thrill Rides:*** These are intense attractions meant to give you a burst of excitement. These could be drop towers, quick roller coasters, or other thrilling rides.
- ***Live Shows:*** These attractions feature live actor performances, which could be interactive shows, dramas, or musicals. They may draw inspiration from well-known Disney movies, characters, or unique themes.
- ***Interactive Experience:*** Visitors participate in interactive activities at these attractions. These might be interactive displays, augmented reality experiences, or other attractions promoting visitor involvement.

Below is the layout or format we will be using for the GE McKinsey Matrix Analysis:

A	B	C	D	E	F	G	H	I	J	K	L
1	Horizontal Rating Data (Disney Theme Park Profile)								Horizontal Weights		
2		Animation Attractions	Action Attractions	Family Rides	Thrill Rides	Live Shows	Interactive Experience		Marketing Weights	Finance Weights	
3	Ratings										
4	Brand Fit										
5	Wait Time										
6	Duration of Ride										
7	Injuries										
8											
9											
10											
11	Vertical Rating Data (Industry Profile)								Vertical Weights		
12		Animation Attractions	Action Attractions	Family Rides	Thrill Rides	Live Shows	Interactive Experience		Marketing Weights	Finance Weights	
13	Market Growth										
14	Competitiveness										
15	Customer Demand										
16	Popularity										
17	Historical Accidents										
18	Market Size										
19											
20	Bubble Sizes										
21		Animation Attractions	Action Attractions	Family Rides	Thrill Rides	Live Shows	Interactive Experience				
22	Market Size										
23											
24	Market Shares										
25		Animation Attractions	Action Attractions	Family Rides	Thrill Rides	Live Shows	Interactive Experience				
26	Market Shares										
27											

Now, given the table, refining the explanation for the attributes mentioned in the matrix.

Horizontal Rating Data (Disney Theme Park Profile):

1. **Rating:** The overall ratings for the Disney Theme Park from our review's dataset.
2. **Brand Fit:** The degree to which the Disney Park goals, and industry brand are aligned.
3. **Wait Time:** The time a guest takes to get into the ride.
4. **Duration of the ride:** The time taken to complete the ride.
5. **Injuries:** The number of times an injury has occurred in Disney theme parks

Vertical Rating Data (Industry Profile):

1. **Market Growth:** The potential growth rate of the theme park industry in the given attraction or ride profile.
2. **Competitiveness:** The level of competition within the industry, as the highly competitive industry might be less attractive.
3. **Customer Demand:** Indicates how much the customer demands for the product.
4. **Popularity:** Refers to the ride type popularity
5. **Historical Accidents:** The number of accidents that occurred in a particular category.
6. **Market size:** Indicates the volume of the category of the industry.

Weights: The importance given to marketing and financial factors, from Disney's and the industry's perspectives.

Bubble Size and Market Shares: The total weight of the market and Disney's share in it.

The GE McKinsey matrix analysis will offer Disney a clear strategic direction for its theme parks, ensuring resources are allocated to areas with the greatest potential for growth and profitability.

This strategic strategy will allow Disney to continue attracting audiences, producing amazing experiences, and maintaining its market leadership in the theme park sector.

Considering these methodologies and research plans, the following segments will analyze the data and interpret the outcomes of our techniques of sentiment, positioning, price optimization, and GE McKinsey matrix analysis.

DATA ANALYSIS AND FINDINGS

In this segment, the implementation of the above four sections will be applied using the Enginius software, resulting in data analysis and findings that will be communicated and analyzed below.

SENTIMENT ANALYSIS

Figure 1: Disneyland Park valence repartition.

Valence repartition

	Posts count	Relative posts count
Total	1 000	100%
negative	262	26%
neutral	5	1%
positive	733	73%

Valence repartition. The number of posts that fall into different valence categories summarized by their absolute and relative values.

Based on the Valence Analysis, it is evident that:

- Most customer reviews are positive, with a 73% relative posts count. There is a possibility of expectations since Disney makes tremendous efforts to make sure that the guests' experiences at the Disney Parks are top-notch considering the cost of visiting these theme parks.
- Neutral reviews are surprisingly equal to 1%; it could either be due to the data pool that we used in the analysis, or some individuals are actually neutral towards their posts.
- Negative reviews are around 26%. Customers are most vocal when it comes to bad experiences. The above table does not necessarily represent it, yet as mentioned above, this situation might relate to the selected pool of reviews. Sometimes, good experiences are not posted, but negative experiences mostly are. So, we are not taking this 26% as an absolute value since the relative percentages of negative reviews compared to positive reviews could be less.

Figure 2: Disneyland Park emotion repartition.

Emotion repartition

	Posts count	Relative posts count
Total	1 000.00	100%
anger	39.04	4%
anticipation	437.46	44%
disgust	13.94	1%
fear	46.61	5%
joy	183.08	18%
sadness	54.58	5%
surprise	26.47	3%
trust	198.83	20%

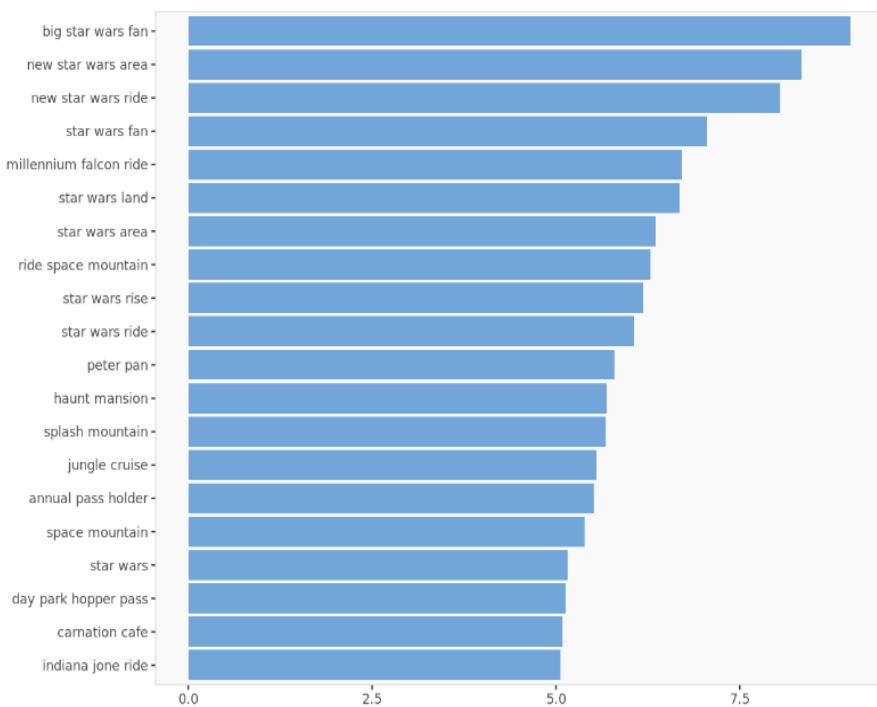
Emotion repartition. The number of posts that fall into different emotion categories summarized by their absolute and relative values. If a post has multiple emotions, then it is equally divided among those emotions.

The above table shows us that:

- 44% of the posts relate to the feeling of ‘anticipation.’ We notice that ‘anticipation’ is highly regarded. Individuals expect something good or bad, such as excitement or nervousness. Indeed, this situation might relate to an expectation of opening a new attraction. Another possibility could be that customers had high expectations when coming to the park but might either have been disappointed or, actually, the environment has met their expectations.
- Moreover, we observe that 20% represent ‘trust,’ 18% are ‘joy’, and combined, 14% represent ‘fear,’ ‘sadness,’ and ‘anger.’ The ‘trust’ feeling may relate to people who felt safe and confident about the overall experience at the park; this could result in a returning customer situation. Additionally, the emotion of ‘joy’ seems to be frequent; this feeling represents happiness or great pleasure from a specific situation or action. Accordingly, we may say that Disney created this sense of well-being through their attractions and the overall Theme Park atmosphere. Finally, the ‘fear’, ‘sadness’, and ‘anger’ all together may connect to a dangerous situation for the guests. Or a situation such as a unexpected closed attraction that led to sadness. Furthermore, the emotion of anger that may have been triggered by either an employee who deliberately did something wrong to the customer or guests between themselves has triggered this feeling.

Figure 3: Disneyland RAKE analysis

RAKE Analysis (Rapid Automatic Keyword Extraction) -- Keywords with highest RAKE values



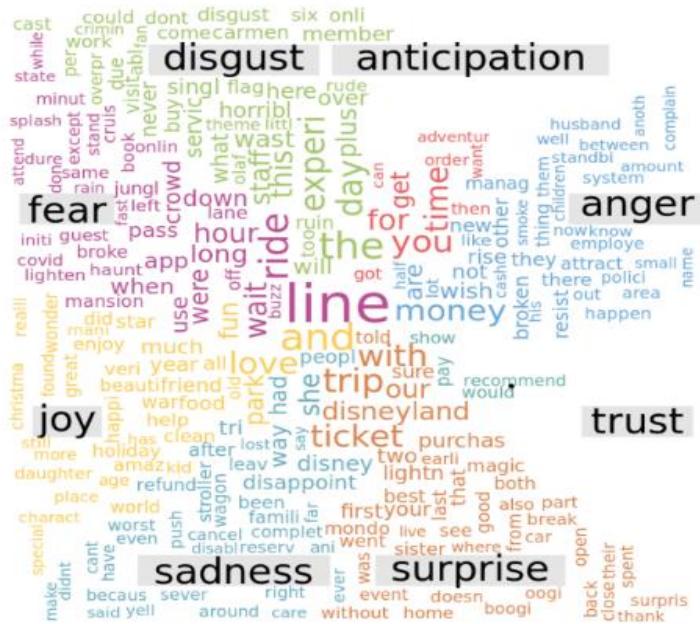
Keywords with highest RAKE values. The top keywords (i.e., contiguous sequence of words ignoring irrelevant words) were identified with minimum frequency of occurrences set to 0.01% of total word count.

RAKE Analysis shows the most repeated word combinations in the customer reviews.

Based on the RAKE Analysis, we can assume that:

- There is a huge fan following for “Star Wars” Disney movies and customers are visiting the parks due to that reason alone. That is a good sign for Disney as the new Star Wars area built in the park is getting traction.
- From the RAKE analysis, we may consider that the most popular rides among the customers are the ‘Star Wars’ attractions. Yet, we are not able to differentiate if being the top repeated word is a positive factor towards the ‘Star Wars’ attraction or a negative one. The RAKE analysis doesn’t provide the sentiment context, but it helps in narrowing down the specific rides that Disney should focus more on based on detailed review analysis.
- We know that the Star Wars franchise has been bought by Disney. Thus, upon acquiring the movies and building specific experiences and attraction towards the franchise; Star Wars fans might have all gathered at the opening of these new attractions. The selection of the reviews used in the analysis seems to be centered around these movies. Maybe these last 5 years relate to the opening of these specific attractions.

Figure 4: Disneyland Park Emotion cloud



Based on the Word Cloud, it is observed that:

- People have a potential fear of the wait lines that they must go through. Indeed, words such as 'wait' and 'line' are repetitive and seem to affect people. This emotion was previously detected in our above 'emotion partition' table. We can safely say that the emotion of fear is linked to the wait times.
 - Other words, such as 'Money' seem to relate a lot to the emotion of anger. Thus, we may safely suppose that guests have issues concerning the prices. These could relate to in-park prices such as restaurants, products, or events. But also, there might be a correlation between the prices of the tickets and hotels. Indeed, Disney's prices might have inflated over the prices of entry tickets, confectionaries, and in-park food stalls. This might be due to the economic situation either during Covid-19 or currently.

For Magic Kingdom Park:

Figure 5: Magic Kingdom Park valence repartition.

Valence repartition

	Posts count	Relative posts count
Total	1 000	100%
negative	259	26%
neutral	3	0%
positive	738	74%

Valence repartition. The number of posts that fall into different valence categories summarized by their absolute and relative values.

Based on the Valence Analysis, it is evident that:

- 74% of the reviews are positive and 26% of the reviews are negative.
- 0% are neutral, this could either signify that individuals are actually neutral, or that the pool of reviews chosen does not reflect these relative posts counts.
- Magic Kingdom is the most visited park in the world; 26% of negative reviews show that some customers' expectations are not being met or have been altered by a negative experience.
- Most of these negative reviews are from after the year 2020, so it's evident that a lot of customers visited Magic Kingdom during the post Covid-19 time when the fear of the virus was still high and Magic Kingdom was the most visited park, there was a lot of influx of customers, and Disney was also experimenting on relaxing the isolation policies. This could be a driving factor of the negative reviews.

Figure 6: Magic Kingdom Park Emotion Repartition

Emotion repartition

	Posts count	Relative posts count
Total	1 000.00	100%
anger	38.77	4%
anticipation	429.90	43%
disgust	23.51	2%
fear	49.21	5%
joy	192.95	19%
sadness	51.67	5%
surprise	40.12	4%
trust	173.87	17%

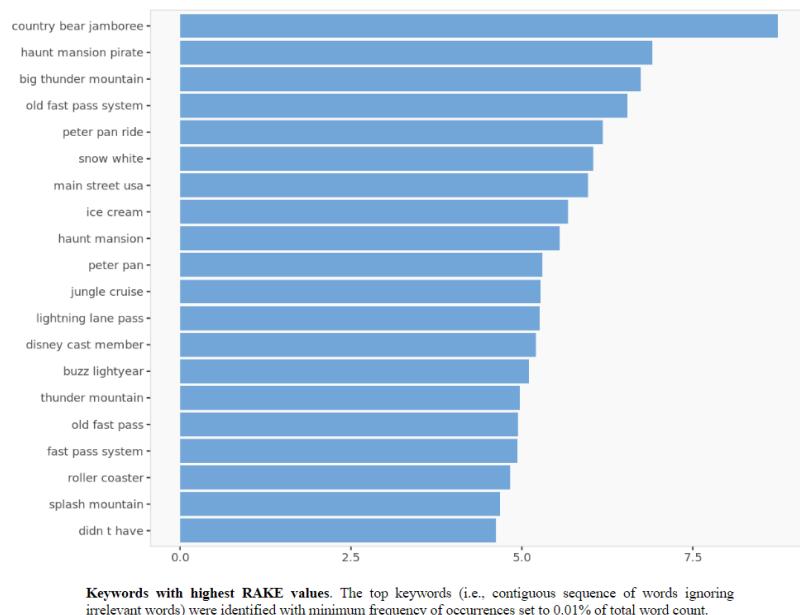
Emotion repartition. The number of posts that fall into different emotion categories summarized by their absolute and relative values. If a post has multiple emotions, then it is equally divided among those emotions.

We notice form the above emotion repartition table that:

- The outcome is highly similar to the Disneyland Park emotion repartition table. This may signify that the individuals that are going to Disneyland Park are emotionally similar to the ones going to the Magic Kingdom. Thus, both parks are doing the expected job of pushing people's expectations to either something that meets their expectations or no.
- Anticipation (42%), Joy (19%) and trust (17%) are the most notable emotions. As explained above, in the Disneyland Park section, these three emotions might relate to any experience the customer went through during their stay at the park; either meeting their expectations of the whole Disney atmosphere or making them experience a sense of wellbeing and safety.
- Anger (4%), Fear (5%), and sadness (5%) are the most notable negative emotions with a combined percentage of 14%. The driving factors for these emotions are the same as those of Disney Land Park. Customers are tired of waiting in lines and find the cost of visiting the park high.

Figure 7: Magic Kingdom RAKE analysis

RAKE Analysis (Rapid Automatic Keyword Extraction) -- Keywords with highest RAKE values

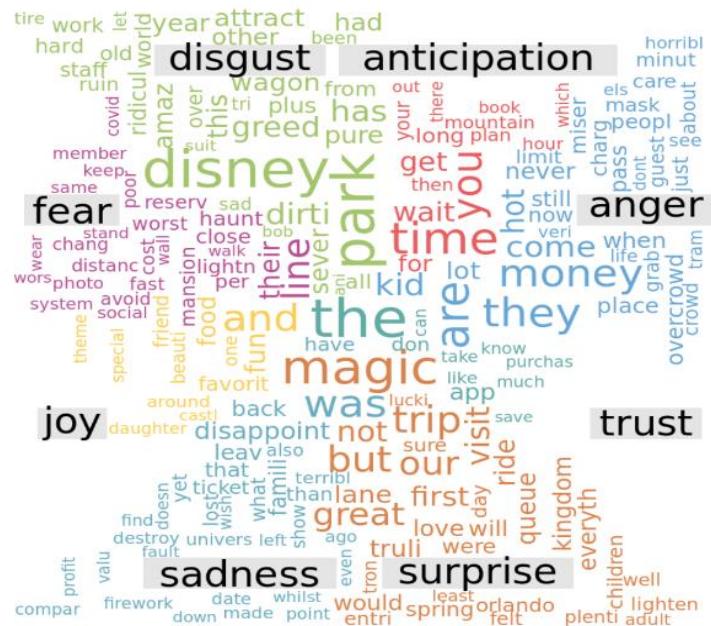


Based on the RAKE Analysis, it is evident that:

- ‘Country Bear Jamboree’ is the most mentioned ride. This is surprising since the character of this ride is pretty old, and this shows that mature adults and old-age customers are still reminiscent of these characters. Additionally, parents may want their kids to experience the same sensations of warmth they have had at their age with this ride.
- The Old Fast Pass System is mentioned. Either individuals are positively or negatively talking about the product.

- Additionally, the words involved in ‘haunted mansion pirate’ and the ‘big thunder mountain’ are highly repeated. As the above, it is either due to their magical ride performance or completely the opposite.

Figure 8: Magic Kingdom Park Emotion cloud



Based on the Word Cloud, it is observed that:

- Customers are angry due to the high cost and overcrowding.
 - Sadness may be due to the disappointment that Magic Kingdom experiences when customers cannot live up to the expectations. Or they are sad to ‘leave’ or go ‘back’ from the park.
 - We can notice from the emotion cloud that words like 'dirty' are prominent and relate to the emotion of disgust. This might be because the park is not very clean, and management may focus more on cleanliness.
 - From anticipation’s view, the most prominent word is ‘time’. This might relate to the wait times. People may not have been aware that the wait time to ride might be extremely tedious, affecting their emotions and experiences. They could have been in other attraction parks that are not as crowded as Disney and had another experience with ride times. Thus, these guests could have expected a similar wait time but were surprised from Disney’s waits.
 - The fear emotion seems to relate a lot to rides such as the haunting mansion. The Haunting Mansions is a scary ride, and individuals seem to express their fear over reviews.

On a positive note, for both parks, we notice in connection to the emotion of surprise that individual's views are above their expectations. We can relate to that with words such as 'magic,' 'great', or 'trip.'

This may depict that customers' expectations were met and Disney was able to live up to these guests' anticipation of the parks.

With the same template, the positioning analysis' data analysis and funding will be covered in the following.

POSITIONING ANALYSIS

The survey was conducted and collected 80 responses from a random sample of the population that included visitors to one or more of 5 theme parks mentioned. And the data collected was divided into perceptual data and preference data for the purpose of analysis.

As a part of the positioning Analysis, the average rating of each attribute for each theme park has been taken and inputted for the preference data section of the Enginius's positioning analysis. Below is a snapshot of the preference data of the study.

Figure 9: Preference data for positioning analysis from the survey

		Companies					
		Disney Theme Parks	Six Flags	HersheyPark	Universal Studios	Lego Land	Ideal
Attributes	Brand and Popularity	4.69	4.73	2.41	4.68	4.47	4.2
	Kid Friendly Attractions	4.84	3.29	3	4.47	4.6	4.04
	Thrill and Adventure Experiences	5	4.71	3.18	4.81	3.55	4.25
	Live Entertainment and Special Events	5	3.13	2.23	5	3	3.67
	A day-out/vacation	4.82	3.86	2.71	4.71	3.93	4.01
	Ride Wait Times	2.22	3	2.87	3.46	3.18	2.95
	Ticket Pricing	2.27	3.29	2.71	3.25	2.09	2.72

The overall rating given by the survey respondents for each theme park was considered for the preference data section of the analysis.

Figure 10: Data description and Options selected

Option	Selection
Include preferences	Yes
Number of dimensions	3
Focal brand	Disney Theme Parks
Show segments of preferences	No
Number of segments	Automatic
Decision rule	First-Choice
Current market shares	No
Date and time	2023-11-27 21:08:27 UTC

Data	Number of Rows	Number of columns	Column names
1 Perceptual data	7	7	C0, Disney Theme Parks, Six Flags, HersheyPark, Universal Studios, ...
2 Preference data	80	7	C0, Disney Theme Parks, Six Flags, HersheyPark, Universal Studios, ...

Data description.

Dimensions

We have chosen to use three dimensions to explain the variance in data and a total of 95.4% of variance was explained by these dimensions.

Dimension I majorly captured the attributes of length of the visit (A Day-out/vacation), Live entertainment and special events, brand and popularity and type of the rides (kid-friendly or thrill and adventure).

Dimension II covers Ticket pricing and Dimension III covers the Ride Wait times.

The below table explains the classification of attributes into the three mentioned dimensions.

Figure 11: attribute coordinates

	Dimension I	Dimension II	Dimension III
Brand and Popularity	0.900	-0.262	0.348
Kid Friendly Attractions	0.615	0.496	0.613
Thrill and Adventure Experiences	0.691	-0.366	-0.623
Live Entertainment and Special Events	0.980	-0.065	-0.186
A day-out/vacation	0.991	-0.009	0.133
Ride Wait Times	-0.081	-0.561	0.824
Ticket Pricing	-0.001	-0.945	-0.328

Attributes coordinates. Displays the coordinates of all the attributes in every dimension.

In addition, to above the below table gives us the details of the average and standard deviation values for each of the attributes.

Figure 12: Average and std deviation values for each attribute

	Mean	Stdev
Brand and Popularity	4.197	0.8976
Kid Friendly Attractions	4.040	0.7460
Thrill and Adventure Experiences	4.250	0.7379
Live Entertainment and Special Events	3.672	1.1271
A day-out/vacation	4.007	0.7570
Ride Wait Times	2.947	0.4135
Ticket Pricing	2.722	0.4910

For an easier understanding of further analysis, let us call dimension I as the Brand and experience Dimension II as Wait-times and Dimension III as ticket pricing.

PERCEPTUAL MAPPING

The below table nicely illustrates the average rating of each attribute for each theme park as marked by the customers.

Figure 13: Perceptual data overview

	Disney Theme Parks	Six Flags	Hershey Park	Universal Studios	Lego Land	Ideal
Brand and Popularity	4.7	4.7	2.4	4.7	4.5	4.2
Kid Friendly Attractions	4.8	3.3	3.0	4.5	4.6	4.0
Thrill and Adventure Experiences	5.0	4.7	3.2	4.8	3.6	4.3
Live Entertainment and Special Events	5.0	3.1	2.2	5.0	3.0	3.7
A day-out/vacation	4.8	3.9	2.7	4.7	3.9	4.0
Ride Wait Times	2.2	3.0	2.9	3.5	3.2	3.0
Ticket Pricing	2.3	3.3	2.7	3.3	2.1	2.7

- It can be seen that our focal brand Disney is rated highest and that too very close to 5 on the attributes of Brand, kid-friendly attractions, thrill and adventure, live entertainment, and length of the vacation.
- However, ride wait times and ticket prices are something that people are not very happy about with regard to Disney.
- Though, being a super close competitor to Disney, Universal studios has an average rating of 3.5 and 3.3 on these attributes.

- In terms of the length of the vacation, the resort packages that are being offered by both Disney and Universal differentiate them with other smaller theme parks visiting whom is usually a 1-day activity.
- Hersheypark appears to be the least competitive in this Industry, having an average rating of less than 3.5 in all the attributes.
- Six Flags looks like it's doing decent in comparison to its scale of operations.
- Similarly, Lego Land could be the greatest competitor to Disney in terms of its kid-friendly nature. It has the lowest rating in terms of pricing.

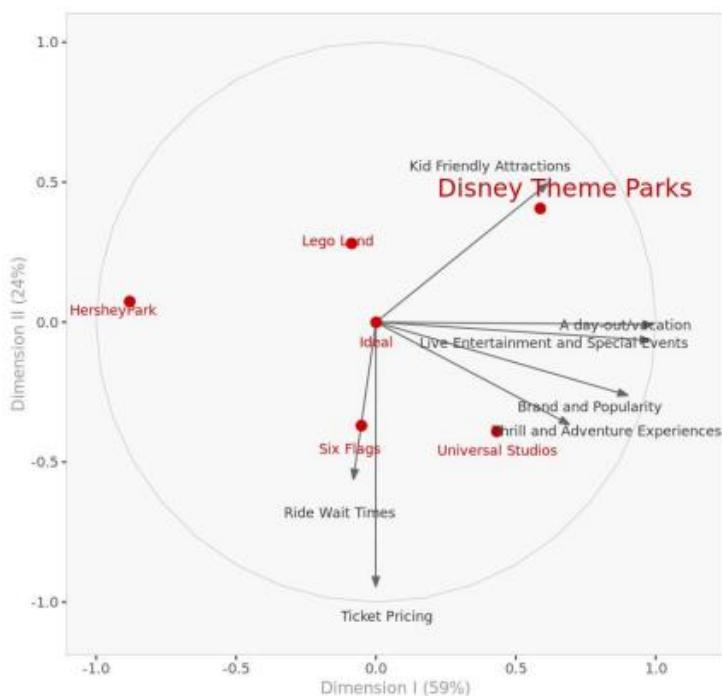
Perceptual Maps

The placement of the theme parks on the below chart shows us how they do on each of these dimensions and this analysis will help us in analyzing those characteristics that each theme park is good at.

In continuation to the explanation on dimensions and the placement of different theme parks based on their values on these attributes, the below charts give us a better understanding.

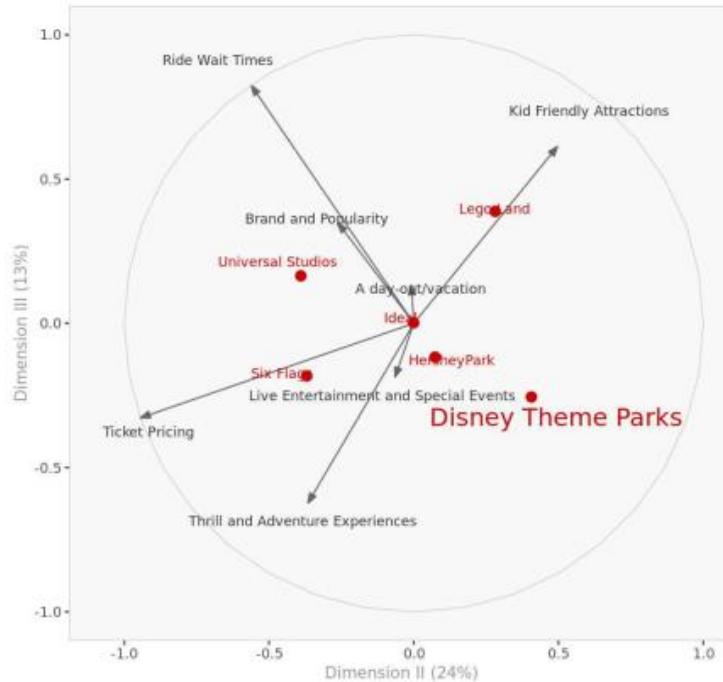
Dimension I and II-Considering, Dimension I and II-Disney appears above all the players and is closest to the attributes of kid-friendly attractions and farthest from ride-wait times and ticket pricing. Universal appears to be closer to all the attributes of dimension I. Additionally, most of the variance is explained by attributes like kid-friendly attractions, length of the vacation, thrill rides and brand.

Figure 14: Perceptual map dimensions I and II



Dimension II and III-When dimensions II and III are considered Hershey Park, Universal Studios and also Disney appears closer to the Ideal theme park. Ride wait-times and Ticket pricing are the most differentiating factors.

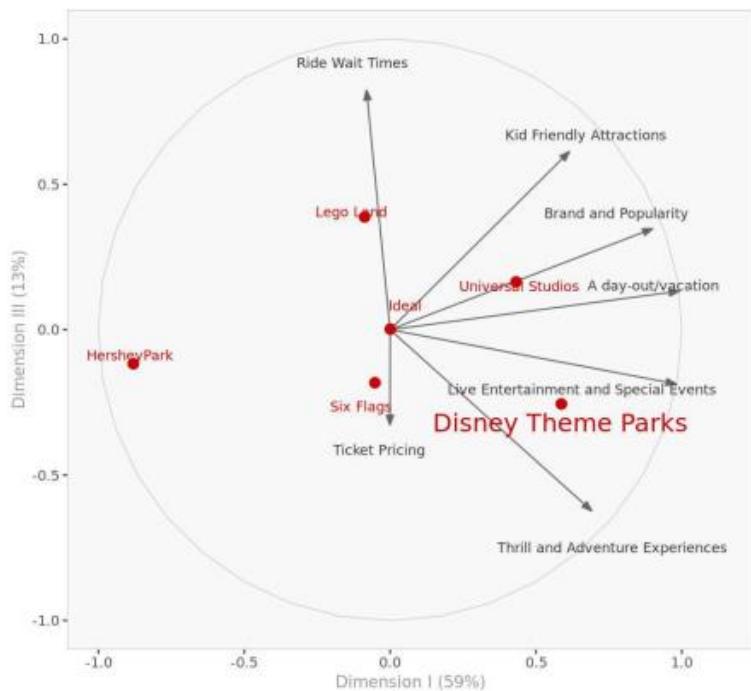
Figure 15: Perceptual map dimensions II and III



Attributes II-III. Objects and attributes on the second and third dimensions of the perceptual map.

Dimensions II and III- Considering dimensions II and III, Disney appears to be closest to live entertainment and special events. Ideal is closer to the attributes of length of vacation and live entertainment and special events and is farthest from ticket pricing and ride wait times.

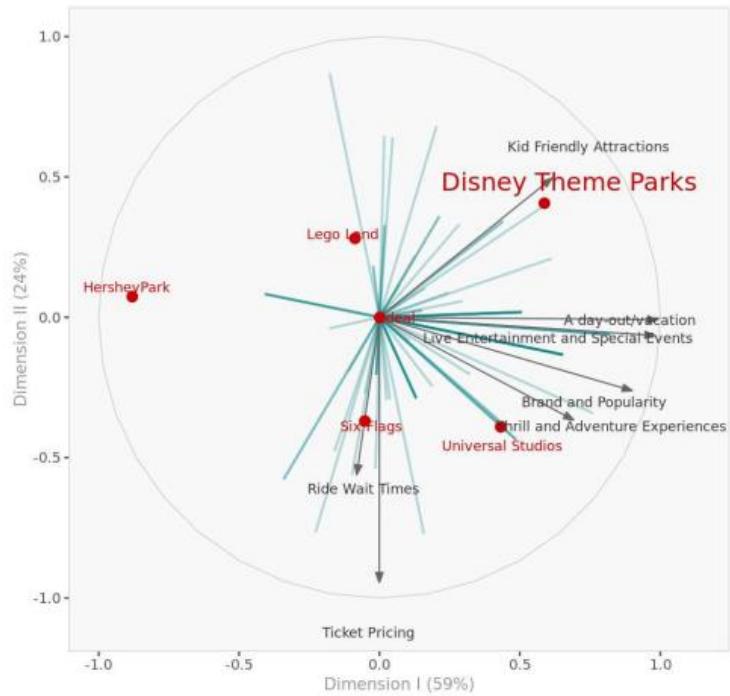
Figure 16: Perceptual map dimensions I and III



Preference Maps

Dimensions I and II- Considering the first 2 dimensions, kid-friendly attractions, brand, ticket pricing, thrill experiences and live entertainment are found to be the most differentiating factors. An ideal theme park should focus on attributes of thrill experiences, brand, live entertainment, ride wait times and pricing factors.

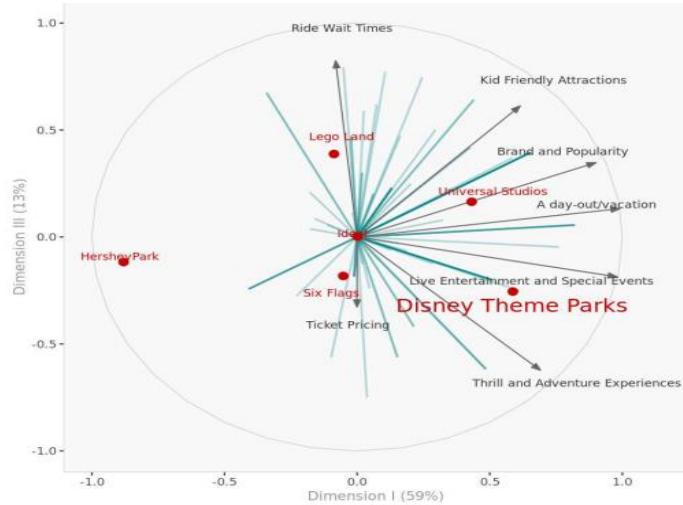
Figure 17: Preference map dimensions I and II



Perceptual Map I-II. Complete perceptual map with objects, attributes and preferences on the first and second dimensions.

Dimensions I and II-Ticket pricing is the least differentiating factor and Ideal appears to be very close to Six flag considering these dimensions. Ideal appears to be equidistant to both Disney and Universal.

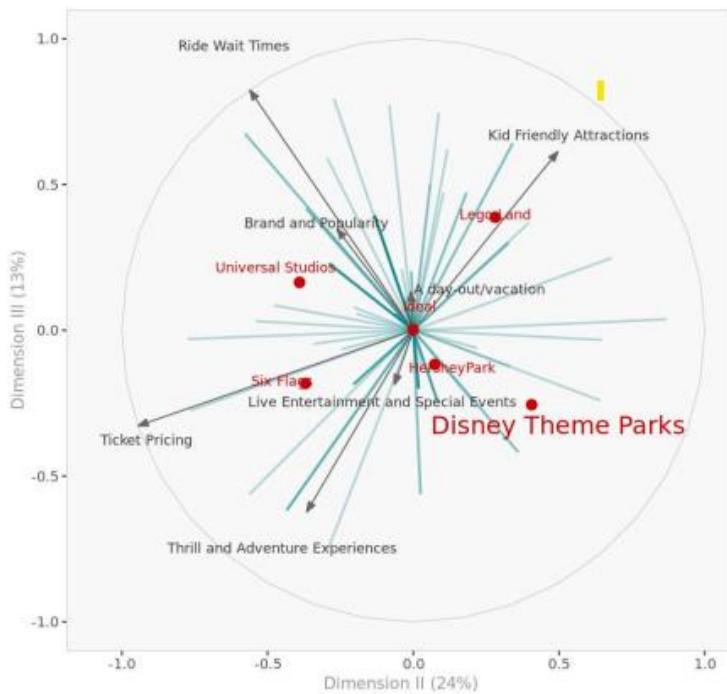
Figure 18: Preference map dimensions I and III



Perceptual Map I-III. Complete perceptual map with objects, attributes and preferences on the first and third dimensions.

Dimensions I and III-Customers preference can be majorly attributed to ticket pricing and ride wait times. Length of vacation and live entertainment appears to be causing least preference.

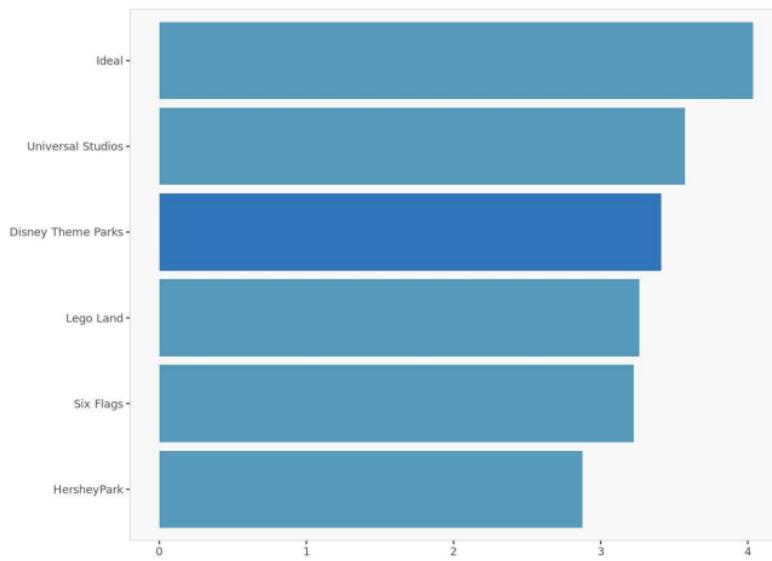
Figure 19: Preference map dimensions II and III



Perceptual Map II-III. Complete perceptual map with objects, attributes and preferences on the second and third dimensions.

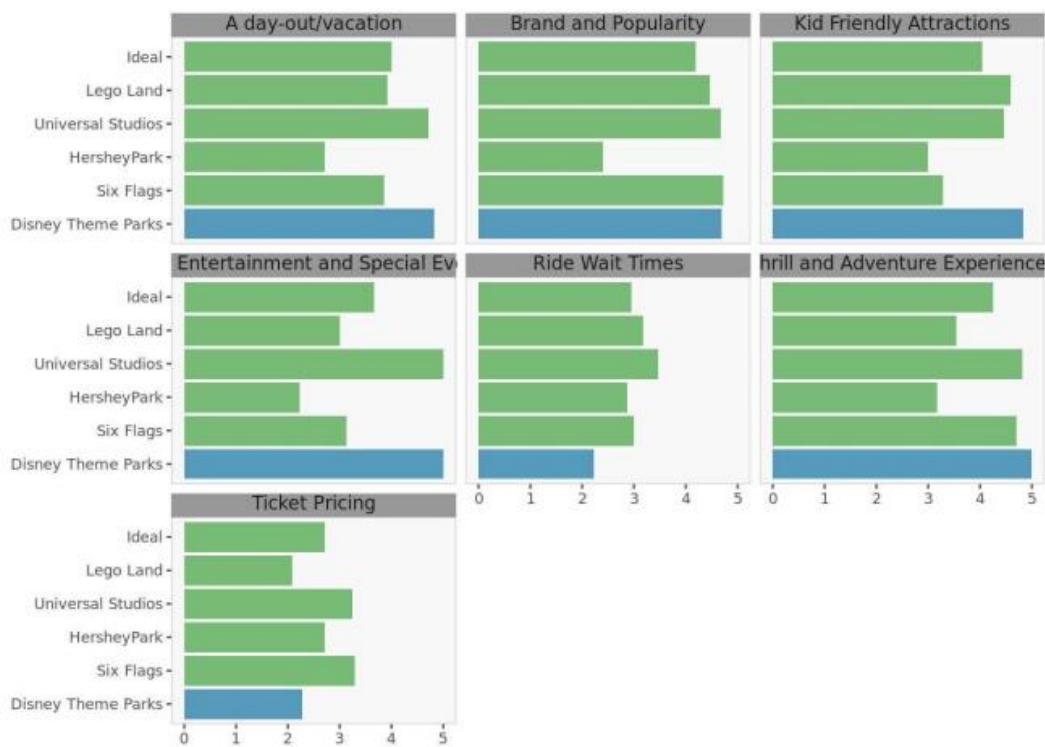
In comparison altogether, Universal studios appears to be the closest to the Ideal theme park. However, Disney is very close. Identifying differentiating factors of Universal studios will help us to better answer the questions on pricing and product strategy of Disney.

Figure 20: Average preferences Histogram



Average preferences histogram. For each brand, displays its average preference value.

Figure 21: Attribute comparative perceptual histograms



PRICE OPTIMIZATION ANALYSIS

Below are the results of all three scenarios from Enginius. Each will be analyzed, and recommendations and conclusions will be applied.

Holiday Scenario (Scenario 1):

As mentioned above, this scenario is the busiest and most expensive one. According to Enginius, the most favorable model is the logarithmic model.

Figure 22: Model fit of Scenario I.

Measures of model fit	
Root Mean Squared Error	0.0202
R-squared	1.3667
McFadden R-squared	0.0887
Bayesian Information Criterion	167.2882

The above table displays the model's fit; we notice that the R-squared of the model is above 100%. It means that the model is close to perfection in accordance with our data. Thus, those results show us that there are some redundancies in our data, or the parameters included (fixed cost, marginal cost, and market size). However, we could observe the root mean squared error (RMSE); the lower this measure, the more the data fits the model, resulting in more precise precisions. Here, the RMSE is equal to 0.0202. Accordingly, the model is possibly accurate.

Figure 23: Model's predictions likelihood of Scenario I.

	Price level 1	Price level 2	Price level 3	Price level 4
Price levels	184.30	194.00	203.70	206.00
Purchase likelihood (from survey)	16.8%	9.9%	3.8%	1.0%
Predicted likelihood (from model)	19.6%	7.4%	2.5%	1.9%

We can observe from Figure 2 that people's likelihood of purchasing the lowest ticket price from the survey is the highest with 16.8% compared to a 9.9% (\$194) and 3.8% (\$203.70) likelihood for the higher prices. Digressing a bit and concerning the highest price of \$206, this result was intended not to affect the overall outcome too much. Coming back to the discussion, it seems that the likelihoods predicted from the model are close to the survey but differ from it. The model's likelihood is much higher at 19.6% for the lowest price, but for the other two prices, it depicts lower likelihood. This situation might be due to the percent likelihood added from the analysis in Enginius.

Figure 24: Price optimization results and likelihood of Scenario I.

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	194.00	7.4%	5 415 911	1 050 686 812.74	18 250 000.00	1 032 436 812.74
Level 2	203.70	2.5%	1 833 788	373 542 537.79	18 250 000.00	355 292 537.79
Level 3	206.00	1.9%	1 404 901	289 409 572.16	18 250 000.00	271 159 572.16
Max revenue	184.30	19.6%	14 280 250	2 631 850 133.74	18 250 000.00	2 613 600 133.74

We notice from the table above that, as the likelihood predictions showed us, the price of a one-ticket pass of \$184.30 is the most profitable in revenue and gross profit. This price provides a very large difference in the profits and revenues, approximately twice the profit of the \$194 price and way larger than the other two prices.

Typical Scenario (Scenario 2):

This scenario represents regular days when there are specific events or holidays. Based on Enginious's results, the model chosen is logarithmic.

Figure 25: Model fit of Scenario 2.

	Measures of model fit
Root Mean Squared Error	0.0154
R-squared	1.0766
McFadden R-squared	0.1033
Bayesian Information Criterion	189.1264

The R-squared of this scenario is also above perfection. There might be some issues related to the data or insufficient attributes to permit Enginious to build an accurate outcome. Here, same as the above, we could look at the RMSE. The RMSE of this scenario results in 0.0154, which may indicate that the model fits the data well and has more precise predictions.

Figure 26: Model's prediction likelihood of Scenario 2.

	Price level 1	Price level 2	Price level 3	Price level 4
Price levels	151.05	159.00	166.95	170.00
Purchase likelihood (from survey)	21.0%	11.6%	5.0%	1.0%
Predicted likelihood (from model)	22.4%	9.8%	3.8%	2.6%

Per our previous scenario (Holiday scenario), people will likely purchase the lowest price of \$151.05. The model's predicted likelihood is also close to the survey's percentages. But we notice that the closeness between both is most prominent for the lowest price suggested of \$151.05.

Figure 27: Price optimization results and likelihood of Scenario 2.

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	159.00	9.8%	7 137 869	1 134 921 184.60	18 250 000.00	1 116 671 184.60
Level 2	166.95	3.8%	2 790 959	465 950 560.79	18 250 000.00	447 700 560.79
Level 3	170.00	2.6%	1 912 949	325 201 285.01	18 250 000.00	306 951 285.01
Max revenue	151.05	22.4%	16 374 279	2 473 334 903.59	18 250 000.00	2 455 084 903.59

This table displays the predicted prices with their revenue and gross profit. With no surprise, the price at which revenues and profits are the highest is \$151.05. As well as we mentioned above, the revenues and profits are much higher for the lowest price with a total grow profit of \$2,455,084,903.59, it represents approximately twice the profit of the \$159 price suggested. Moreover, the profit of the third price \$166.95 represents 18% of the total gross profit of the \$151.05 price choice.

Modest Scenario (Scenario 3):

This scenario iterates the days after any big event or holiday. The model selected by our analysis is Model 4; it combines both the logarithmic and the squared root models.

Figure 28: Model fit of Scenario 3.

Measures of model fit	
Root Mean Squared Error	0.0233
R-squared	0.9284
McFadden R-squared	0.0553
Bayesian Information Criterion	308.9650

We observe from the model fit above that the model that we have built explains 92.84% of our dependent variable. Compared to the other scenarios, the modest scenario is the most accurate from both the R-squared and the RMSE (0.0233).

Figure 29: Model's prediction of Scenario 3.

	Price level 1	Price level 2	Price level 3	Price level 4
Price levels	103.55	109.00	114.45	117.00
Purchase likelihood (from survey)	30.1%	24.0%	19.9%	5.8%
Predicted likelihood (from model)	27.4%	27.1%	17.8%	6.3%

According to our analysis and survey, people's likelihood to buy the lowest and middle price is highly close. Having a 27.4% likelihood for the lowest and 27.1% for the price level 2 of \$109. Additionally, guests are open to paying the highest price of \$114.45 in this scenario with a likelihood of 17.8%. We may say that all three likelihoods are pretty high compared to the other scenarios. Furthermore, we can notice that our survey presents us with a higher likelihood of the \$114.45 price (19.9%) compared to the model one (17.8%). Thus, we could possibly conclude that people are open to this range of prices going from \$103 to possibly \$115.

Figure 30: Price optimization results and likelihood of Scenario 3.

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	103.55	27.4%	20 022 987	2 073 380 298.11	18 250 000.00	2 055 130 298.11
Level 2	109.00	27.1%	19 798 402	2 158 025 765.23	18 250 000.00	2 139 775 765.23
Level 3	114.45	17.8%	12 989 220	1 486 616 195.05	18 250 000.00	1 468 366 195.05
Level 4	117.00	6.3%	4 592 631	537 337 869.01	18 250 000.00	519 087 869.01
Max gross profit	109.19	27.1%	19 765 677	2 158 273 262.37	18 250 000.00	2 140 023 262.37
Max revenue	109.19	27.1%	19 765 677	2 158 273 262.37	18 250 000.00	2 140 023 262.37

This optimization table suggests that the price with the most revenue and gross profit is \$109.19. People are willing to pay this amount, according to Figures 8 and 9. The gross profit of this price provides the company with a benefit of 4% (\$84,892,964) from the lowest price level of \$103.55, which is a lot when you look at the dollar amount.

The outcomes of the survey applied to Qualtrics were attached as an appendix.

Coming along, is the GE McKinsey matrix analysis' data analysis and fundings, following the same pattern as the above techniques.

GE MCKINSEY MATRIX PRODUCT DEVELOPMENT ANALYSIS

Table and Attributes:

Below is the table with relevant information which we used for our analysis. Each attribute is rated from 1(lowest) – 5 (highest). The ratings have been given according to the articles, annual reports, datasets like injury data, wait times data and also with the help of sentiment analysis of the reviews data.

Horizontal Rating Data (Disney Theme Park Profile)						Horizontal Weights		
	Attractions	Family Rides	Thrill Rides	Live Shows	Interactive Experience		Marketing Weights	Finance Weights
Reputation	4	4	3	5	4	Reputation	5	3
Brand Fit	4	5	3	4	4	Brand Fit	4	5
Market Share	3	3	4	5	5	Market Share	3	5
Competitive Advantage	4	5	2	5	4	Competitive Advantage	5	5

Vertical Rating Data (Industry Profile)						Vertical Weights		
	Attractions	Family Rides	Thrill Rides	Live Shows	Interactive Experience		Marketing Weights	Finance Weights
Market Growth	4	4	3	3	5	Market Growth	4	3
Competitiveness	3	4	5	3	5	Competitiveness	5	2
Historical Margins	4	4	3	4	4	Historical Margins	3	5
Market Size	4	5	5	4	5	Market Size	4	4

Bubble Sizes					
	Attractions	Family Rides	Thrill Rides	Live Shows	Interactive Experience
Market Size	6	15	7	4	2

Now, given the table, refining the explanations for the attributes mentioned in the matrix.

Horizontal Rating Data (Disney Theme Park Profile):

- *Reputation:* The various offerings of the theme park that are thought to be of high caliber or status. The ratings, which vary from 3 to 5, show how reputable each service is, with Live Shows and Interactive Experience receiving the highest ratings.
- *Brand Fit:* The degree to which a product or service complements Disney's image. The highest scores here indicate that Family Rides and Interactive Experience are the most in line with the Disney brand.
- *Market Share:* The amount of Disney's market share in each category is probably shown by this column. The top three categories—attractions, family rides, and interactive experiences—indicate a dominant market position.
- *Competitive Advantage:* This evaluates each product's position in relation to rivals. The fact that Family Rides and Interactive Experience had the highest ratings suggests that Disney has a significant competitive advantage in these areas.

Vertical Rating Data (Industry Profile):

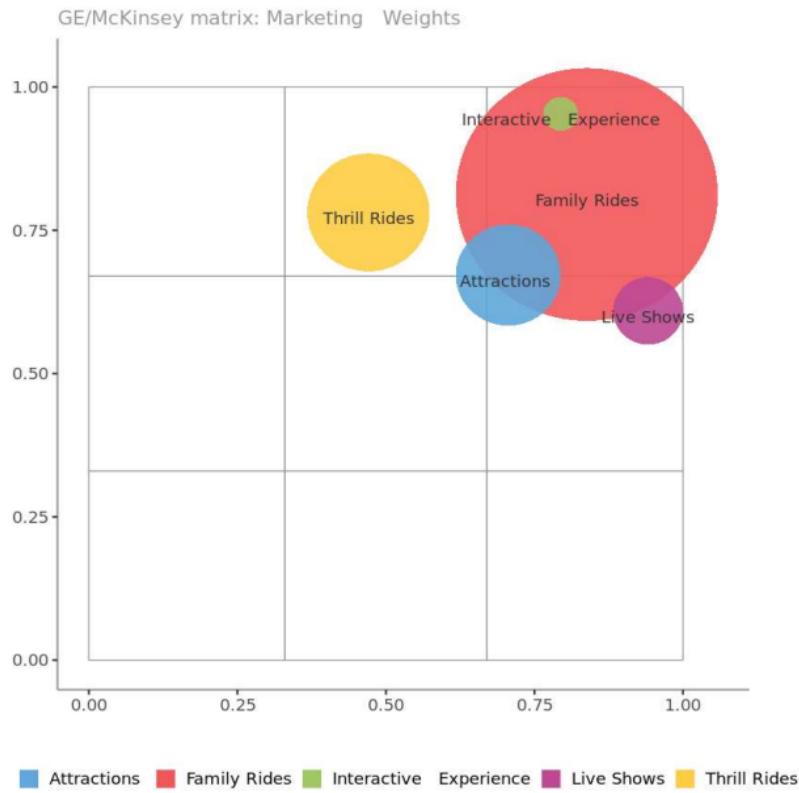
- *Market Growth:* The prospective expansion of every category. The market sector with the highest score, Interactive Experience, appears to be expanding quickly.
- *Competitiveness:* Disney's products' capacity to fight in the larger market. The greatest ratings go to the interactive experience and thrill rides, indicating that these are competitive categories.
- *Historical Margins:* This probably alludes to long-term financial performance or profitability. Everywhere there is a consistent rating, it shows consistent performance.
- *Market Size:* Indicates the potential market share for each category as a whole. The categories with the greatest scores are Interactive Experience and Family Rides, suggesting a larger potential market.

Bubble Size: The market size of each item is shown by its relative size, with Family Rides having the greatest 'bubble size,' which indicates the largest market share. The bubble size is calculated by the ratio of particular category and the total number of rides in the industry.

Marketing Weights: The ratings are given a weight in order to prioritize them based on how important they are from a marketing perspective. The biggest weights are assigned to reputation and competitiveness, indicating that these are the factors most important to marketing success.

Financial Weights: The ratings are given a weight in order to prioritize them based on how important they are from a financial perspective. The two factors that are most valued are market share and competitive advantage, indicating that they are the main forces behind financial success.

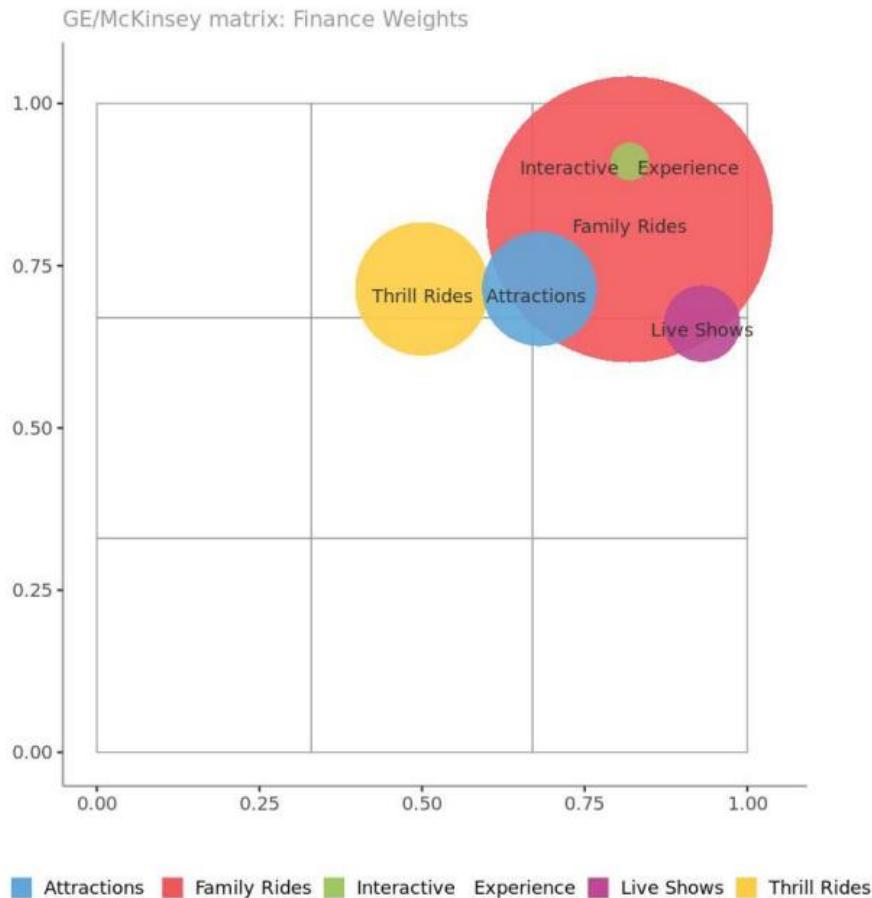
Figure 31: GE McKinsey Matrix for Marketing Weights



From the above GE McKinsey Matrix, we understand that,

- From a marketing standpoint, Family Rides and Interactive Experiences are strong competitors and have a high level of market attractiveness, as indicated by their placement in the top right quadrant. Family Rides has a notably huge bubble, suggesting a high market share. This is because Family Rides is a major part of the amusement park industry.
- While Family Rides have a stronger competitive edge and greater market appeal, Live Shows and Attractions are likewise positioned effectively.
- In terms of marketing, thrill rides are in the lower-right quadrant, indicating a moderate level of market attractiveness but a lesser level of competitive strength. This could indicate the necessity for stronger marketing tactics or the presence of fierce rivalry.
- Because of their size and positioning, Family Rides are a crucial area of focus for marketing initiatives, as indicated by the bubble sizes, which may represent market share or revenue.

Figure 32: GE McKinsey Matrix for Financial Weights



From the above GE McKinsey Matrix, we understand that,

- Once again, Family Rides and Interactive Experiences are in the upper right quadrant, demonstrating their high competitiveness and financial appeal. This implies that investing in these areas would likely yield a healthy return on investment and that they are high priorities.
- From a financial standpoint, live shows are positioned highly attractively in business but somewhat worse in terms of competitive power.
- In the mid-to-lower right quadrant, attractions and thrill rides indicate a modest level of financial appeal and competitive power. This may suggest that in order to strengthen their positioning, these areas need to engage in strategic financial planning.
- Given their high industry attractiveness and competitive strength, both matrices recommend that Family Rides and Interactive Experiences be the primary emphasis of marketing and finance efforts. Live performances also seem to be a serious contender, especially in marketing terms.

Concluding this section, we are further going to discuss the limitations and constraints that were encountered throughout the implementation of the techniques to later be able to suggest accurate recommendations for the company.

CONSTRAINTS

SENTIMENT ANALYSIS

The overall number of TripAdvisor reviews is staggering and difficult to obtain via web-scraping; thus, the scope of the sentiment analysis for the customers' review data will cover the last five years of the eight above-mentioned Disney theme parks. All the customer reviews extracted through the web scrap are in raw format (JSON), and data-cleaning is performed on all these data points to prepare the data for sentiment analysis as previously mentioned above.

A limitation in Enginius's software was encountered regarding the use of big datasets. Only the latest 1000 reviews are considered for the analysis. These 1000 reviews span across three years, from 2020 to 2023, and represent the current sentiment of the customers. Despite this satisfactory condition, this sentiment analysis couldn't be utilized to observe long-term deterioration or improvement in products or services offered in Disney theme parks.

POSITIONING ANALYSIS

From the positioning analysis several limitations were uncovered. To begin with, the analysis did not consider factors such as temperature, time of the year, holiday season, number of visits etc. Additionally, each park of Disney World was not considered in isolation and Disney theme parks were looked at in general. Moreover, the size of competing players in terms of the market they serve, and number of visitors may not be identical, though they belong to the same Industry.

Finally, there is an opportunity to look at sub characteristics of each of the attributes, or characteristics that caused a specific consumer behavior.

PRICE OPTIMIZATION ANALYSIS

Some overall constraints that may relate to all three scenarios could first correlate to implementing the data collection method, the survey. The sample size and time limitations could have influenced our results. Indeed, the time constraint followed a sample size of 81 answers. Maybe a larger sample could have helped increase the accuracy of our analysis and identify significant relationships among our data. Another restriction may be associated with cultural bias. Our survey does not show which individuals responded to our questionnaire; maybe they are older, young adults, or kids. This may have prejudiced

the answers. Additionally, we do not know if these individuals are financially capable such as children. Furthermore, we do not have information about the cultural background of these people, maybe they have never lived in the United States and have no concrete knowledge of the economic situation of the country. We could consider this issue a lack of reliable research data.

Another constraint is associated with the analysis system that we implemented. The Enginius software may not be feasible for this type of research. To begin with, it was discovered that this software does not consider a range of three prices but only four or more. It destabilized the whole survey's success and issued a limitation to our outcome.

Additionally, one major limitation is the overall economic environment. A few issues can be stated, correlating to the US and global situation. With higher inflation, the Walt Disney Company surged to higher ticket prices, supply costs, employee wages, staff cuts, and raw park costs. Indeed, the number of visits has decreased by 15% since 2022. (Kaiser A. & Morelo G, 2023). Furthermore, the conflict situation in Palestine is affecting the company. A few days after the attack (October 7th), the Walt Disney Company donated \$2 million to organizations providing humanitarian aid to Israel (Colopy, 2023), leading to a backlash boycott from several Middle Eastern, Asian, African, European, and South American populations. Agitating the company's visits, revenues, and profits.

GE MCKINSEY ANALYSIS

The analysis assumes that each factor is independent, but in reality, there can be a significant overlap. For instance, brand fit can directly influence reputation. The study is subjective and potentially biased because it depends on individual judgment to score factors like reputation, brand fit, market share, and competitive advantage. Additionally, insufficient quantitative data makes conducting a thorough financial and market analysis difficult, which lowers the assessment's accuracy.

Furthermore, the analysis's static character leaves out dynamic market shifts, which could eventually make the results less significant. It might not be accurate to represent corporate operations' complicated and multiple features with single ratings for complex attributes. Finally, how various park components are interdependent is not addressed, which can greatly impact overall performance and strategic choices.

Several issues were confronted through the data analysis' process, along with some appealing results. From the outcomes of the techniques, we were able to extract suggestions and the recommendations that Disney Parks may consider in order to remain a strong and unshakable competitor in the entertainment industry.

RECOMMENDATIONS

SENTIMENT ANALYSIS

Based on the Sentiment Analysis, below are the recommendations to the Disney Marketing Team:

For the Disneyland Park:

One recommendation could be the creation of an event only focused on the Star Wars theme. It would be a cosplay event that would regroup all Star Wars fans. Different kiosks would feature the Star Wars franchise and protagonists (autographs, photos... etc.). Gifts and promotions over themed products will be offered, with a costume competition. These events could be implemented in colleges or high schools; it could be called '**Cosmic con.**'

Moreover, the company could consider investing more in Disneyland Park attractions by building different images for each attraction. For instance, having publicity with a famous actor over one of their other rides.

Another recommendation that could be suggested is the anticipation state that each guest goes through before coming to the park. Marketing should focus on trying to lead the guests to a state of positive, anxious suspense and hopefully meet their expectations when they set foot in the park.

Let us keep in mind that not all of the data was used in the analysis. Thus, another thought that could be suggested is to go over the negative reviews and understand what went wrong. We have some insight into these reviews, but a deeper analysis should be made. For instance, the company could consider implementing a new analysis only focused on negative reviews. It could help increase their understanding and help them figure out solutions accordingly.

Furthermore, from the analysis, we noticed that one of the negative aspects of the ride experience is the wait times. A queuing analysis could be considered; this technique may help the company find a solution to decrease these time waits.

For the Magic Kingdom Park:

One suggestion could be to focus on the maintenance of the park and also have an extensive analysis only focusing on negative reviews. Our analysis shows guests are concerned about the park's cleanliness, attractions, and restaurants. Moreover, per the above recommendation, a **queuing analysis** could be applied to decrease waiting time and increase the productivity of the park's attractions.

Another recommendation could be **redesigning the fast-track system**. We noticed many posts about the old fast-track operation; the company could consider reworking the design. Yet this time, it would be inspired by the former system but with additional refinements. Thus, we could suggest an overall recommendation for both parks, we understand that the high anticipation percentage could relate to the

first visit experience. The company could launch a program to meet the high expectations of this big chunk of visitors. The '**First and Fast**' program is recommended which gives the first-time visitors the privilege of taking the express lane for any three of their favorite rides without an express pass. This will ensure that the visitors have a privileged first-time experience and avoid any room for disappointment. From the fast past standpoint, we would suggest the company consider introducing a segmented fast-past system where Disney can charge different prices for different packages. Such as 'Fast 1', 'Fast 2' till 'Fast 10', each number represents the number of rides where the visitors can take the express lane just by spending a bit more. Similarly, they can also have express packages dedicated to different worlds of the theme parks such as '**Star War supreme**', '**Dinosaur Dynamic**', '**Frozen Fast**' and '**Goofy Go**'.

Regarding specific attractions, the most recurrent ones are 'Country Bear Jamboree,' the 'Haunted Mansion Pirate,' 'Big Thunder Mountain' and 'Peter Pan.' We extracted some information from the analysis about these rides, specifically the 'Haunted Mansion Pirate' and 'Big Thunder Mountain' rides. The 'Haunted Mansion Pirate' seems to scare individuals, according to Figure 8, either because they are scared by the experience itself or by the functionality of the ride (if it is a long-dated ride). The 'Big Thunder Mountain,' on the other hand, was highly expected; it seems like this ride was closed (since it was first opened in 1980) but was reopened, and people could not wait to visit the park and experience it again. We may also consider the COVID-19 situation, where guests have been deprived of these rides for a few years now and cannot wait to experience them again. However, we could suggest refurbishing these attractions, specifically the 'Haunting Mansion Pirate', and increasing safety measures. There could also be some reconsideration of these attractions since some have been in the park for decades.

Furthermore, we could also connect some of the above recommendations (Disneyland Park) with the Magic Kingdom Park and vice versa.

POSITIONING ANALYSIS

As per the survey, the preferred attributes of an Ideal theme park would be a theme park of a reputed brand, inclined towards thrill and adventure experiences with a little focus on live entertainment and shows and with reasonable wait times and ticket prices. Additionally, Disney should focus on building smaller versions of parks at a more affordable price, where it is seen more like a place for a day out with friends and family rather than a vacation.

Another suggestion could relate to **Disney's Tales**, a smaller version of parks that are more budget-friendly and can be dedicated to a single theme that covers different cities for greater accessibility. Such as:

- Disney Adventure theme park
- Disney's own water adventure park
- A real-time treasure hunt experience based on the movies of Indiana Jones/National Treasure
- Frozen version of winter village in cities that are known for holiday visits

Moreover, the company may look at introducing these parks in different cities for broader reach and greater accessibility to people. A few ideas for these could be:

- A one similar to Disney Adventure theme park in California.
- Disney's own water adventure theme park for thrill and adventure seeking adults.
- A treasure-hunt experience based on Indiana Jones/National Treasure will be the first of its kind.
- The **frozen version of Winter villages** is set up in a few prominent holiday places.
- We know that **Disney has its own 55+ community**, so why not create a section of the park in their interest in giving a traveling around the world experience for the retirees?
- Some in-depth ideas could go as follows:
- It could start small by dedicating a few active adult-friendly activities, such as kayaking in its water park.
- **Around the World Park:** Imagine a park with replicas of prominent cities of the world. The point of designing theme parks inspired by natural location would give them an experience of travel and also diverse cultures from different countries in one place.
- Curating a **Farm Holiday experience** in a country-side town.

Since Disney scored the highest (5/5) rating on live entertainment and special shows, one recommendation towards it would be leveraging this core competency and possibly looking at a Disney carnival traveling to several cities on a periodic basis to attract new customers. This situation may build other revenue streams leveraging existing resources, making the company go easier on ticket pricing- other opportunities may be to look deeper into Disney land ceremonies.

Furthermore, as we showed in our analysis, Disney is in a highly competitive market and has to stand out to remain at the top. Thus, an interesting suggestion could be **Disney-themed Libraries** and Movie libraries, which will be one of their kind offerings in the Entertainment industry and can be an addition to its existing theme park to better use existing resources.

Continuing our recommendation, we could suggest the company to consider implementing **curating personalized Disney experiences**, such as:

- **Living the life of a Disney Family**-An Experience for Kids and Adults- building a life-like environment, food, living, and costumes based on a popular Disney movie/series. Ex: Flintstones Bedrock village set up in Arizona.
- Using AI, one can **personalize the ride experience** from a predefined set of characters by changing the characters based on the customer's face and voice; this addresses the customers' interest in an interactive experience.

Last but not least, an **Get Onboard theme** park may be introduced. Based on a Life-Size board game experience designed for groups of people -Family entertainment covering different age groups. Such as games similar to Catan and Ticket-to-Ride in their new format.

Finally, a few other recommendations from our analysis and customers all over the world include new theme parks associated to the latest movies that Disney designed, we have:

- Zootopia land in Animal Kingdom
- An experience themed around the movies Coco, Encanto, Up

Following this positioning recommendation section a few more suggestions from the price optimization analysis perspective were delivered and will be introduced below.

PRICE OPTIMIZATION ANALYSIS

Recommendations that we may first suggest are connected to the survey. As explained above, our survey comprises three different scenarios. We are asking the participants to imagine themselves in these storylines. The survey may be improved by incorporating visuals and multimedia infographics to ensure that the data collection method engages the respondents and breaks the routineness of the text. Moreover, another proposition would be to guarantee that the participants of the survey are only in a specific demographic (primarily the United States). Furthermore, as mentioned, restrictions were uncovered linked to the survey. Thus, we could suggest revising and repeating the entire survey.

Another recommendation would be to advise the company to **focus on the attractiveness of the Holiday and Typical scenarios**. Both results of these short stories reveal that people are not willing to pay higher prices. This outcome is affecting our analysis and results, making the models invalid. Therefore, a new pricing strategy for these timelines could be implemented. One suggestion could be to mitigate the price on customers by having price cuts internally or investing in processes that would diminish fixed costs in the long run.

Running an amusement park is prominently associated with fixed costs, employees, ride costs, and electricity bills. Thus, the company may either invest in their employees by training them for

productivity to avoid new salariats; or in rides, considering attractions that are energy efficient, decreasing electricity bills. Regarding the rides, **solar-powered attractions** may be considered, and being in Florida, this idea is practical with the persistent sun.

Concerning the analysis, the most accurate model was the '**Modest Scenario**'. For now, we could propose that the company reassess the prices of this script. Increasing it would benefit the company. It could be a counter to bridge some of our above recommendations. Accruing these prices may alleviate short-term losses associated with the Holiday and Typical scenarios.

After discussing the recommendations from the price optimization technique, another perspective of these suggestions will be displayed in the following segment.

GE MCKINSEY MATRIX ANALYSIS

Given Disney's market dominance in family rides and interactive experiences, there's a compelling case for continued investment or increased funding in these areas. Concurrently, **implementing a focused marketing strategy for Thrill Rides** will enhance their competitive edge and overall market allure. Moreover, a thorough examination of Live Shows' financials offers the potential for cost reduction and revenue amplification without compromising their quality.

Optimizing existing attractions through technological advancements and refurbishments will significantly bolster Disney's competitive positioning. **Crafting distinct marketing messages that underscore Disney's unique value proposition in Thrill Rides and Attractions** is imperative for sustained market impact. Disney can effectively create personalized experiences and deploy targeted marketing campaigns by harnessing data analytics to grasp customer preferences.

Furthermore, investing in cutting-edge technologies for expanded interactive experiences will undoubtedly attract fresh clientele and diverse income sources. **Collaborating with tech businesses or brands** can further elevate financial appeal and competitiveness in the market.

Simultaneously, **deploying cost-management techniques** across offerings, particularly those with less financial influence, is essential for maintaining a balanced cost-to-revenue ratio.

Finally, continual emphasis on innovation across all domains remains pivotal to upholding Disney's position as an industry leader amidst evolving customer expectations and technological advancements. Before finalizing this project, a conclusion that regroups all our suggestions into distinct thoughts will be presented.

CONCLUSION

After performing an extensive analysis of Disney Parks using sentiment analysis, positioning analysis, price optimization and GE McKinsey Matrix analysis techniques of Marketing Analytics, we will now look at answering the ultimate business question of redefining the pricing, positioning, and product development strategies of Disney Parks.

After recommending analysis-wise specific and unique actions Disney Parks could look at implementing, we would like to present a broader perspective, that is a few strategic actions Disney parks need to consider with regard to its pricing, positioning, and product strategy.

PRICING IMPLICATIONS

Segmentation-based pricing: Price segmentation based on different scenarios reviewed in price optimization analysis. Pricing to be based on occasion of visit and willingness of target customers to pay to be considered.

Express Pass: Categorizing FastPass and Max pass based on consumer's visit and interests.

Cost Optimization: Reviewing cost optimization models and trying to cut down on fixed costs. Thus, reducing the impact of costs on pricing.

POSITIONING IMPLICATIONS

Consumer Preferences: Introducing smaller size entertainment options with greater accessibility, since consumers are looking for a shorter length of vacation, moderate pricing, and lesser ride wait-times. New ventures should explore different Geographical markets providing greater accessibility to different customer groups.

New Target Groups: Shifting focus from kids to other customer groups such as Adults, 55+, Family etc.

Repositioning Entertainment Offering: Innovating newer avenues of entertainment leveraging the existing resources and competencies of theme parks.

PRODUCT DEVELOPMENT IMPLICATIONS:

Interactive and Family-based offerings: Focusing on Family and Group Entertainment. Not to forget the element of thrill and adventure in product innovations.

Product Portfolio Analysis: Analyze existing product portfolio and look at cutting down on resources and using them more effectively for others or for building newer ones. BCG Matrix analysis would be ideal for categorizing existing product range based on their financial and market performance.

Going the tech way: Enhancing existing experiences making them more interactive, exploring ways to offer personalized experiences. Revamping existing ones using AI and other technological advancements

APPENDIX

- Positioning analysis survey

Appendix 1: 'Disney Theme Parks' preference ranks in Google surveys

1. Disney Theme Parks *

	1-Lowest	2	3	4	5-Highest
Brand and Popularity	<input type="radio"/>				
Kid-friendly Attractions	<input type="radio"/>				
Thrill and Adventure experiences	<input type="radio"/>				
Live entertainment and special events	<input type="radio"/>				
A day-out/vacation	<input type="radio"/>				
Ride wait times	<input type="radio"/>				
Ticket Pricing	<input type="radio"/>				
Overall Rating	<input type="radio"/>				

Appendix 2: ‘Six Flags’ preference ranks in Google surveys

2. Six Flags *

	1-Lowest	2	3	4	5-Highest
Brand and Popularity	<input type="radio"/>				
Kid-friendly Attractions	<input type="radio"/>				
Thrill and Adventure experiences	<input type="radio"/>				
Live entertainment and special events	<input type="radio"/>				
A day-out/vacation	<input type="radio"/>				
Ride wait times	<input type="radio"/>				
Ticket Pricing	<input type="radio"/>				
Overall Rating	<input type="radio"/>				

Appendix 3: ‘Hershey Parks’ preference ranks in Google surveys

3. HersheyPark *

	1-Lowest	2	3	4	5-Highest
Brand and Popularity	<input type="radio"/>				
Kid-friendly Attractions	<input type="radio"/>				
Thrill and Adventure experiences	<input type="radio"/>				
Live entertainment and special events	<input type="radio"/>				
A day-out/vacation	<input type="radio"/>				
Ride wait times	<input type="radio"/>				
Ticket Pricing	<input type="radio"/>				
Overall Rating	<input type="radio"/>				

Appendix 4: 'Universal Studio' preference ranks in Google surveys

4. Universal Studios *

	1-Lowest	2	3	4	5-Highest
Brand and Popularity	<input type="radio"/>				
Kid-friendly Attractions	<input type="radio"/>				
Thrill and Adventure experiences	<input type="radio"/>				
Live entertainment and special events	<input type="radio"/>				
A day-out/vacation	<input type="radio"/>				
Ride wait times	<input type="radio"/>				
Ticket Pricing	<input type="radio"/>				
Overall Rating	<input type="radio"/>				

Appendix 5: 'Lego Land' preference ranks in Google surveys

5. Lego Land *

	1-Lowest	2	3	4	5-Highest
Brand and Popularity	<input type="radio"/>				
Kid-friendly Attractions	<input type="radio"/>				
Thrill and Adventure experiences	<input type="radio"/>				
Live entertainment and special events	<input type="radio"/>				
A day-out/vacation	<input type="radio"/>				
Ride wait times	<input type="radio"/>				
Ticket Pricing	<input type="radio"/>				
Overall Rating	<input type="radio"/>				

- Price optimization survey

Appendix 6: The 'Holiday Scenario' in Qualtrics

Q1

⋮ ⋯

'Holiday Scenario': This situation represents any holiday season. Crowds surround you, waves of laughter, and people everywhere. The enchanting atmosphere captivates visitors of all ages throughout the year. Main Street welcomes guests with its vibrant charm, and the air is filled with the excitement of families exploring various attractions and encountering beloved Disney characters. Thrilling rides, live performances, and delightful dining experiences create a magical day for everyone to cherish. As evening sets in, the park dazzles with enchanting light displays and captivating entertainment, leaving guests with cherished memories of a magical day at Disney World Park.

How likely are you willing to pay for Disney World tickets for this scenario? (1: Very Unlikely, 5: Very Likely)

	Very Unlikely	Moderately Unlikely	Neither Likely nor Unlikely	Moderately Likely	Very Likely
\$184.30	○	○	○	○	○
\$194	○	○	○	○	○
\$203.70	○	○	○	○	○

Appendix 7: The 'Typical Scenario' in Qualtrics

Q2

⋮ ⋯

'Typical Scenario': This situation represents any regular day of the year. On a typical day at Disney World Park, visitors experience the magic and wonder of this iconic destination. Residents often host family and friends for a fun-filled day at the park, enjoying the spacious surroundings and abundant attractions. While the crowds are relatively manageable, there is still plenty of excitement as guests explore the rides and interact with beloved Disney characters. Though the park may not host as many specialized events as during the holidays, there is no shortage of entertainment options to delight visitors throughout the year, making Disney World Park a cherished destination for all. However, myriad entertainment alternatives are yet to be explored, setting aside Disney World.

How likely are you willing to pay for Disney World tickets for this scenario? (1: Very Unlikely, 5: Very Likely)

	Very Unlikely	Moderately Unlikely	Neither Likely nor Unlikely	Moderately Likely	Very Likely
\$151.05	○	○	○	○	○
\$159	○	○	○	○	○
\$166.95	○	○	○	○	○

Appendix 8: The 'Modest Scenario' in Qualtrics

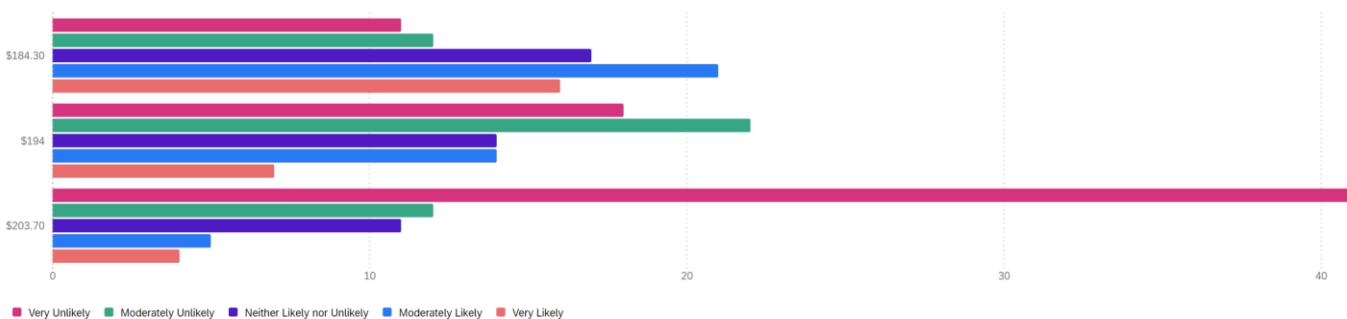
'Modest Scenario': Following the holiday festivities at Disney World Park, guests gradually return to their daily routines as children head back to school and adults resume work. The park experiences a moderate influx of visitors, including those from countries with different holiday schedules and those seeking a peaceful break post-holiday rush. While corporations are gearing up for the upcoming holiday season, the park remains relatively unaffected by major events, offering a typical and enjoyable experience for all. Visitors continue to explore the park's attractions and immerse themselves in the magic of Disney, creating lasting memories to cherish beyond the holiday season.

How likely are you willing to pay for Disney World tickets for this scenario? (1: Very Unlikely, 5: Very Likely)

	Very Unlikely	Moderately Unlikely	Neither Likely nor Unlikely	Moderately Likely	Very Likely
\$103.55	○	○	○	○	○
\$109	○	○	○	○	○
\$114.45	○	○	○	○	○

Appendix 9: Overall outcome of the 'Holiday Scenario' in Qualtrics

'Holiday Scenario': This situation represents any holiday season. Crowds surround you, waves of laughter, and people everywhere. The enchanting atmosphere captivates visitors of all ages through... 77 ⓘ



Appendix 10: Likelihood outcome of the 'Holiday Scenario' in Qualtrics

'Holiday Scenario': This situation represents any holiday season. Crowds surround you, waves of laughter, and people everywhere. The enchanting atmosphere captivates visitors of all ages through... 77 ⓘ

'Holiday Scenario': This situation represents any holiday season. Crowds su...	Very Unlikely	Moderately Unlikely	Neither Likely nor Unlikely	Moderately Likely	Very Likely
\$184.30	11	12	17	21	16
\$194	18	22	14	14	7
\$203.70	41	12	11	5	4

Appendix 11: Price outcome of the 'Holiday Scenario' in Qualtrics

'Holiday Scenario': This situation represents any holiday season. Crowds surround you, waves of laughter, and people everywhere. The enchanting atmosphere captivates visitors of all ages through... 77 ⓘ

'Holiday Scenario': This situation represents any holiday season. Crowds su...	Average	Minimum	Maximum	Count
\$184.30	3.25	1.00	5.00	77
\$194	2.60	1.00	5.00	75
\$203.70	1.89	1.00	5.00	73

Appendix 12: Overall outcome of the 'Typical Scenario' in Qualtrics

'Typical Scenario': This situation represents any regular day of the year. On a typical day at Disney World Park, visitors experience the magic and wonder of this iconic destination. Residents often ho... 76 ⓘ

'Typical Scenario': This situation represents any regular day of the year. On a typical day at Disney World Park, visitors experience the magic and wonder of this iconic destination. Residents often ho... 76 ⓘ



Appendix 13: Likelihood outcome of the 'Typical Scenario' in Qualtrics

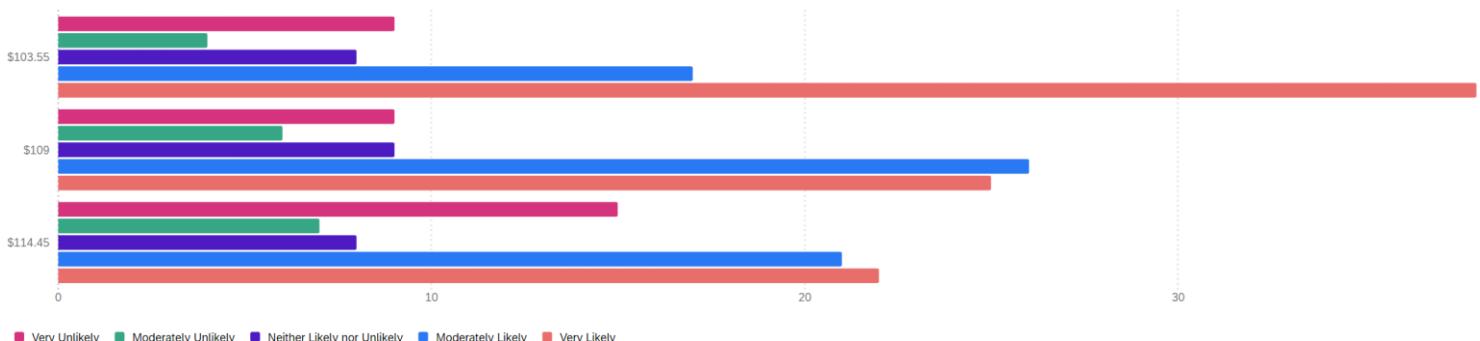
Appendix 14: Price outcome of the 'Typical Scenario' in Qualtrics

'Typical Scenario': This situation represents any regular day of the year. On a typical day at Disney World Park, visitors experience the magic and wonder of this iconic destination. Residents often ho... 76 ⓘ

'Typical Scenario': This situation represents any regular day of the year....	Average	Minimum	Maximum	Count
\$151.05	3.49	1.00	5.00	75
\$159	3.01	1.00	5.00	72
\$166.95	2.37	1.00	5.00	73

Appendix 15: Overall outcome of the 'Modest Scenario' in Qualtrics

'Modest Scenario': Following the holiday festivities at Disney World Park, guests gradually return to their daily routines as children head back to school and adults resume work. The park experience... 76 ⓘ



Appendix 16: Likelihood outcome of the 'Modest Scenario' in Qualtrics

'Modest Scenario': Following the holiday festivities at Disney World Park, guests gradually return to their daily routines as children head back to school and adults resume work. The park experience... 76 ⓘ

'Modest Scenario': Following the holiday festivities at Disney World Park,...	Very Unlikely	Moderately Unlikely	Neither Likely nor Unlikely	Moderately Likely	Very Likely
\$103.55	9	4	8	17	38
\$109	9	6	9	26	25
\$114.45	15	7	8	21	22

Appendix 17: Price outcome of the 'Modest Scenario' in Qualtrics

'Modest Scenario': Following the holiday festivities at Disney World Park, guests gradually return to their daily routines as children head back to school and adults resume work. The park experience... 76 ⓘ

'Modest Scenario': Following the holiday festivities at Disney World Park,...	Average	Minimum	Maximum	Count
\$103.55	3.93	1.00	5.00	76
\$109	3.69	1.00	5.00	75
\$114.45	3.38	1.00	5.00	73

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Enginious Sentiment Analysis

Riddhi Dave, The University of Tampa

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Sentiment options

Options selected

Option	Selection
Data source	Sentiment data
Verbatim	Verbatim
Include date	Yes
Include rating	No
Word co-occurrence analysis and RAKE	Yes
Topic model	No
Default stop words	No default stop words
Custom stop words	No
Date and time	2023-11-12 06:07:47 UTC

Options selected.

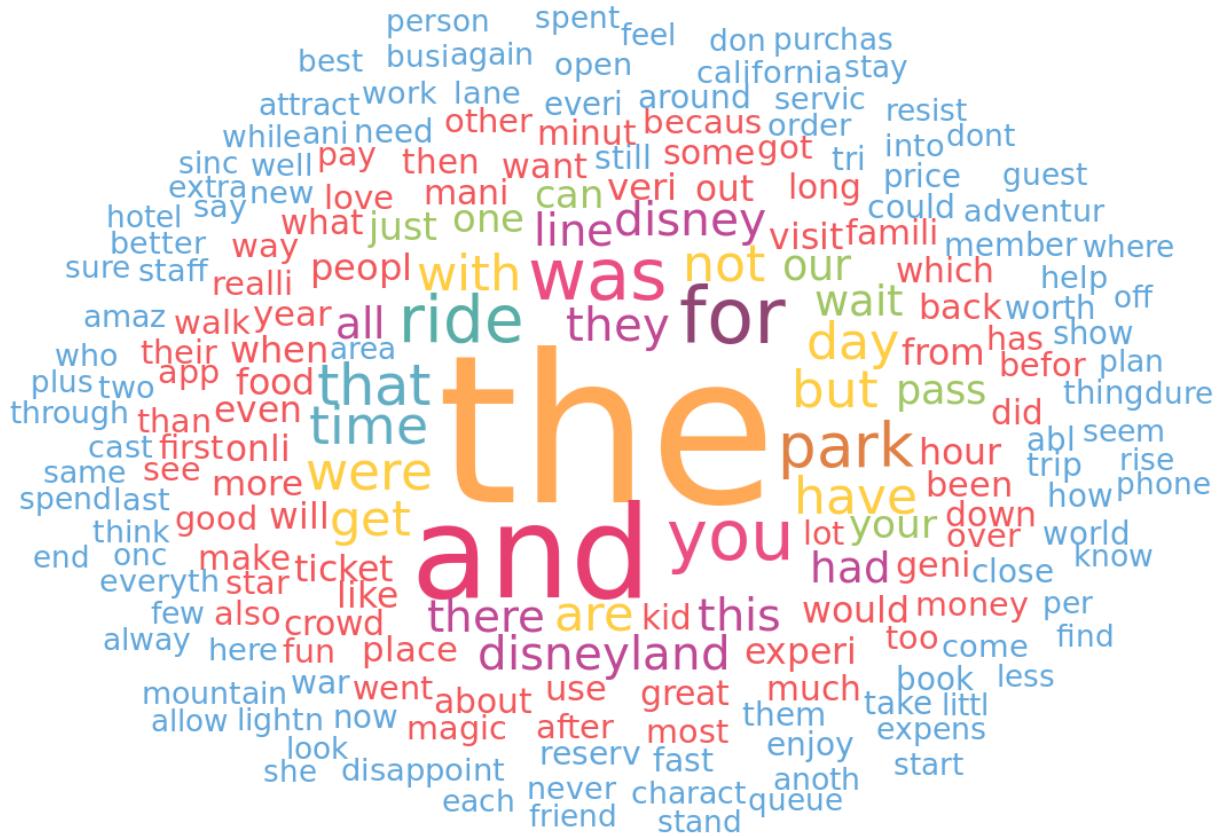
Data description

Data	Number of Rows	Number of columns	Column names
1 Sentiment data	1000	4	C0, Name, Verbatim, Date

Data description.

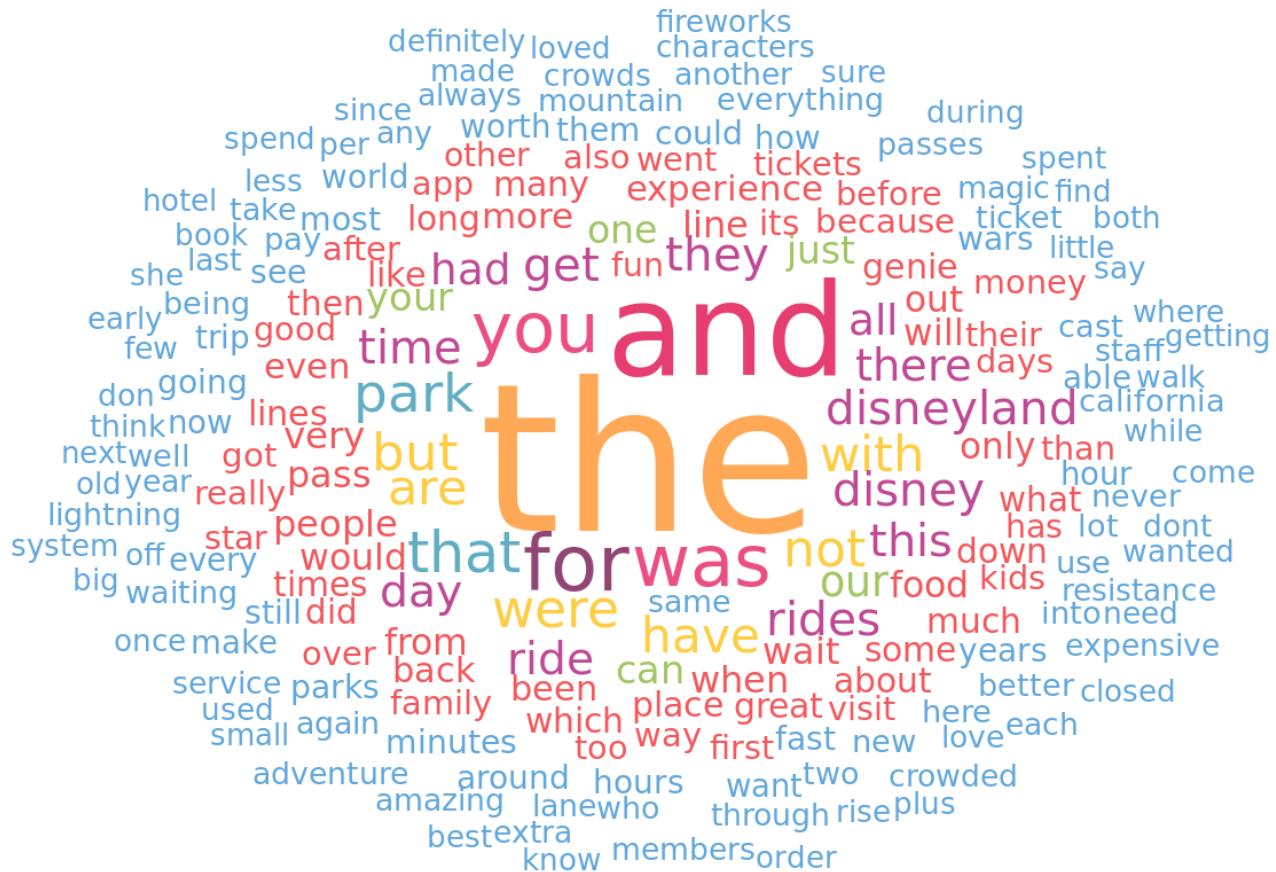
Word cloud

Word cloud of the most frequent words



Word cloud. The word cloud represents the most frequently used words inside the corpus of texts provided. The bigger a word appears, the larger the number of times it occurs in the text corpus.

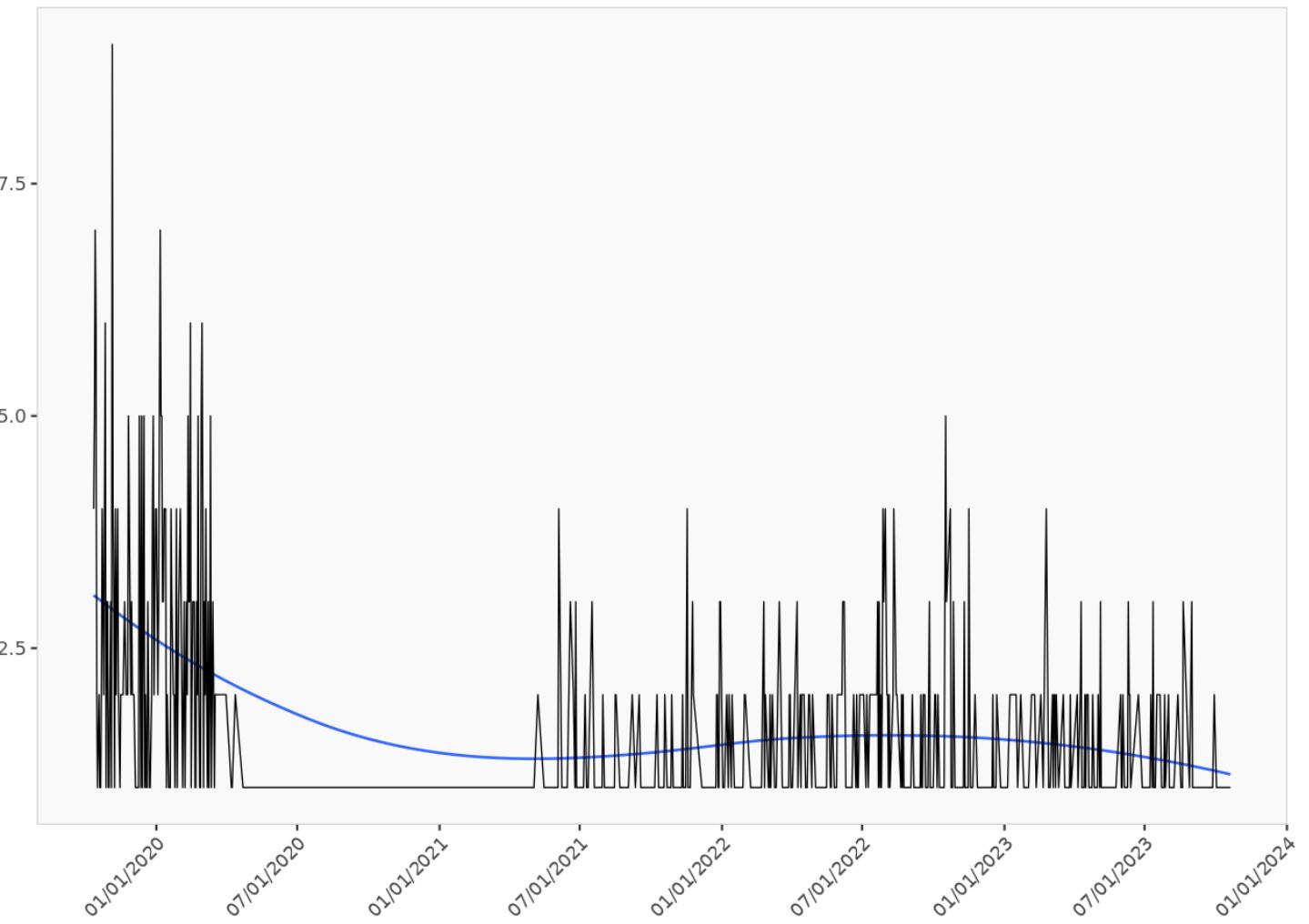
Word cloud of the most frequent words (without stemming)



Word cloud without stemming. The word cloud represents the most frequently used words inside the corpus of texts provided. The bigger a word appears, the larger the number of times it occurs in the text corpus.

Sentiment analysis overview

Post frequency



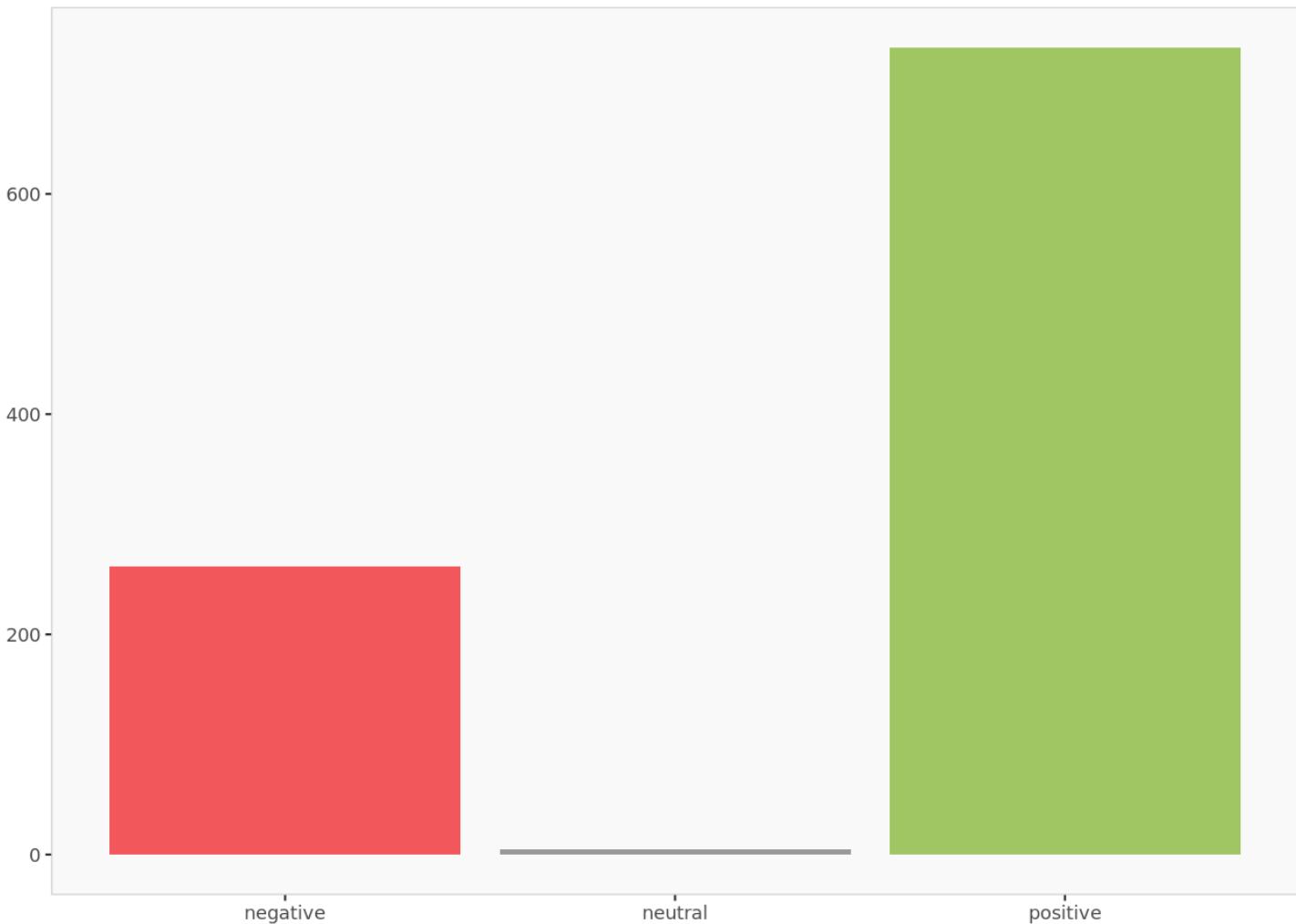
Post frequency. The post frequency graph indicates the daily frequency of posts. The blue smoothing line helps visualize the trend.

Valence analysis

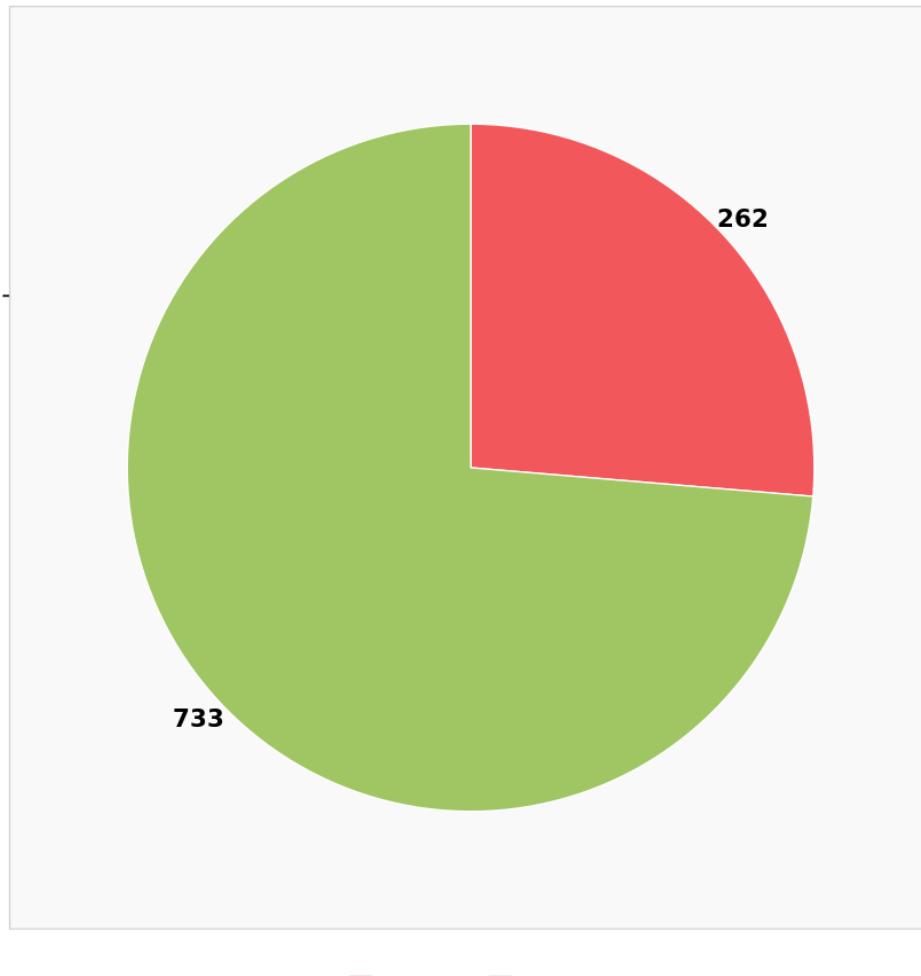
Valence repartition

	Posts count	Relative posts count
Total	1 000	100%
negative	262	26%
neutral	5	1%
positive	733	73%

Valence repartition. The number of posts that fall into different valence categories summarized by their absolute and relative values.



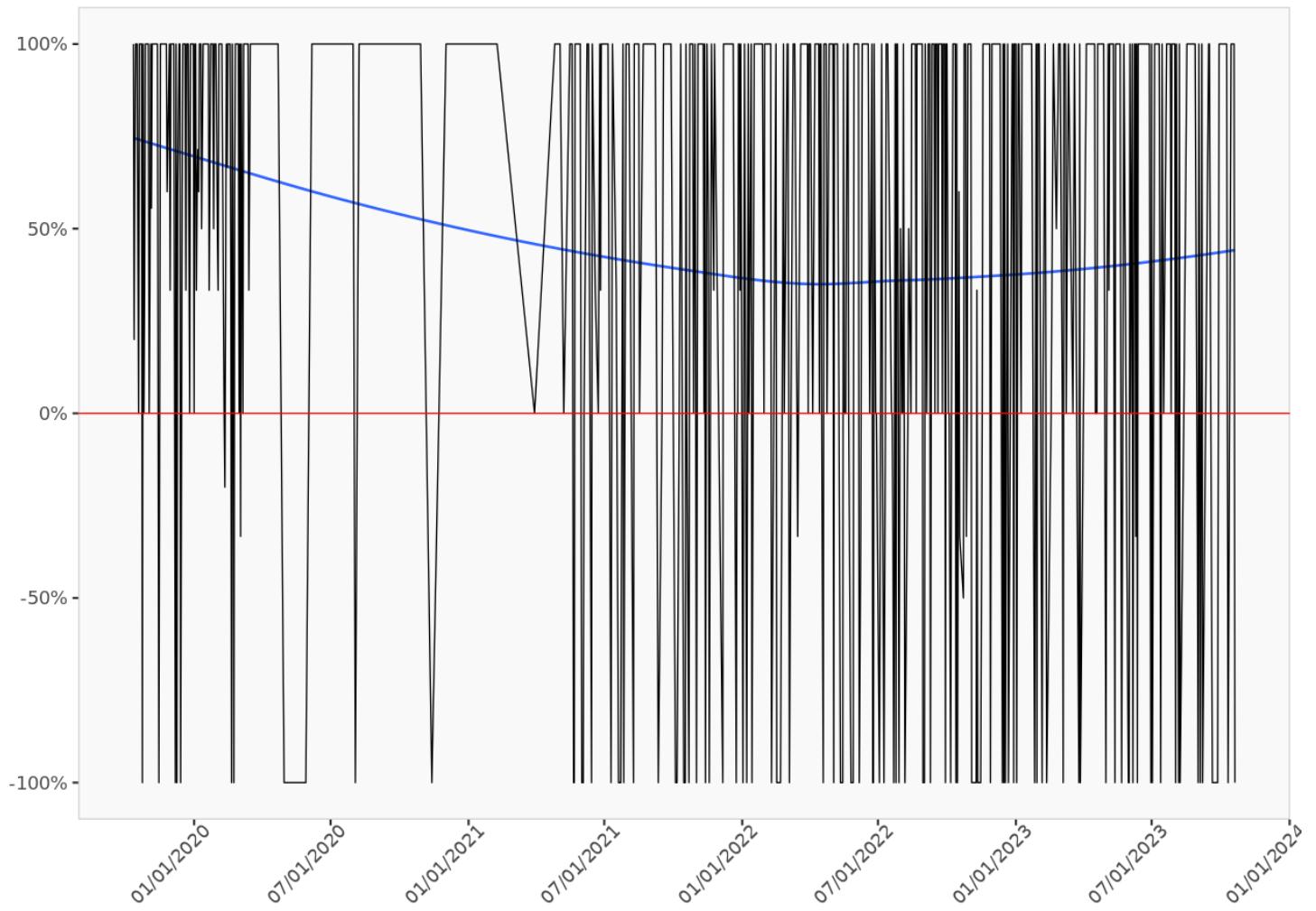
Valence histogram. The valence histogram indicates the number of posts by their valence.



■ negative ■ positive

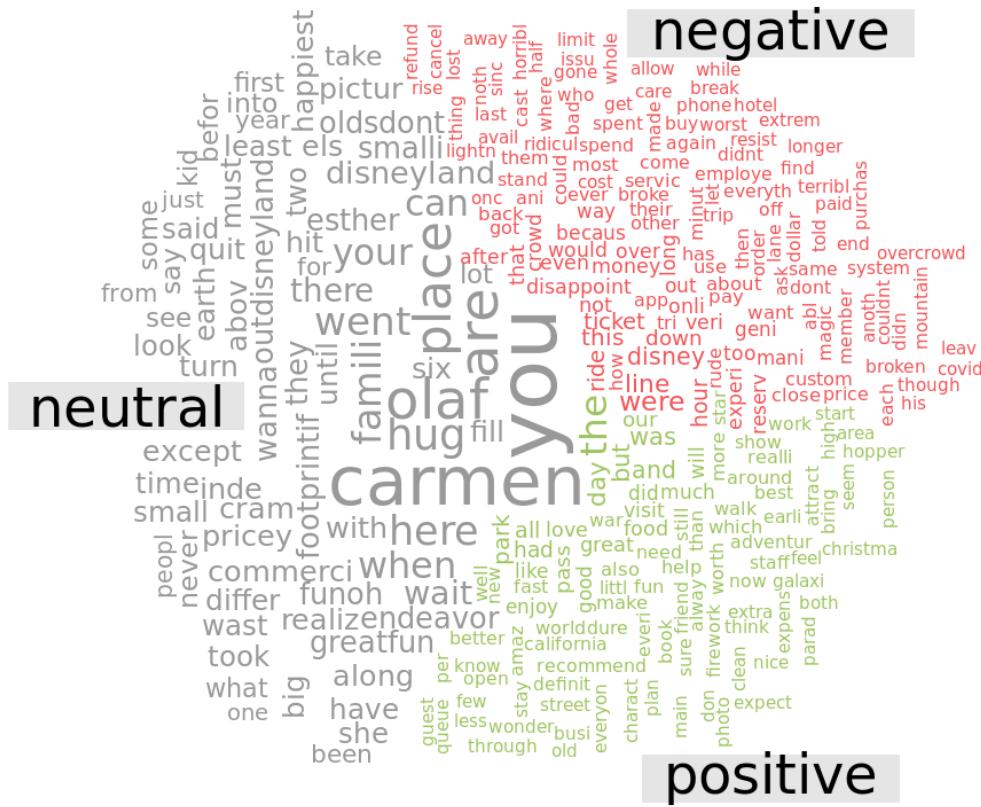
Valence distribution without uncategorized posts. Graphic summary of the relative sizes of the number of posts classified by valence after ignoring posts that could not be categorized (i.e., neutral posts).

Valence evolution



Post valence ratio. The post valence ratio graph indicates the daily average number of positive posts. The blue smoothing line helps visualize the trend.

Valence word cloud



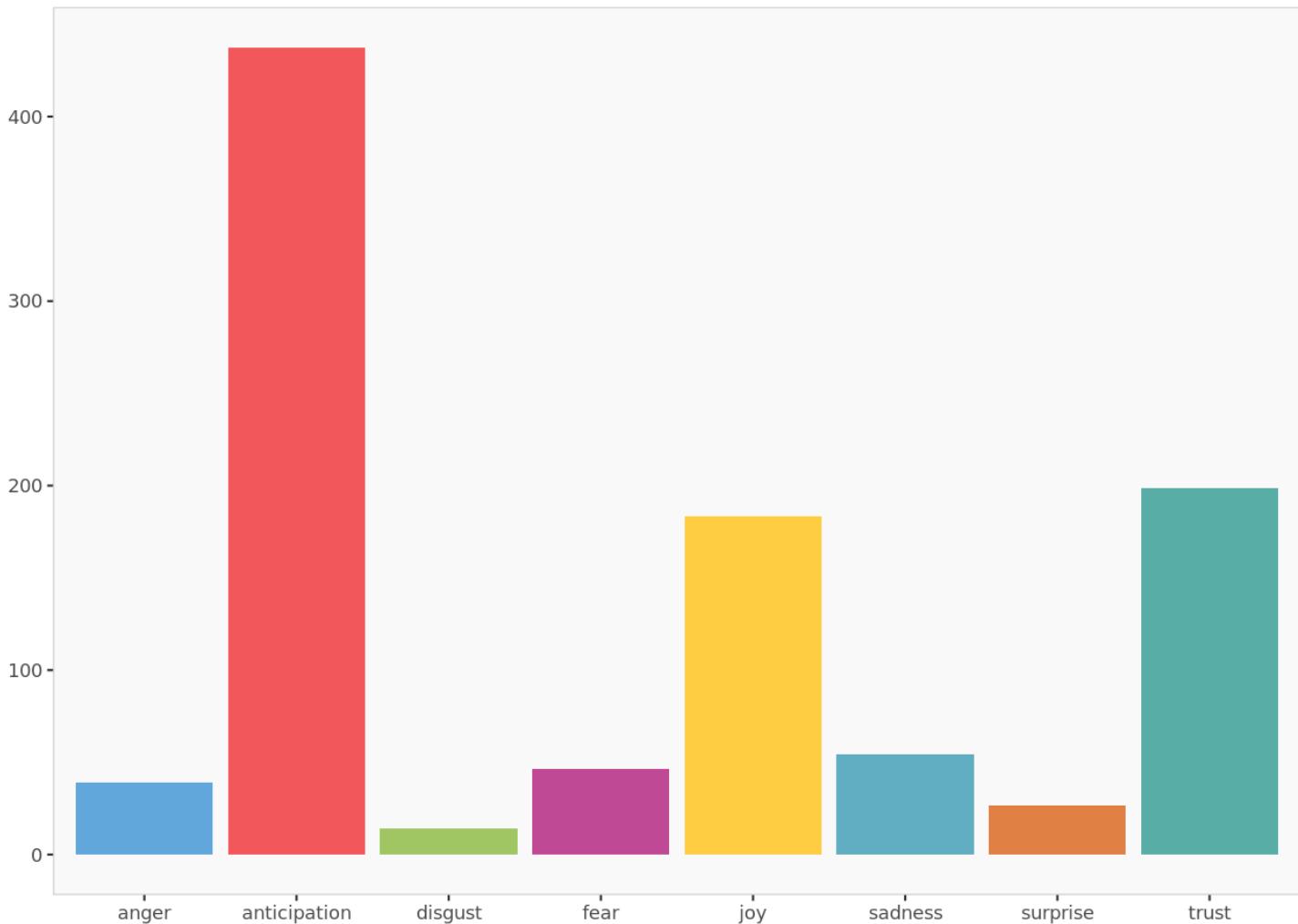
Valence word cloud.

Emotion analysis

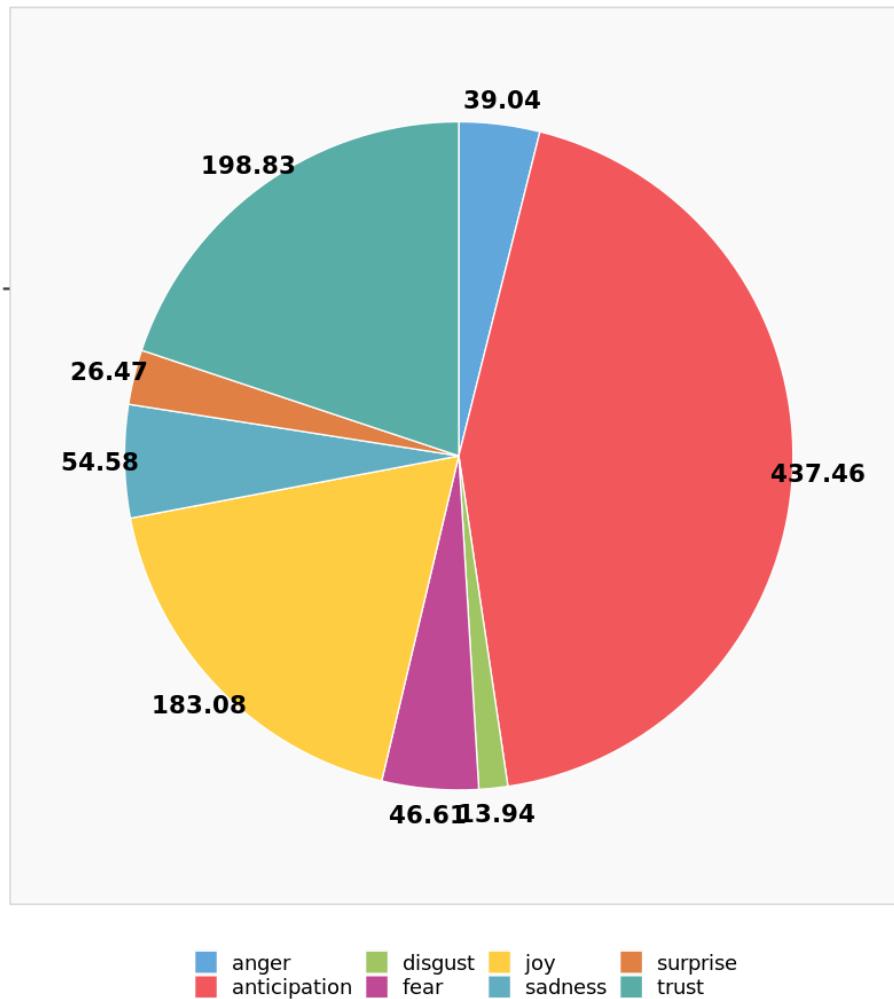
Emotion repartition

	Posts count	Relative posts count
Total	1 000.00	100%
anger	39.04	4%
anticipation	437.46	44%
disgust	13.94	1%
fear	46.61	5%
joy	183.08	18%
sadness	54.58	5%
surprise	26.47	3%
trust	198.83	20%

Emotion repartition. The number of posts that fall into different emotion categories summarized by their absolute and relative values. If a post has multiple emotions, then it is equally divided among those emotions.

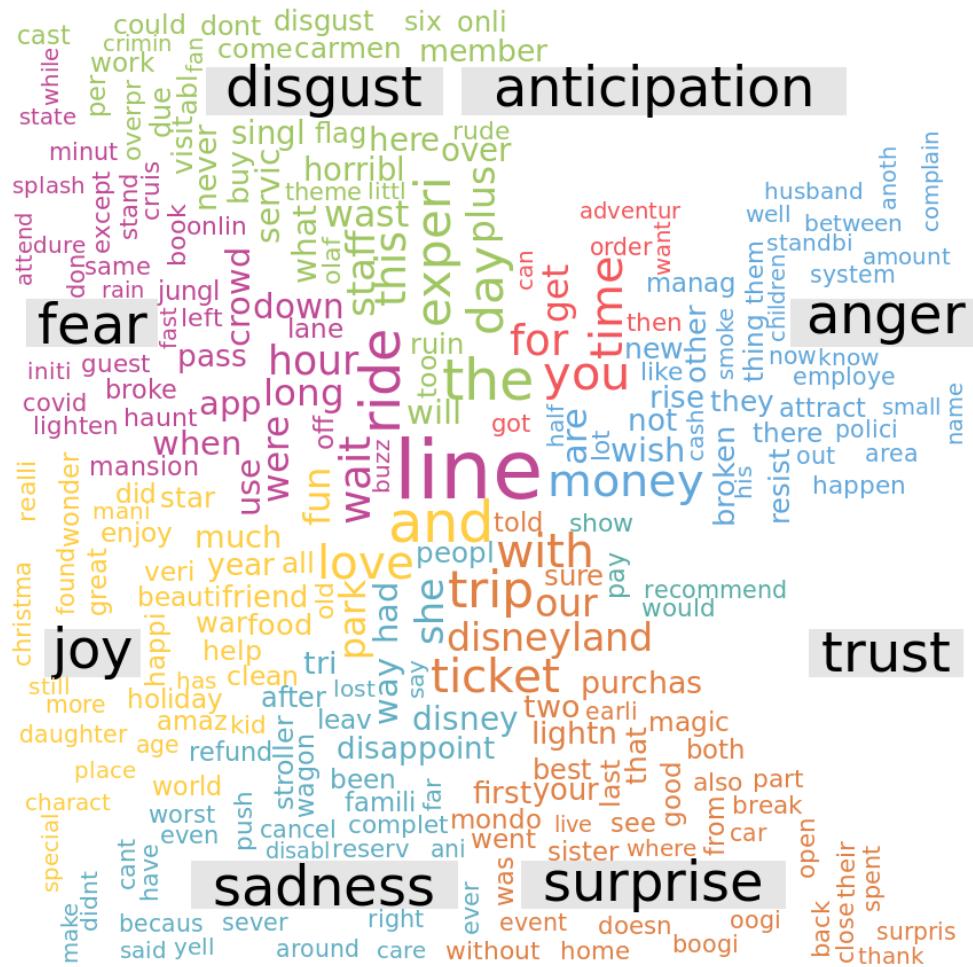


Emotion histogram. The emotion histogram indicates the number of posts by their emotion.



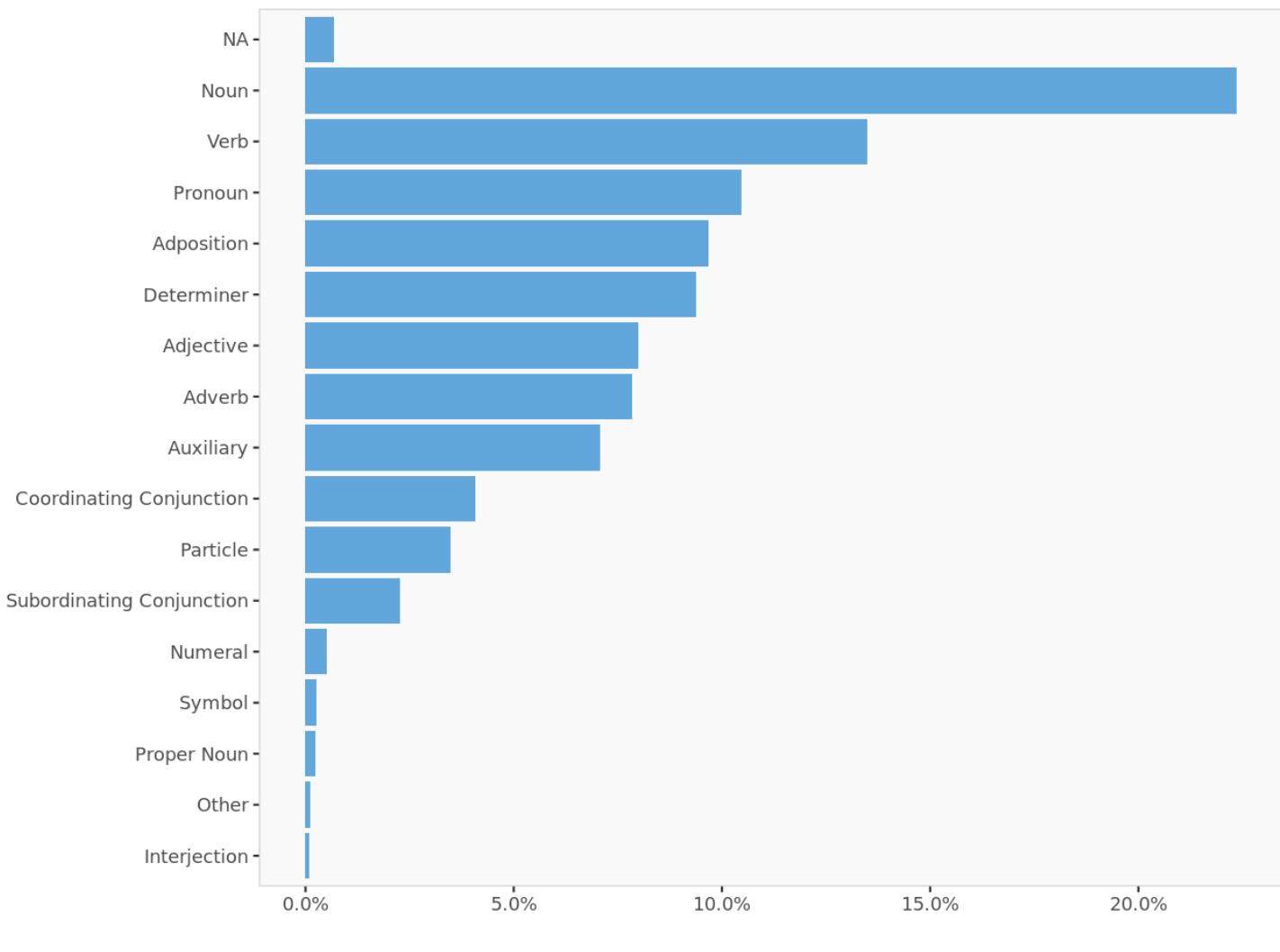
Emotion distribution without uncategorized posts. Graphic summary of the relative sizes of the number of posts classified by emotion after ignoring uncategorized posts.

Emotion word cloud



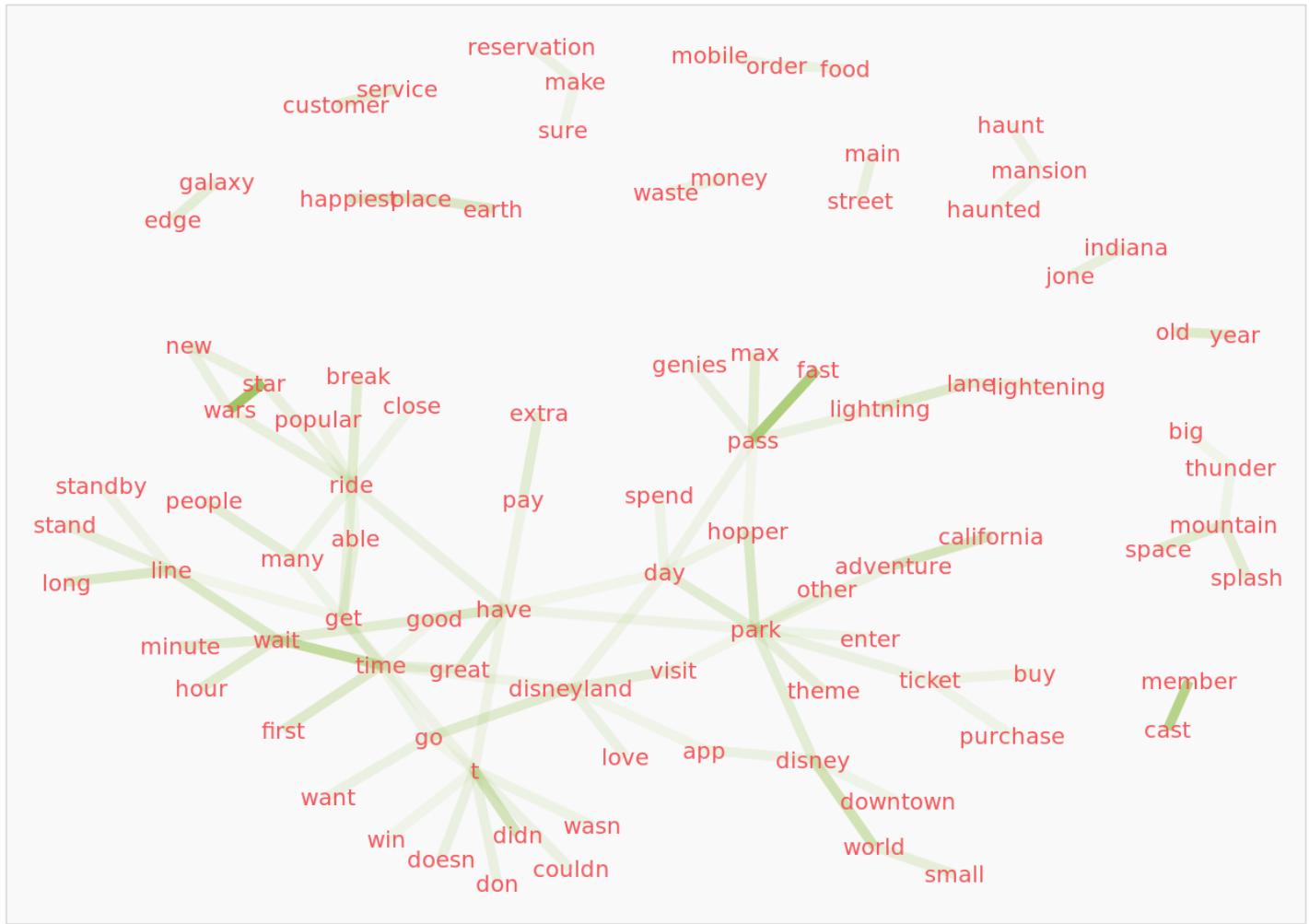
Emotion word cloud. Even if a post has multiple emotions its words will be shown only in one of those emotions.

Distribution of Universal Parts of Speech Tags

**Distribution of Universal Parts of Speech Tags.**

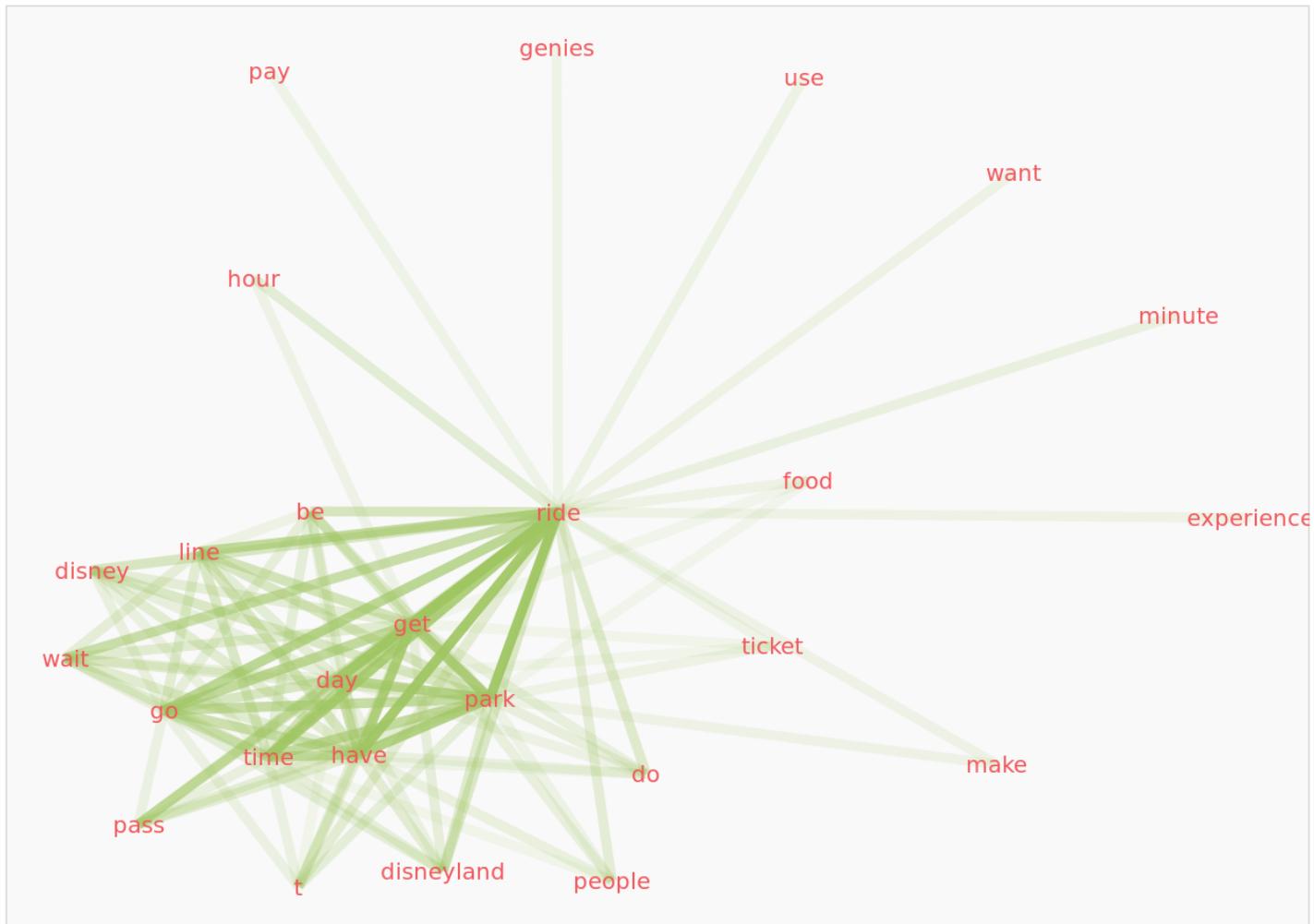
Graph of Word Co-Occurrences

Word co-occurrences between adjacent words in a corpus



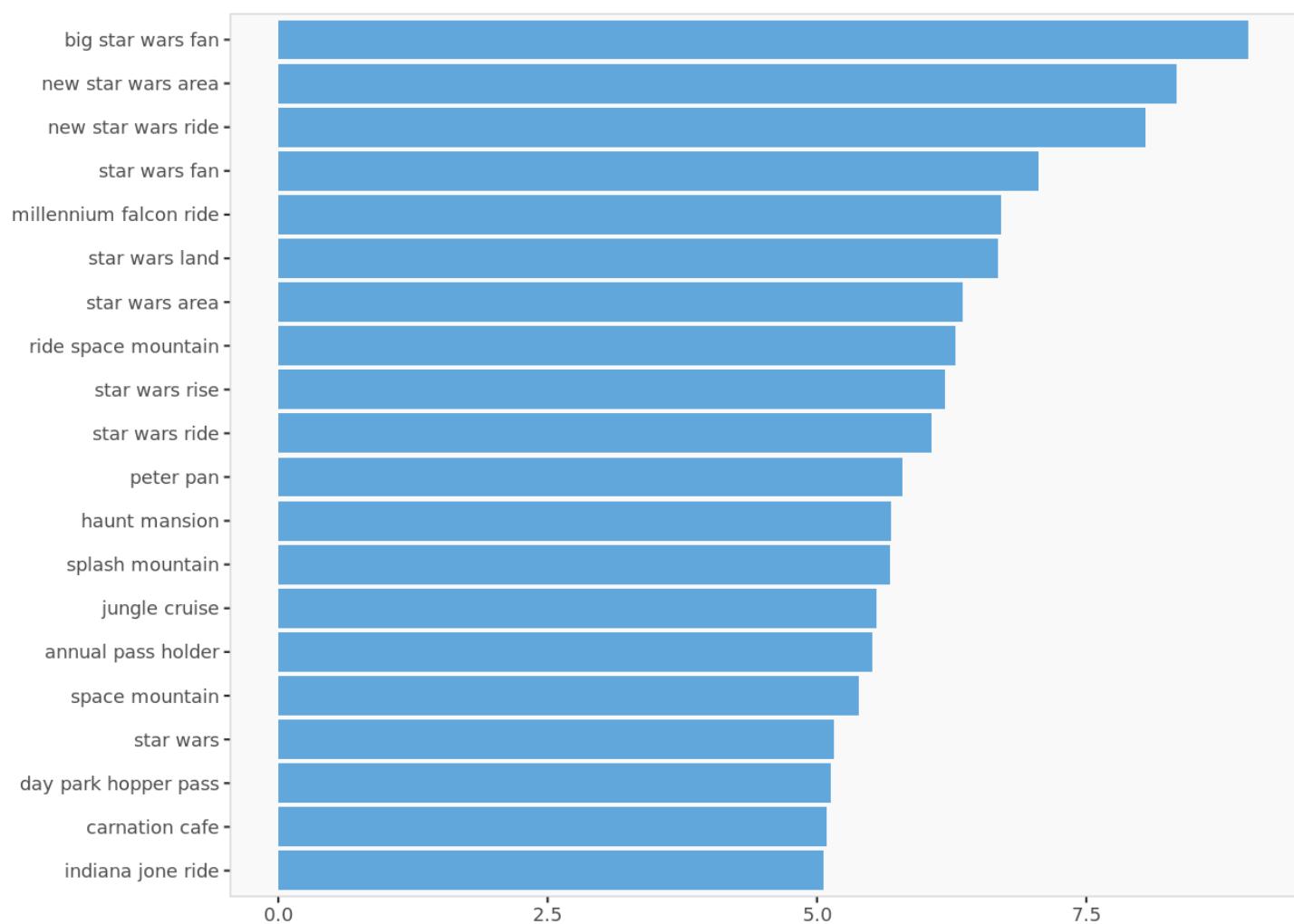
Includes Nouns, Verbs and Adjectives (retains custom stop-words).

Word co-occurrences within documents in a corpus



Includes Nouns, Verbs and Adjectives (retains custom stop-words).

RAKE Analysis (Rapid Automatic Keyword Extraction) -- Keywords with highest RAKE values



Keywords with highest RAKE values. The top keywords (i.e., contiguous sequence of words ignoring irrelevant words) were identified with minimum frequency of occurrences set to 0.01% of total word count.

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Enginious Positioning Analysis

Bhavya Priya Akula, The University of Tampa

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Positioning options

Options selected

Option	Selection
Include preferences	Yes
Number of dimensions	3
Focal brand	Disney Theme Parks
Show segments of preferences	No
Number of segments	Automatic
Decision rule	First-Choice
Current market shares	No
Date and time	2023-11-26 16:13:20 UTC

Options selected.

Data description

Data	Number of Rows	Number of columns	Column names
1 Perceptual data	7	7	C0, Disney Theme Parks, Six Flags, HersheyPark, Universal Studios, ...
2 Preference data	80	7	C0, Disney Theme Parks, Six Flags, HersheyPark, Universal Studios, ...

Data description.

Dimensions

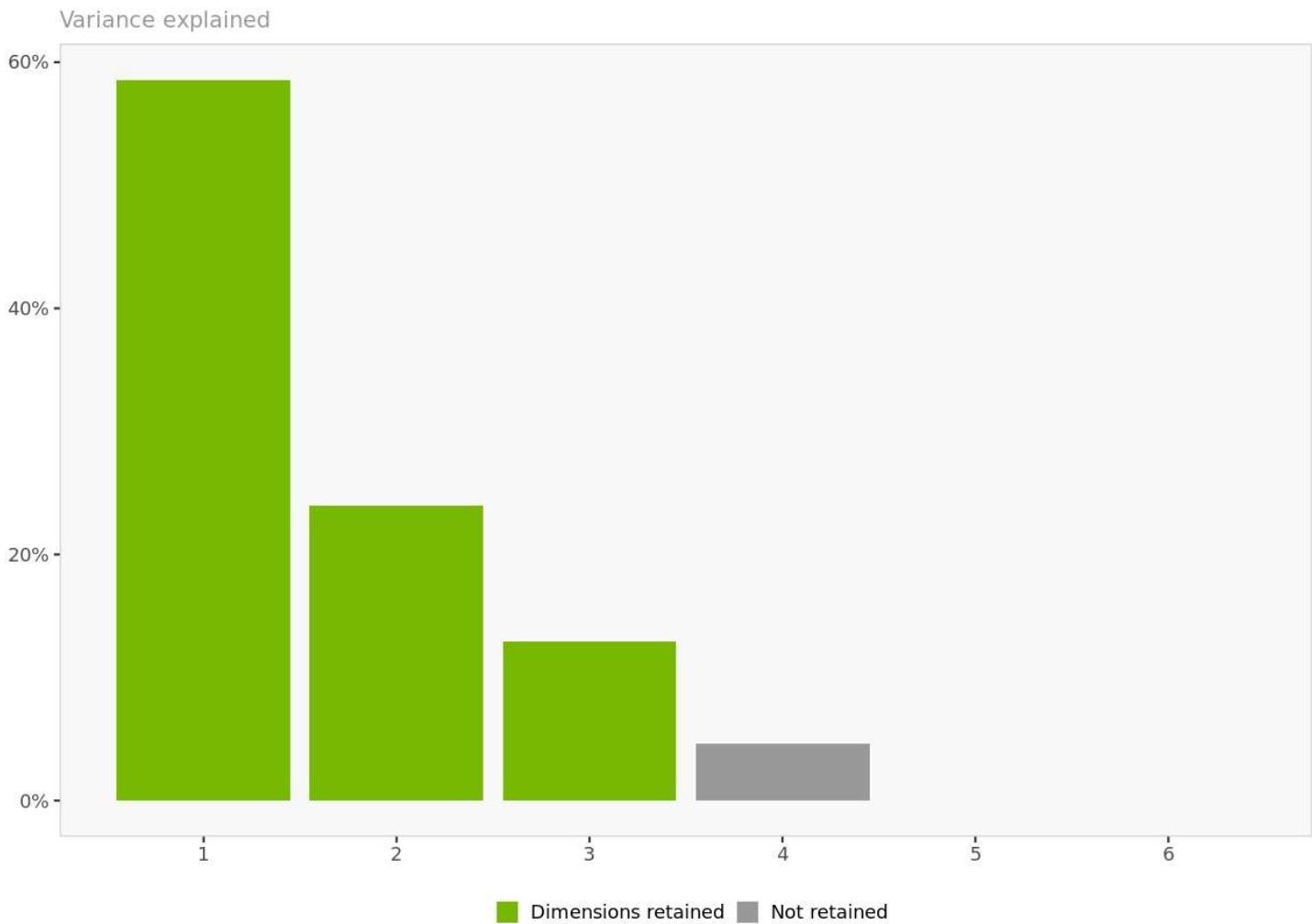
Number of dimensions retained

You have decided to display the first 3 dimensions, which account for a total of 95.4% of the variance in the data.

	Variance explained	Cumulative variance
Dimension 1	58.6%	58.6%
Dimension 2	24.0%	82.5%
Dimension 3	12.9%	95.4%
Dimension 4	4.6%	100.0%
Dimension 5	0.0%	100.0%
Dimension 6	0.0%	100.0%

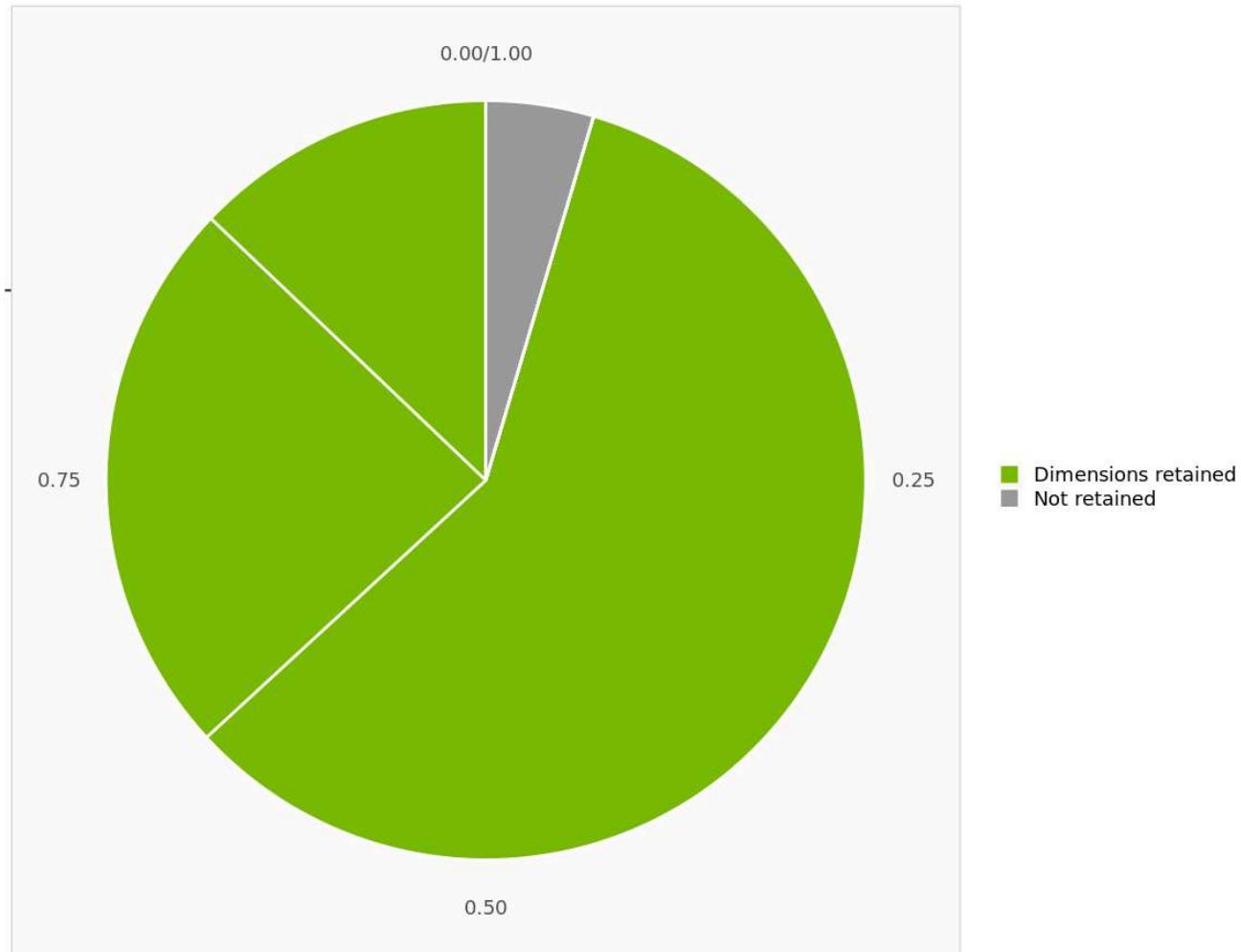
Variance explained. Variance and cumulated variance explained, by dimension.

Variance explained



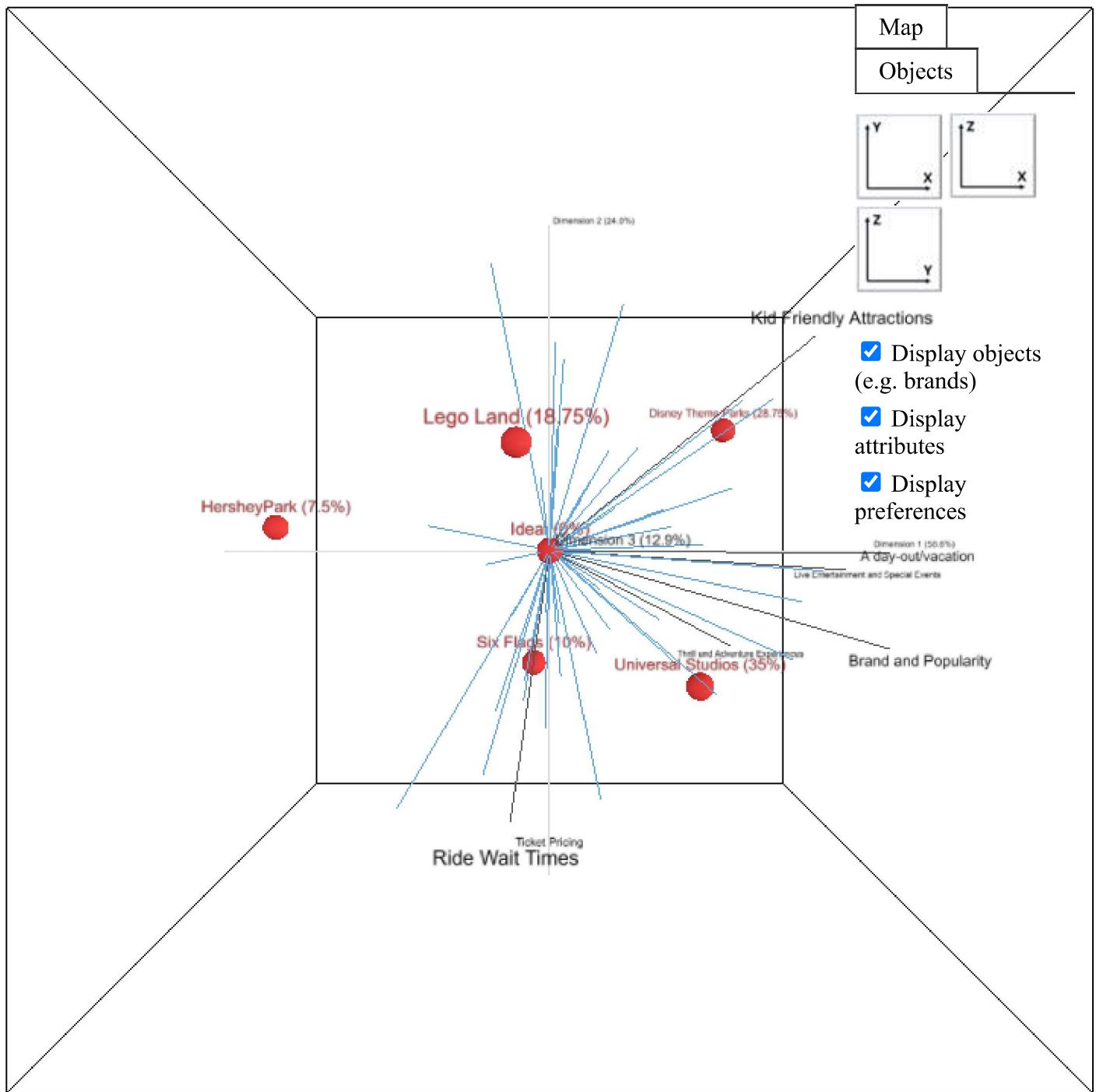
Variance explained. Each additional dimension captures a decreasing portion of the variance found in the original data.

Cumulative variance explained



Cumulative variance explained. The first 3 dimensions account for 95.4 % of the variance in the data.

3D visualization



Visualization in 3D of the perceptual map. To rotate the map, holds the left mouse button down and move it around.

Objects

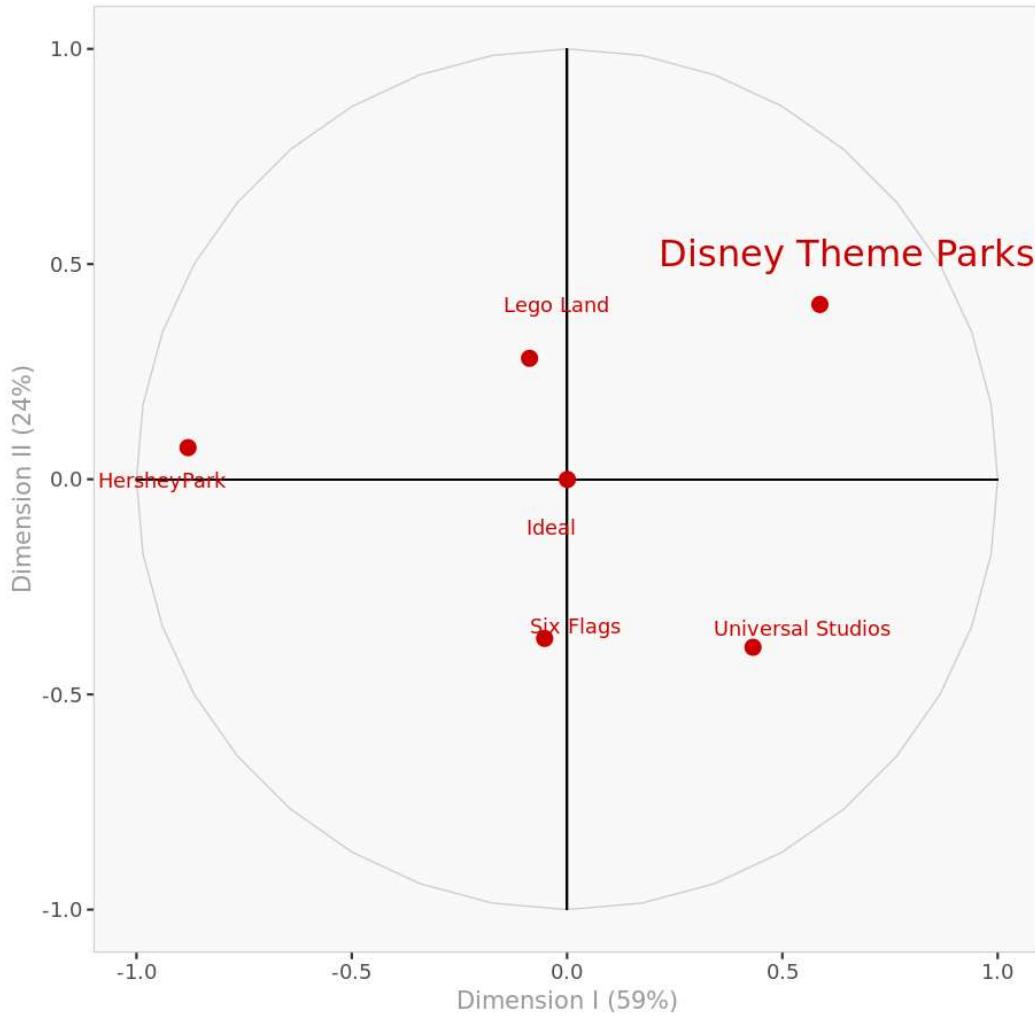
Interpretation

In this section, only the objects (e.g., brands) are displayed on the perceptual map.

In interpreting the map, remember that the closer two objects are, the more similar they are perceived to be, that is, the more similar they rate on the underlying attributes.

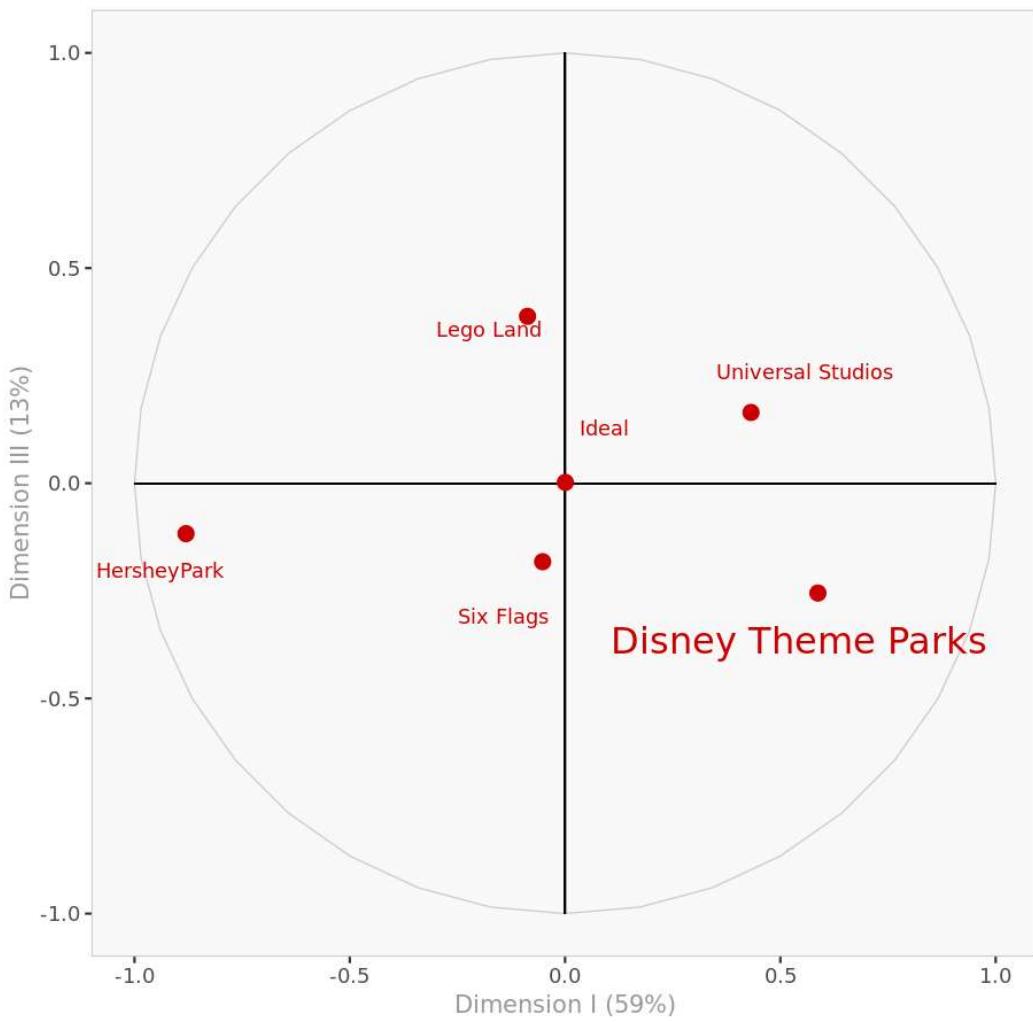
Since the first 3 dimensions of the perceptual map have been retained, the map can be seen as a cube in 3 dimensions. Each view displays the cube seen from a different angle.

Dimensions I-II



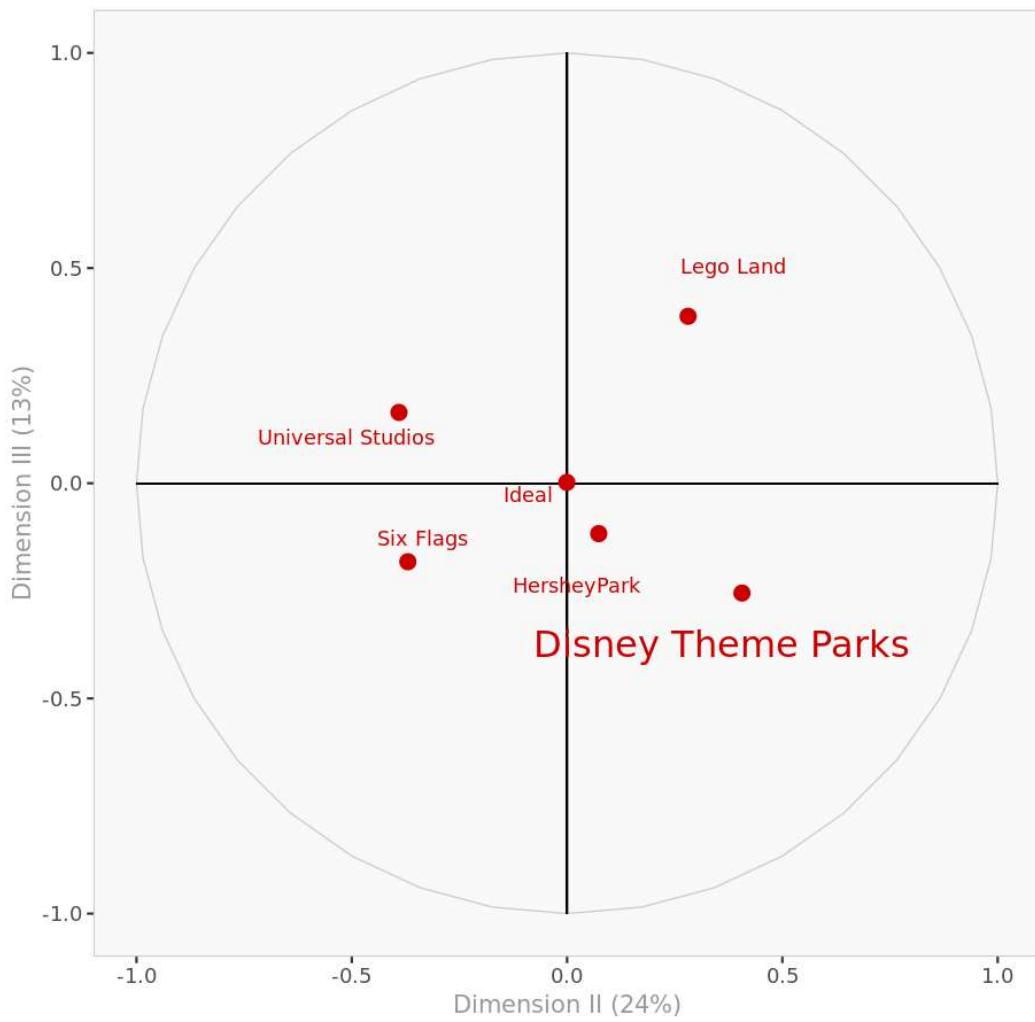
Objects I-II. Object position on the first and second dimensions of the perceptual map.

Dimensions I-III



Objects I-III. Object positions on the first and third dimensions of the perceptual map.

Dimensions II-III



Objects II-III. Object positions on the second and third dimensions of the perceptual map.

Coordinates

	Dimension I	Dimension II	Dimension III
Disney Theme Parks	0.587	0.406	-0.255
Six Flags	-0.052	-0.370	-0.182
HersheyPark	-0.880	0.073	-0.117
Universal Studios	0.432	-0.390	0.165
Lego Land	-0.087	0.281	0.388
Ideal	0.001	-0.001	0.002

Object coordinates. Displays the coordinates of all the objects in every dimension.

Attributes

Interpretation

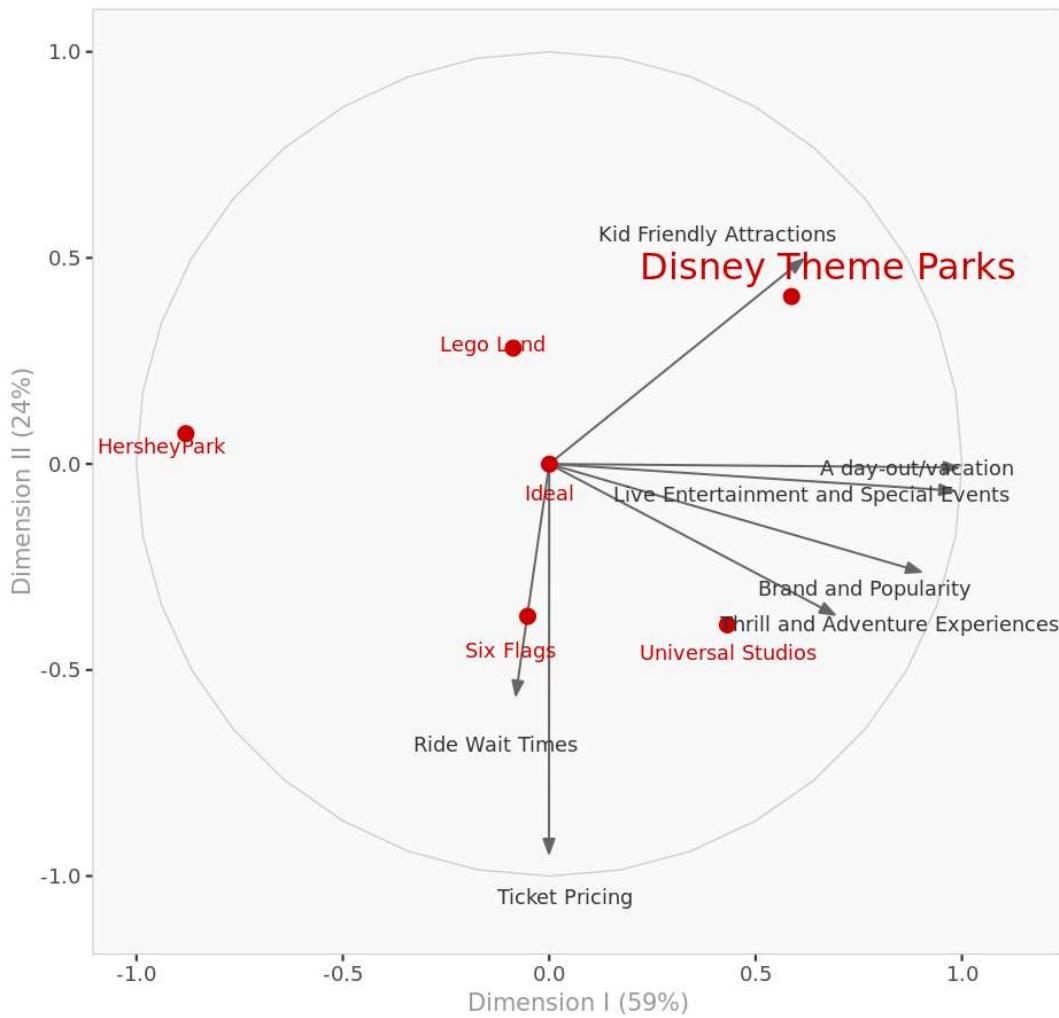
In interpreting the direction of the attributes, remember that:

- Two attributes that go in the same direction are positively correlated, that is, an object rated high on one attribute will usually be rated high on the other.
- Two attributes that are perpendicular to one another are uncorrelated.
- Two attributes that go in opposite directions are negatively correlated, that is, an object rated high on one attribute will often rate low on the other, and vice-versa.

In interpreting the length of the vector representing the attributes:

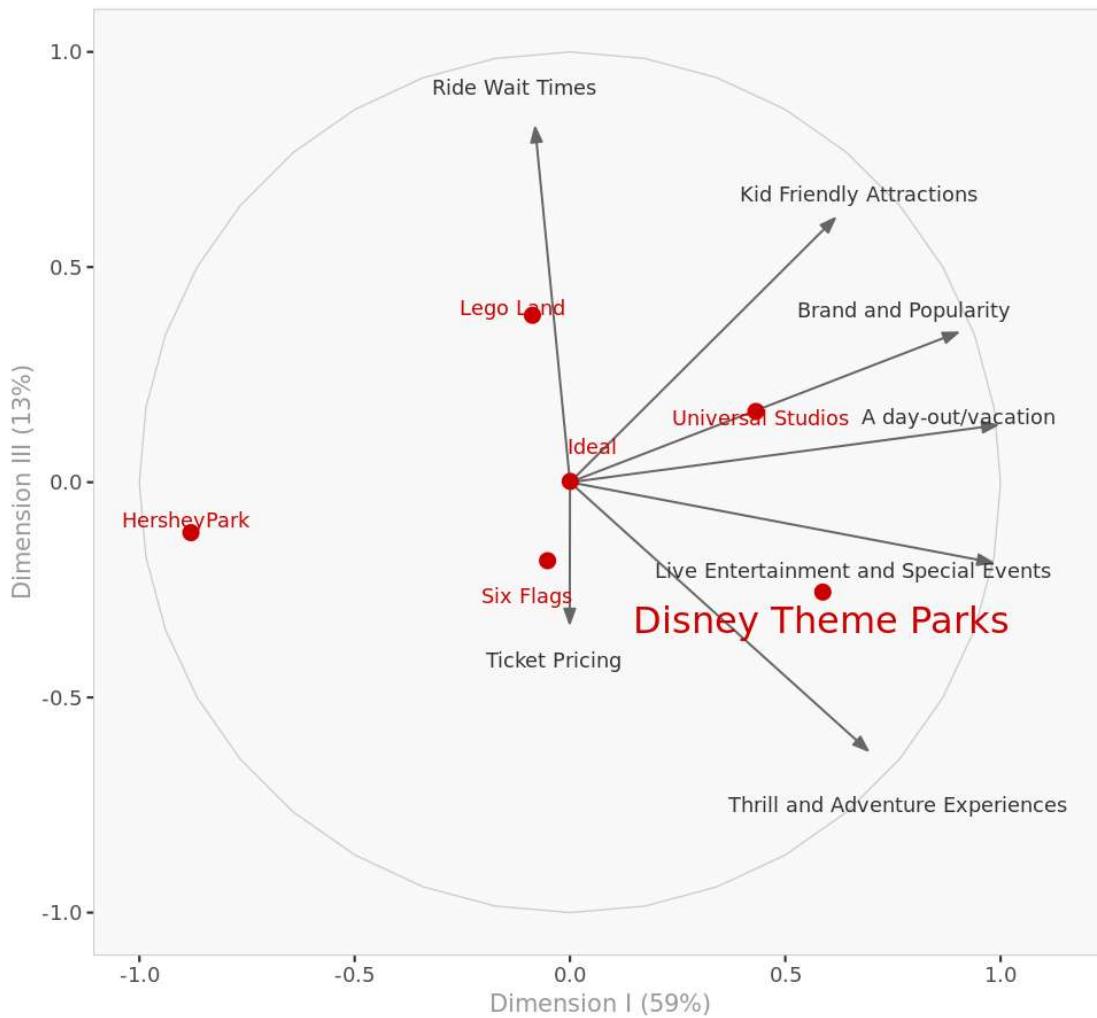
- The longer the attribute vector, the better that attribute is captured by the two dimensions displayed.
- If an attribute appears very close to the origin when looking at dimensions I and II, it could be longer and be better captured by dimension III.

Dimensions I-II



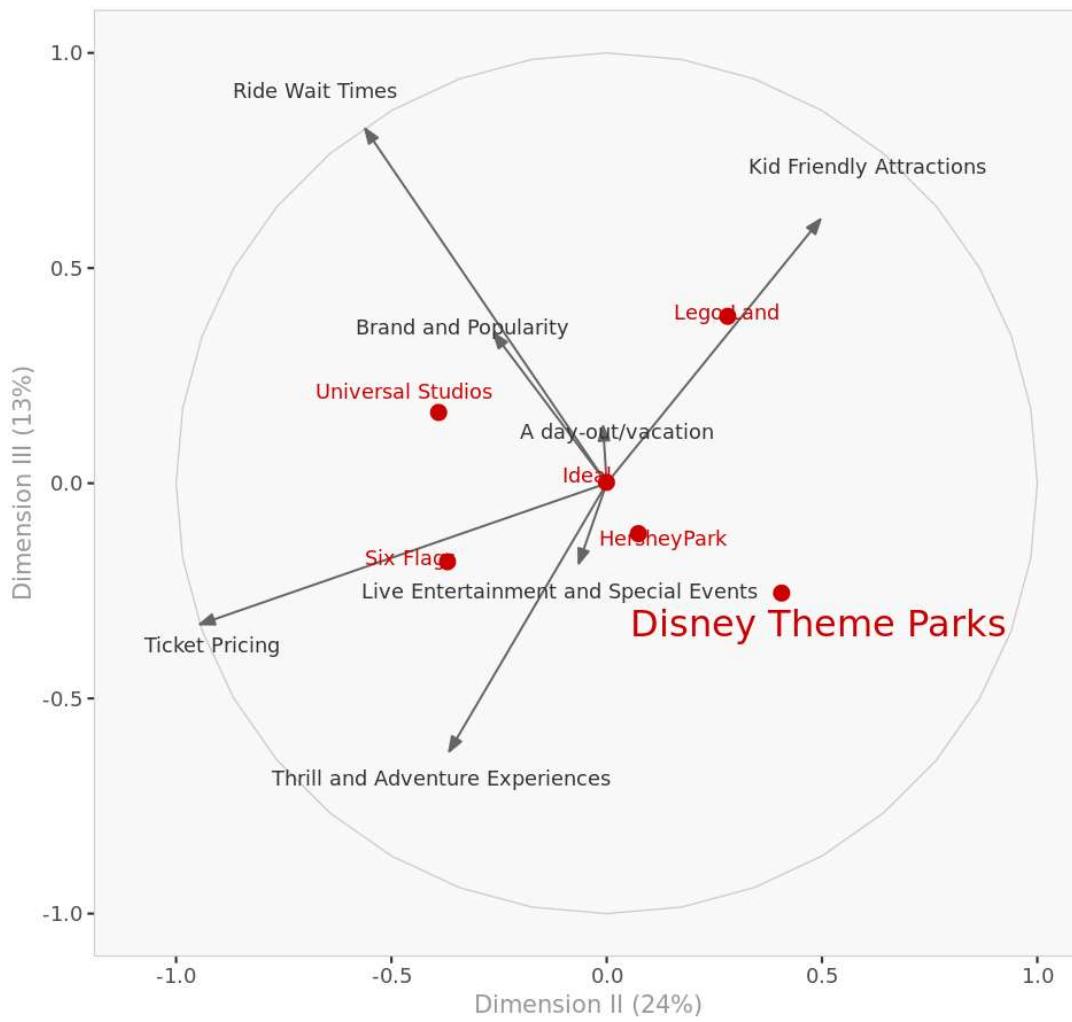
Attributes I-II. Objects and attributes on the first and second dimensions of the perceptual map.

Dimensions I-III



Attributes I-III. Objects and attributes on the first and third dimensions of the perceptual map.

Dimensions II-III



Attributes II-III. Objects and attributes on the second and third dimensions of the perceptual map.

Coordinates

	Dimension I	Dimension II	Dimension III
Brand and Popularity	0.900	-0.262	0.348
Kid Friendly Attractions	0.615	0.496	0.613
Thrill and Adventure Experiences	0.691	-0.366	-0.623
Live Entertainment and Special Events	0.980	-0.065	-0.186
A day-out/vacation	0.991	-0.009	0.133
Ride Wait Times	-0.081	-0.561	0.824
Ticket Pricing	-0.001	-0.945	-0.328

Attributes coordinates. Displays the coordinates of all the attributes in every dimension.

Summary

	Dimension I	Dimension II	Dimension III
1 Most positive	A day-out/vacation		Ride Wait Times
2		Live Entertainment and Special Events	
3		Brand and Popularity	

4 ...	
5 Most negative	Ticket Pricing

Dimension interpretation. Displays the names of the attributes most aligned with each dimension.

	Dimension I	Dimension II	Dimension III
Brand and Popularity	0.1098	-0.0319	0.0424
Kid Friendly Attractions	0.1021	0.0824	0.1018
Thrill and Adventure Experiences	0.1098	-0.0581	-0.0990
Live Entertainment and Special Events	0.1173	-0.0078	-0.0223
A day-out/vacation	0.1248	-0.0011	0.0167
Ride Wait Times	-0.0190	-0.1313	0.1929
Ticket Pricing	-0.0001	-0.1890	-0.0655

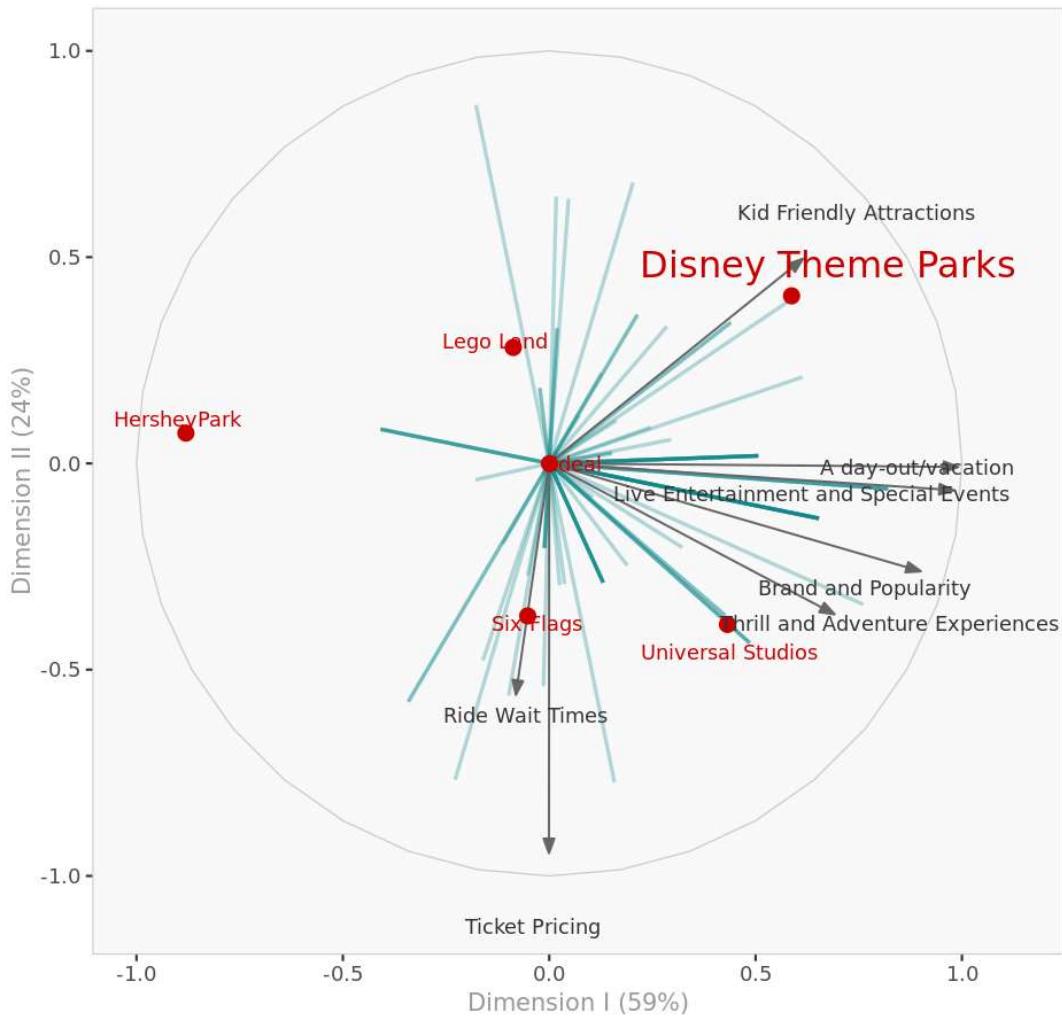
Factor loadings (excerpt). Displays the factor loadings of attributes.

	Mean	Stdev
Brand and Popularity	4.197	0.8976
Kid Friendly Attractions	4.040	0.7460
Thrill and Adventure Experiences	4.250	0.7379
Live Entertainment and Special Events	3.672	1.1271
A day-out/vacation	4.007	0.7570
Ride Wait Times	2.947	0.4135
Ticket Pricing	2.722	0.4910

Mean and standard deviation (excerpt). Displays the means and standard deviations of the attributes.

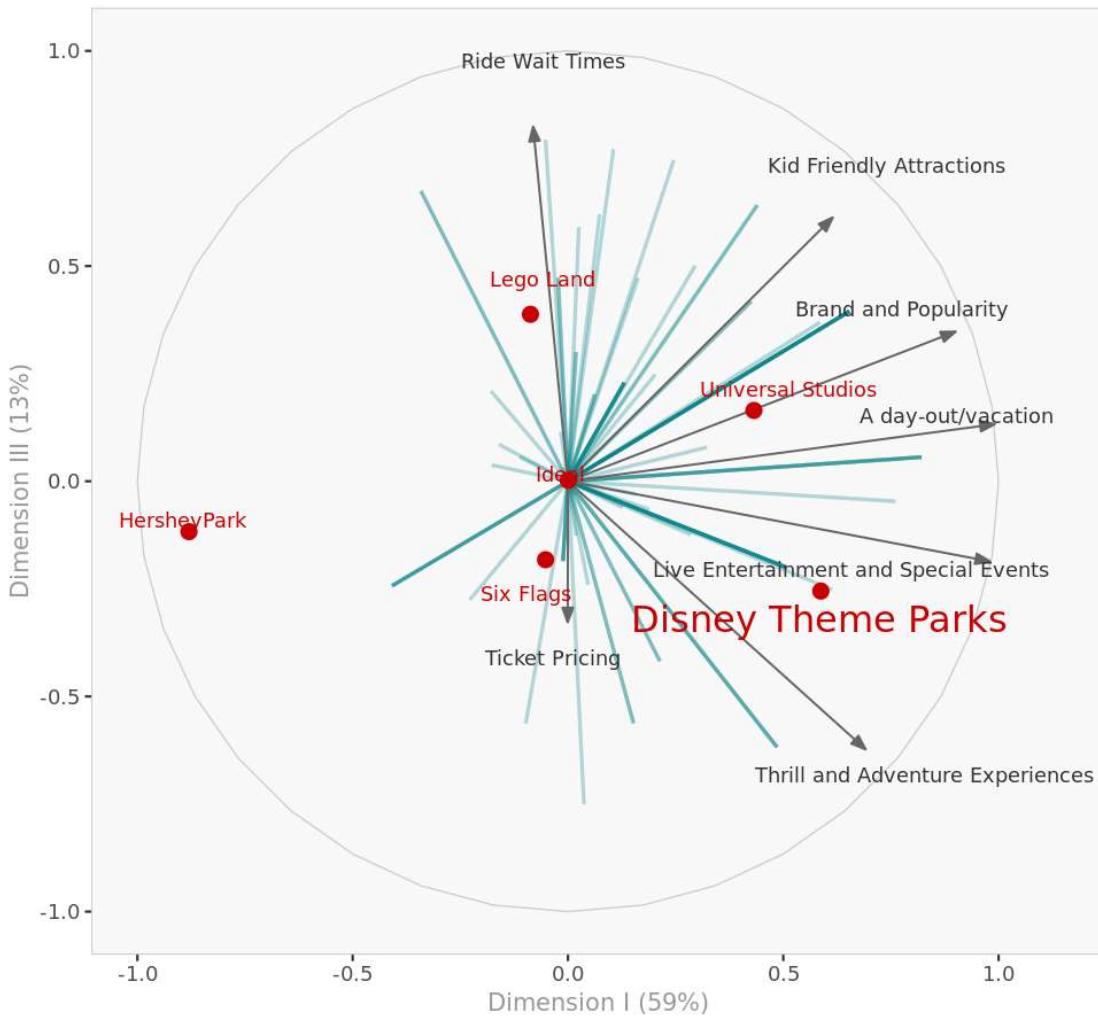
Preferences

Dimensions I-II



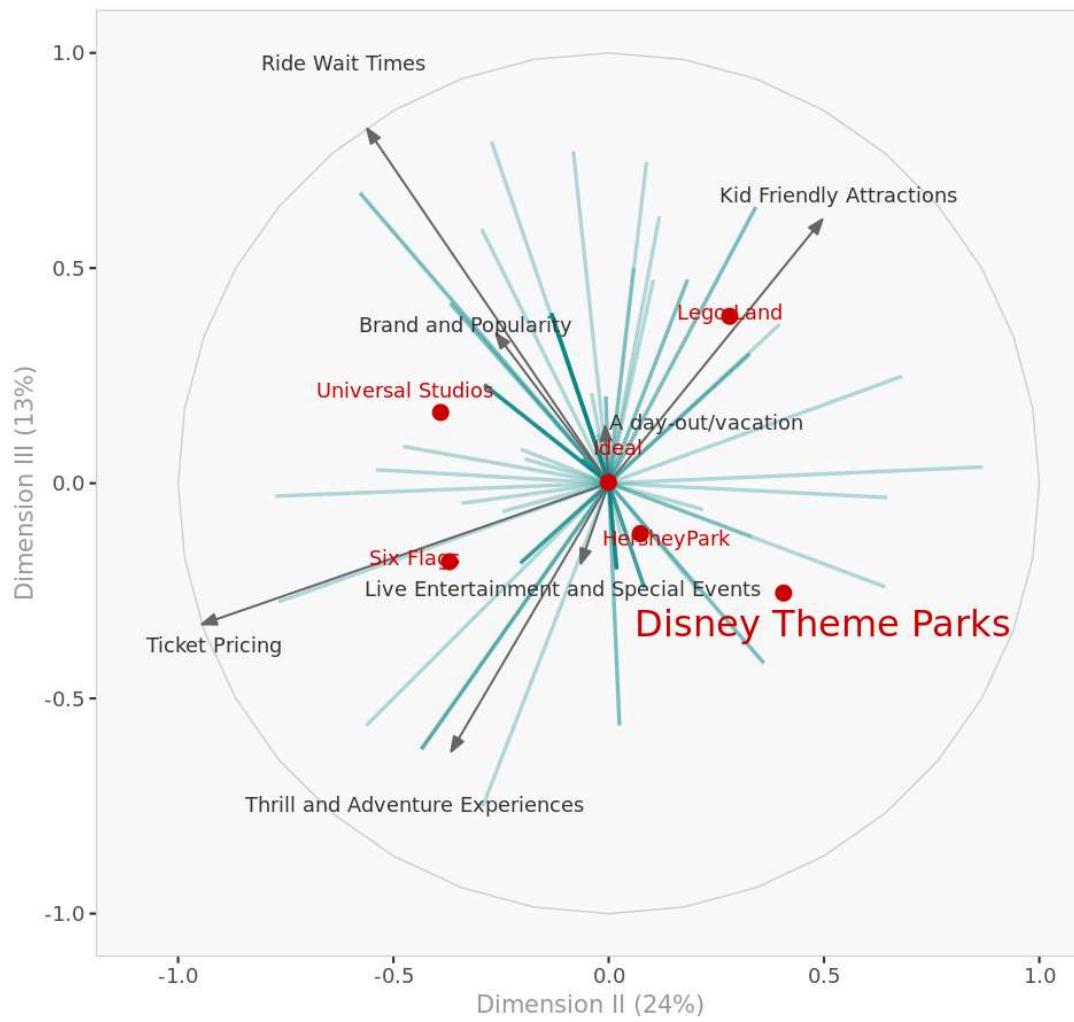
Perceptual Map I-II. Complete perceptual map with objects, attributes and preferences on the first and second dimensions.

Dimensions I-III



Perceptual Map I-III. Complete perceptual map with objects, attributes and preferences on the first and third dimensions.

Dimensions II-III

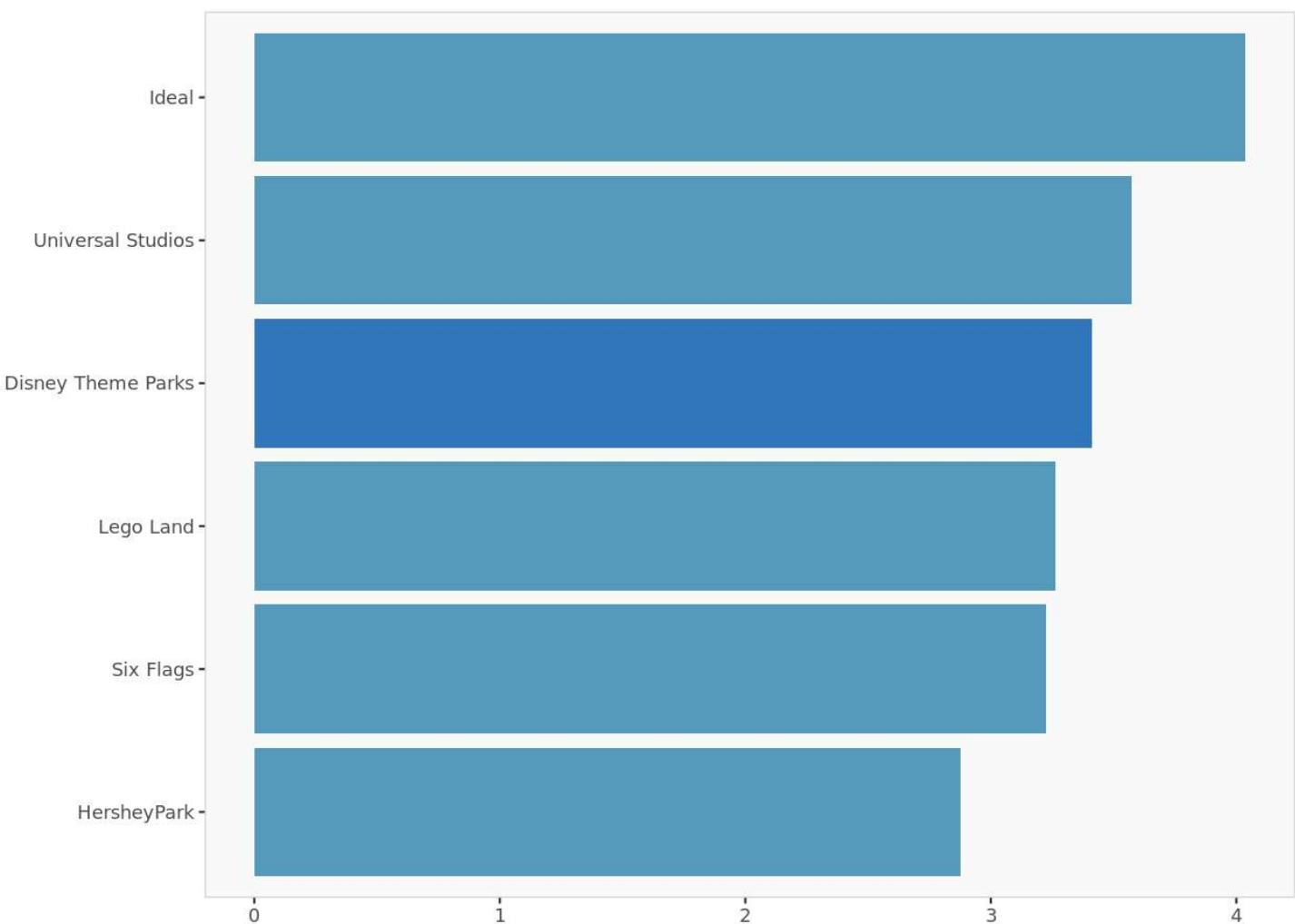


Perceptual Map II-III. Complete perceptual map with objects, attributes and preferences on the second and third dimensions.

Preference data

Average preference	
Ideal	4.04
Universal Studios	3.58
Disney Theme Parks	3.41
Lego Land	3.26
Six Flags	3.23
Hershey Park	2.88

Average brand preference. For each brand, displays its average preference value in decreasing order.



Average preferences histogram. For each brand, displays its average preference value.

	Dimension I	Dimension II	Dimension III
1	-0.179	-0.040	0.210
2	0.131	-0.289	0.229
3	0.019	0.029	-0.127
4	-0.409	0.083	-0.243
5	-0.228	-0.767	-0.275
6	0.613	0.209	-0.252
7	-0.017	-0.027	0.115
8	0.761	-0.342	-0.047
9	0.152	0.025	-0.563
10	-0.342	-0.578	0.675

Customer preferences (excerpt). Displays the coordinates of customer preferences in every dimension.

Market shares

Introduction

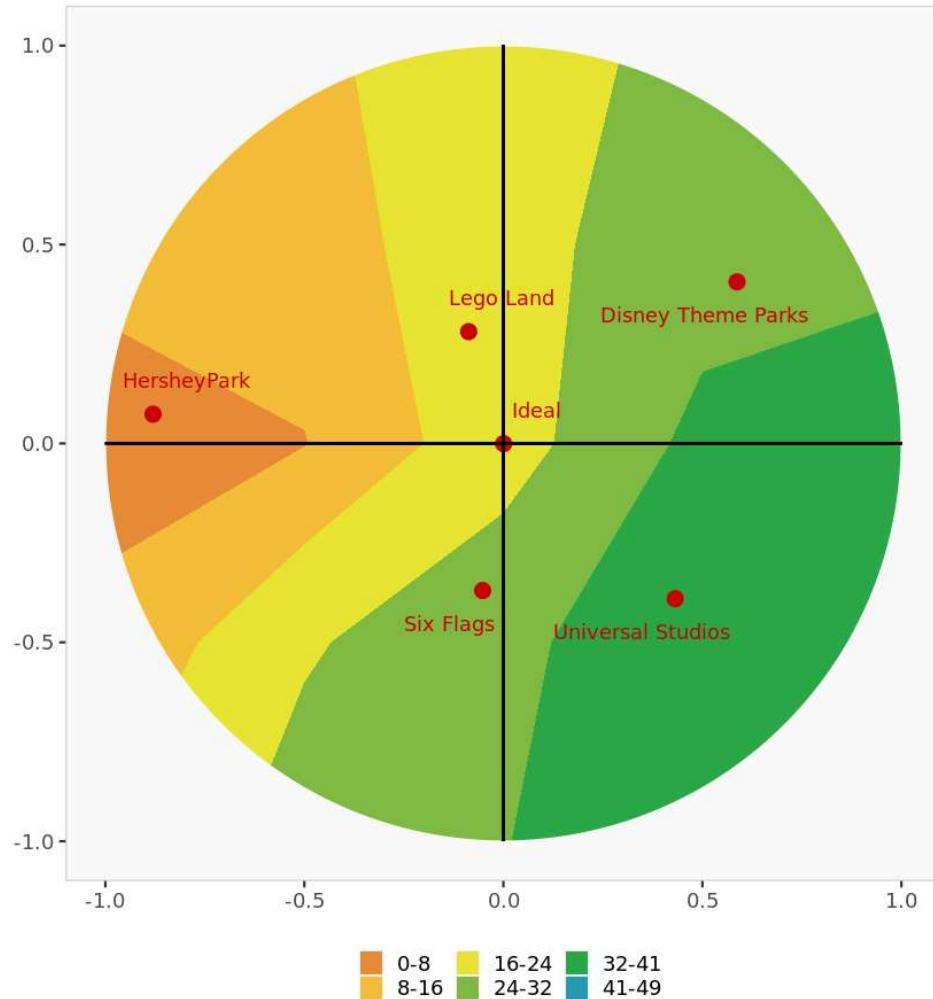
The following charts display simulations of the market shares a new product would achieve, depending on its position on the perceptual maps.

When two dimensions are displayed (e.g., Dimensions I and II), the new product is assumed to be at the center of the third dimension (e.g., Dimension III = 0).

These computations assume that all the other existing objects (i.e., products) will remain in the market, in their respective positions, and compete with the new entrant.

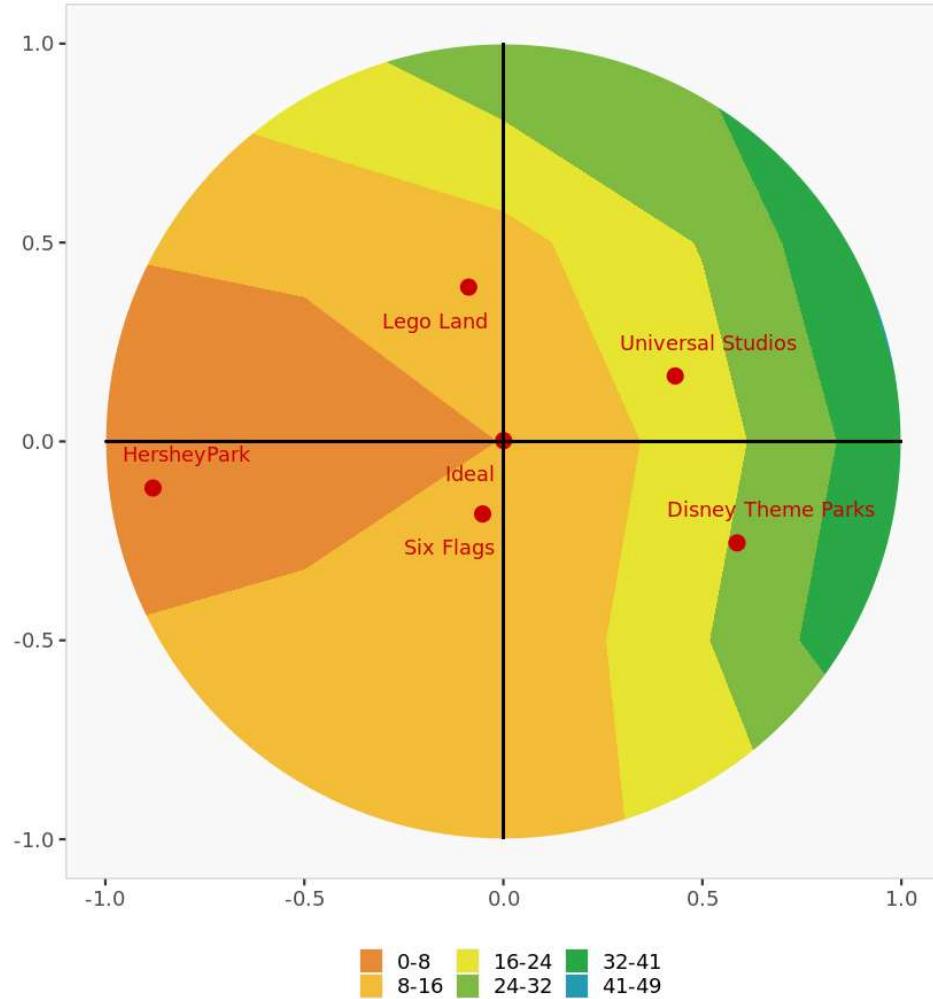
Market shares are estimated based on stated customers' preferences and the first-choice-rule.

Dimension I-II



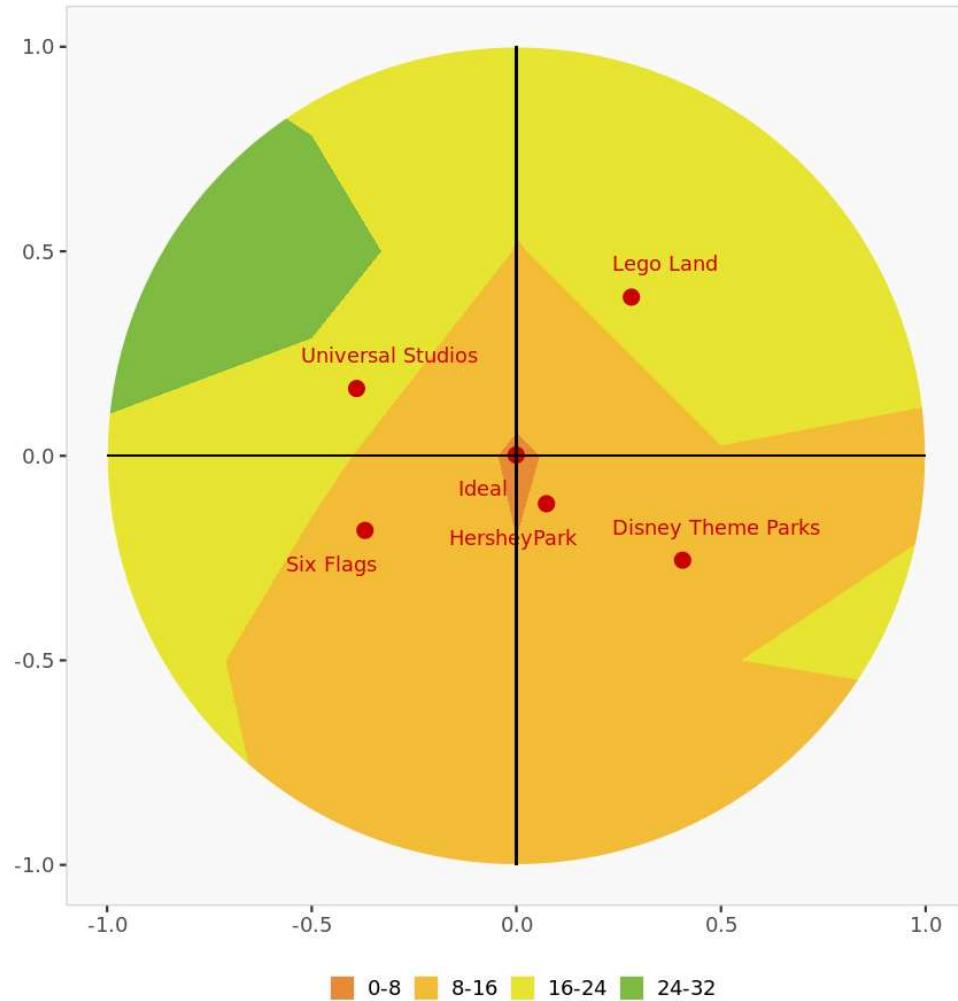
Market shares Dimension I-II. Objects positions along with market shares

Dimension I-III



Market shares Dimension I-III. Objects positions along with market shares

Dimension II-III



Market shares Dimension II-III. Objects positions along with market shares

	Intercept	Dimension I	Dimension II	Dimension III
1	3.17	-0.879	-0.195	1.030
2	2.33	0.328	-0.726	0.575
3	4.67	0.106	0.165	-0.710
4	3.33	-0.668	0.135	-0.397
5	4.67	-0.380	-1.276	-0.459
6	3.67	1.890	0.645	-0.775
7	3.50	-0.105	-0.166	0.717
8	3.33	2.072	-0.931	-0.127
9	4.00	0.814	0.133	-3.007
10	4.83	-0.446	-0.754	0.881

Preference beta values (excerpt).

	Parameter	Value
1	Rule	First-choice
2	alpha	none

Market share parameter table.

	Disney Theme Parks	Six Flags	Hershey Park	Universal Studios	Lego Land	Ideal
1	2	4	3	2	4	4
2	2	2	2	3	2	3
3	5	4	5	5	4	5
4	3	3	4	3	3	4
5	4	5	5	5	4	5
6	5	3	2	4	3	5
7	3	4	3	3	4	4
8	4	4	1	4	3	4
9	5	5	3	3	3	5
10	4	5	5	5	5	5

Actual preference data (excerpt).

Perceptual data

Perceptual data

	Disney Theme Parks	Six Flags	HersheyPark	Universal Studios	Lego Land	Ideal
Brand and Popularity	4.7	4.7	2.4	4.7	4.5	4.2
Kid Friendly Attractions	4.8	3.3	3.0	4.5	4.6	4.0
Thrill and Adventure Experiences	5.0	4.7	3.2	4.8	3.6	4.3
Live Entertainment and Special Events	5.0	3.1	2.2	5.0	3.0	3.7
A day-out/vacation	4.8	3.9	2.7	4.7	3.9	4.0
Ride Wait Times	2.2	3.0	2.9	3.5	3.2	3.0
Ticket Pricing	2.3	3.3	2.7	3.3	2.1	2.7

Perceptual data overview. Perception values for each attribute are shown in red if they are significantly (1 standard deviation) less than average perception of all brands. Perception values are shown in green if they are significantly more than average perception of all brands.



Attributes histograms. For each attribute, this chart displays a histogram of brand positions.

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Enginious GE McKinsey Matrix

Hrithik Vardhan Bontha, University of Tampa

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GE/McKinsey matrix

- [GE/McKinsey matrix: Marketing Weights](#)
- [GE/McKinsey matrix: Finance Weights](#)

Predictive options

Options selected

Option	Selection
Rating weights	Yes
Dynamic ratings	No
Bubble sizes	Yes
Market shares	Market shares
Scaling	Absolute scaling
Date and time	2023-11-28 07:10:34 UTC

Options selected.

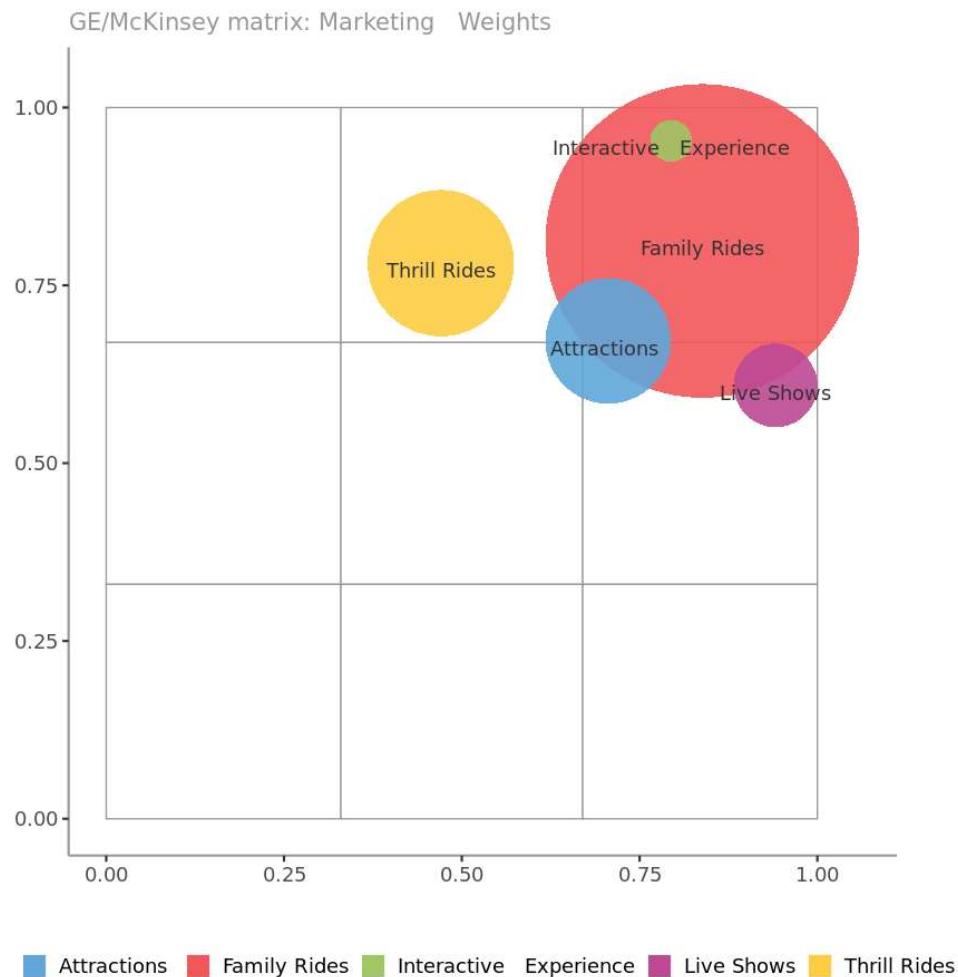
Data description

	Data	Number of Rows	Number of columns	Column names
1	Horizontal ratings data	4	6	C0, Attractions , Family Rides, Thrill Rides, Live Shows, ...
2	Vertical ratings data	4	6	C0, Attractions , Family Rides, Thrill Rides, Live Shows, ...
3	Horizontal weights data	4	3	C0, Marketing Weights, Finance Weights
4	Vertical weights data	4	3	C0, Marketing Weights, Finance Weights
5	Horizontal dynamic ratings data	1	6	\, Attractions , Family Rides, Thrill Rides, Live Shows, ...

Data description.

GE/McKinsey matrix

GE/McKinsey matrix: Marketing Weights



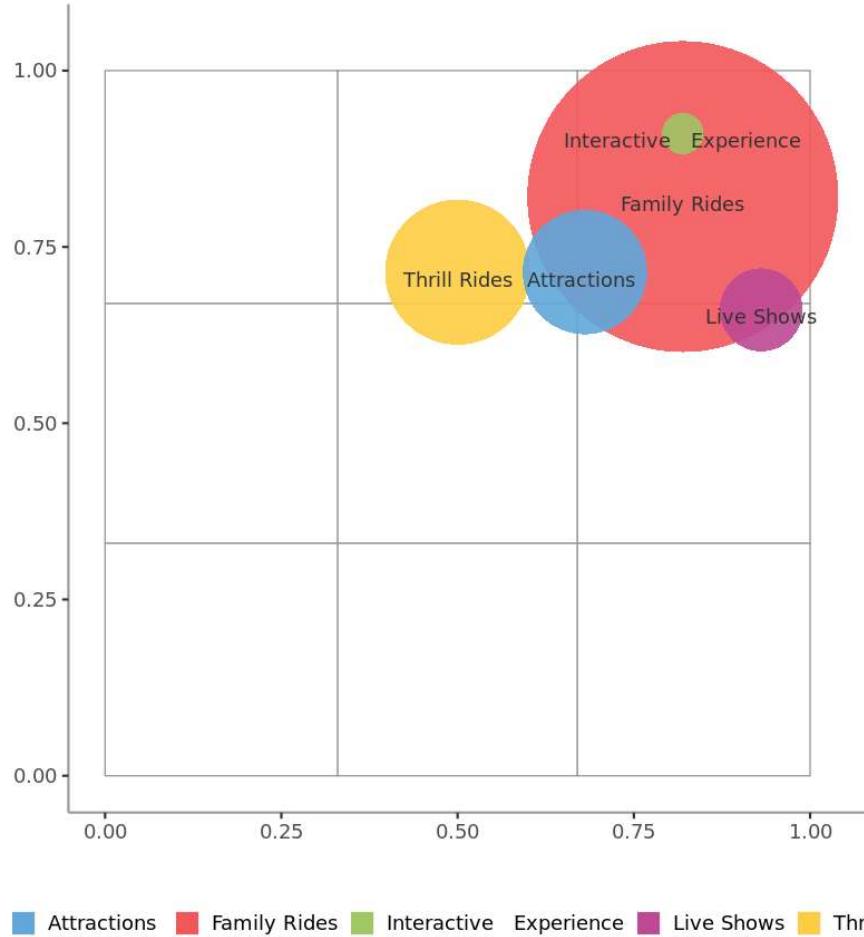
GE/McKinsey matrix for Marketing Weights. If you would like to name the axes, type a label in the upper-left cell of the corresponding horizontal or vertical ratings.

	x-coordinate	y-coordinate	Size
Attractions	0.71	0.67	0.18
Family Rides	0.84	0.81	0.44
Thrill Rides	0.47	0.78	0.21
Live Shows	0.94	0.61	0.12
Interactive Experience	0.79	0.95	0.06

Bubble coordinates in the GE/McKinsey matrix for Marketing Weights.

GE/McKinsey matrix: Finance Weights

GE/McKinsey matrix: Finance Weights



■ Attraction ■ Family Rides ■ Interactive Experience ■ Live Shows ■ Thrill Rides

GE/McKinsey matrix for Finance Weights. If you would like to name the axes, type a label in the upper-left cell of the corresponding horizontal or vertical ratings.

	x-coordinate	y-coordinate	Size
Attractions	0.68	0.71	0.18
Family Rides	0.82	0.82	0.44
Thrill Rides	0.50	0.71	0.21
Live Shows	0.93	0.66	0.12
Interactive Experience	0.82	0.91	0.06

Bubble coordinates in the GE/McKinsey matrix for Finance Weights.

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Price Optimization

Julia Tarhini, University of Tampa

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Model selection

Introduction

Different models have been tested to model the data you have provided, and the one model that led to the best fit was retained.

The tested models differ in the way the influence of price is encoded. The price influence can be:

- Linear (price)
- Logarithmic (log(price))
- Square root (sqrt(price))

Different combinations of the above price encodings can be combined, depending on the nature of the data.

Model selection

	Ceiling	Intercept	Price	log(Price)	sqrt(Price)	BIC	Selected
Model 1	0.50	0.00	-0.01			180.36	
Model 2	1.00	0.37	-0.22		2.81	167.29	YES
Model 3	0.50	0.00	-0.01	0.00		180.36	
Model 4	1.00	0.17	-0.13	0.74	1.29	167.70	

Model selection.

The survey data of observed purchase behaviour is best described by a logit model with the following number of parameters: 4

The estimated model has a ceiling parameter of 1.0000 . This means that the maximum attainable market share is 100.00 %

This logit model includes a ceiling, intercept and two slope parameters. Likelihood is a function of price and the square root of price.

Model fit

Model parameters

	Ceiling	Intercept	Price	sqrt(Price)
Values	1.00	0.37	-0.22	2.81
Standards errors	0.23	8.71	0.05	1.21
P-value	0.00	0.97	0.00	0.02

Model parameters.

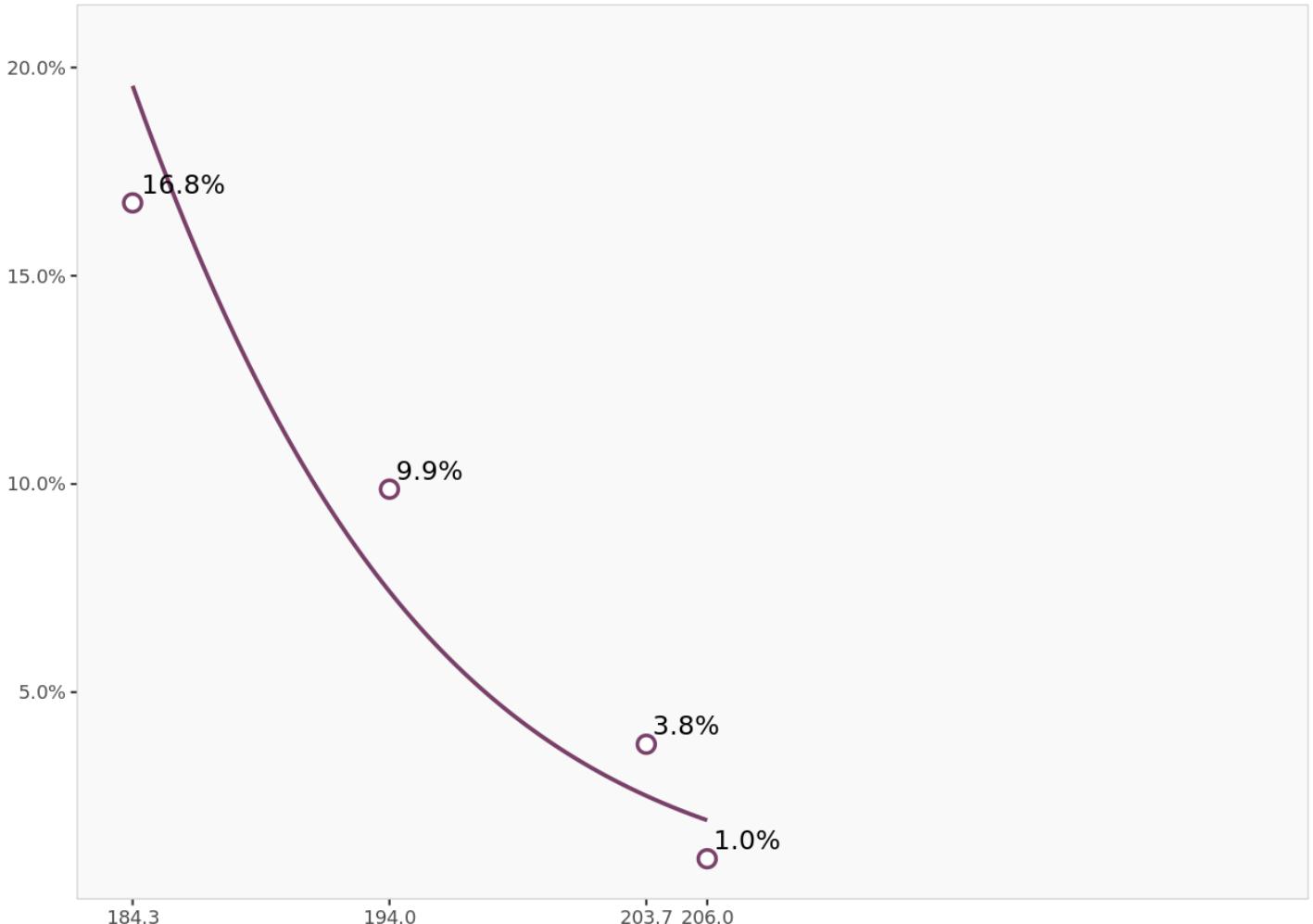
The p-values of the parameters are highlighted in green if significant at 5% level.

Model fit

	Measures of model fit
Root Mean Squared Error	0.0202
R-squared	1.3667
McFadden R-squared	0.0887
Bayesian Information Criterion	167.2882

Model Fit.

Predicted purchase likelihood



Predicted likelihood. The dots represent the purchase likelihood derived from the survey for different price levels. The line represents the model predictions.

	Price level 1	Price level 2	Price level 3	Price level 4
Price levels	184.30	194.00	203.70	206.00
Purchase likelihood (from survey)	16.8%	9.9%	3.8%	1.0%
Predicted likelihood (from model)	19.6%	7.4%	2.5%	1.9%

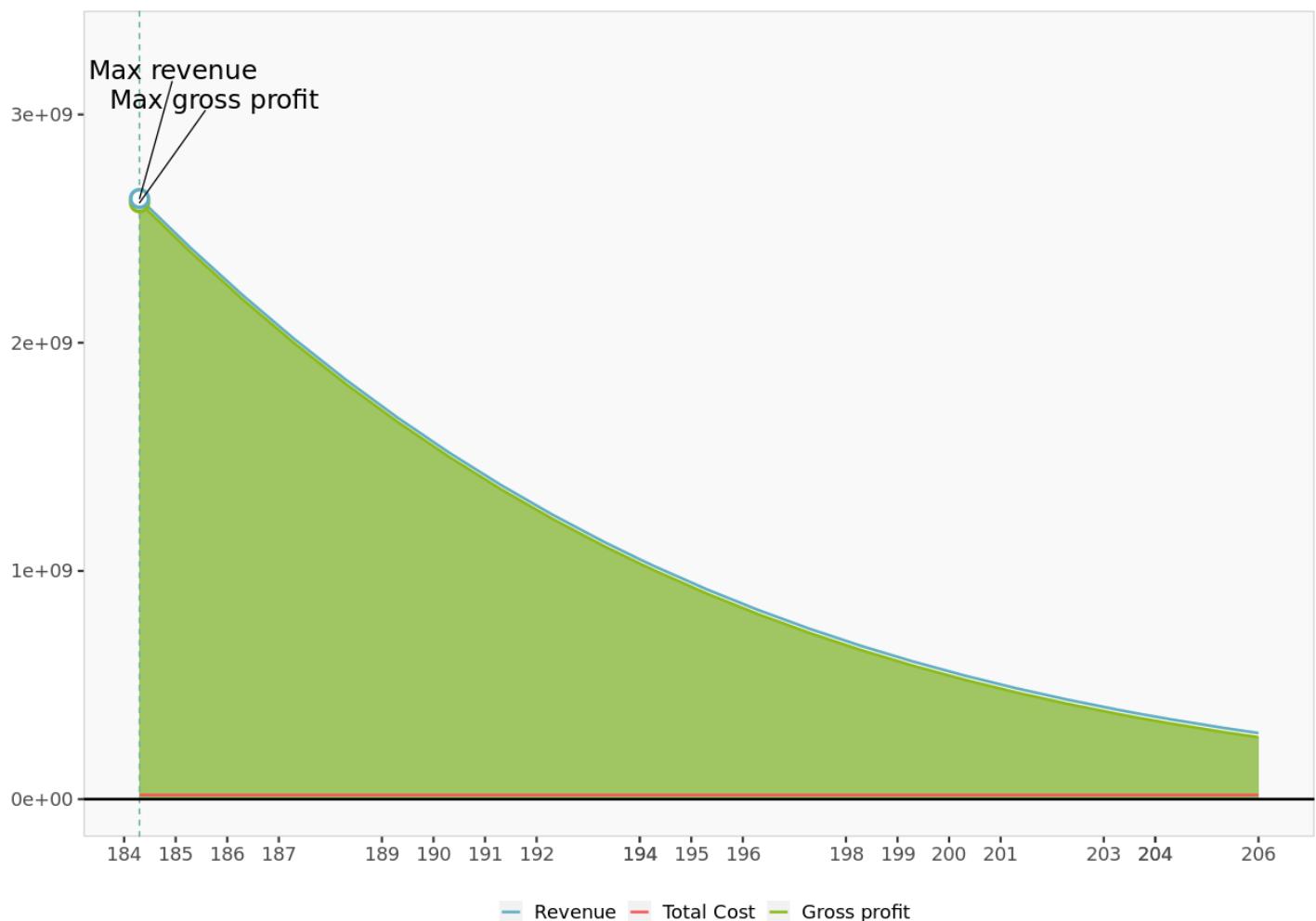
Model predictions.

Price optimization

Optimization results

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	194.00	7.4%	5 415 911	1 050 686 812.74	18 250 000.00	1 032 436 812.74
Level 2	203.70	2.5%	1 833 788	373 542 537.79	18 250 000.00	355 292 537.79
Level 3	206.00	1.9%	1 404 901	289 409 572.16	18 250 000.00	271 159 572.16
Max revenue	184.30	19.6%	14 280 250	2 631 850 133.74	18 250 000.00	2 613 600 133.74

Optimization results.



Price optimization.

Price point examples

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	185.30	17.8%	13 023 913	2 413 331 151.90	18 250 000.00	2 395 081 151.90
Level 2	186.30	16.2%	11 853 025	2 208 218 550.33	18 250 000.00	2 189 968 550.33
Level 3	187.30	14.7%	10 765 968	2 016 465 776.93	18 250 000.00	1 998 215 776.93
Level 4	188.30	13.4%	9 760 372	1 837 878 119.73	18 250 000.00	1 819 628 119.73
Level 5	189.30	12.1%	8 833 259	1 672 136 000.95	18 250 000.00	1 653 886 000.95
Level 6	190.30	10.9%	7 981 177	1 518 817 964.64	18 250 000.00	1 500 567 964.64
Level 7	191.30	9.9%	7 200 327	1 377 422 578.60	18 250 000.00	1 359 172 578.60
Level 8	192.30	8.9%	6 486 681	1 247 388 684.11	18 250 000.00	1 229 138 684.11
Level 9	193.30	8.0%	5 836 077	1 128 113 623.27	18 250 000.00	1 109 863 623.27
Level 10	194.00	7.4%	5 415 911	1 050 686 812.74	18 250 000.00	1 032 436 812.74
Level 11	194.30	7.2%	5 244 309	1 018 969 243.97	18 250 000.00	1 000 719 243.97
Level 12	195.30	6.4%	4 707 197	919 315 621.36	18 250 000.00	901 065 621.36
Level 13	196.30	5.8%	4 220 645	828 512 542.40	18 250 000.00	810 262 542.40
Level 14	197.30	5.2%	3 780 684	745 928 877.75	18 250 000.00	727 678 877.75
Level 15	198.30	4.6%	3 383 510	670 950 016.65	18 250 000.00	652 700 016.65
Level 16	199.30	4.1%	3 025 507	602 983 570.73	18 250 000.00	584 733 570.73
Level 17	200.30	3.7%	2 703 263	541 463 564.46	18 250 000.00	523 213 564.46
Level 18	201.30	3.3%	2 413 578	485 853 330.31	18 250 000.00	467 603 330.31
Level 19	202.30	2.9%	2 153 472	435 647 316.32	18 250 000.00	417 397 316.32
Level 20	203.30	2.6%	1 920 177	390 371 998.82	18 250 000.00	372 121 998.82
Level 21	203.70	2.5%	1 833 788	373 542 537.79	18 250 000.00	355 292 537.79
Level 22	204.30	2.3%	1 711 141	349 586 073.47	18 250 000.00	331 336 073.47
Level 23	205.30	2.1%	1 524 014	312 880 077.54	18 250 000.00	294 630 077.54
Level 24	206.00	1.9%	1 404 901	289 409 572.16	18 250 000.00	271 159 572.16

Example results.



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Price Optimization

Julia Tarhini, University of Tampa

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Model selection

Introduction

Different models have been tested to model the data you have provided, and the one model that led to the best fit was retained.

The tested models differ in the way the influence of price is encoded. The price influence can be:

- Linear (price)
- Logarithmic (log(price))
- Square root (sqrt(price))

Different combinations of the above price encodings can be combined, depending on the nature of the data.

Model selection

	Ceiling	Intercept	Price	log(Price)	sqrt(Price)	BIC	Selected
Model 1	1.00	0.16	-0.02			205.13	
Model 2	1.00	0.41	-0.23		2.73	189.13	YES
Model 3	1.00	0.16	-0.04	0.66		200.37	
Model 4	1.00	0.34	-0.24	1.39	2.23	189.46	

Model selection.

The survey data of observed purchase behaviour is best described by a logit model with the following number of parameters: 4

The estimated model has a ceiling parameter of 0.9999 . This means that the maximum attainable market share is 99.99 %

This logit model includes a ceiling, intercept and two slope parameters. Likelihood is a function of price and the square root of price.

Model fit

Model parameters

	Ceiling	Intercept	Price	sqrt.Price.
Values	1.00	0.41	-0.23	2.73

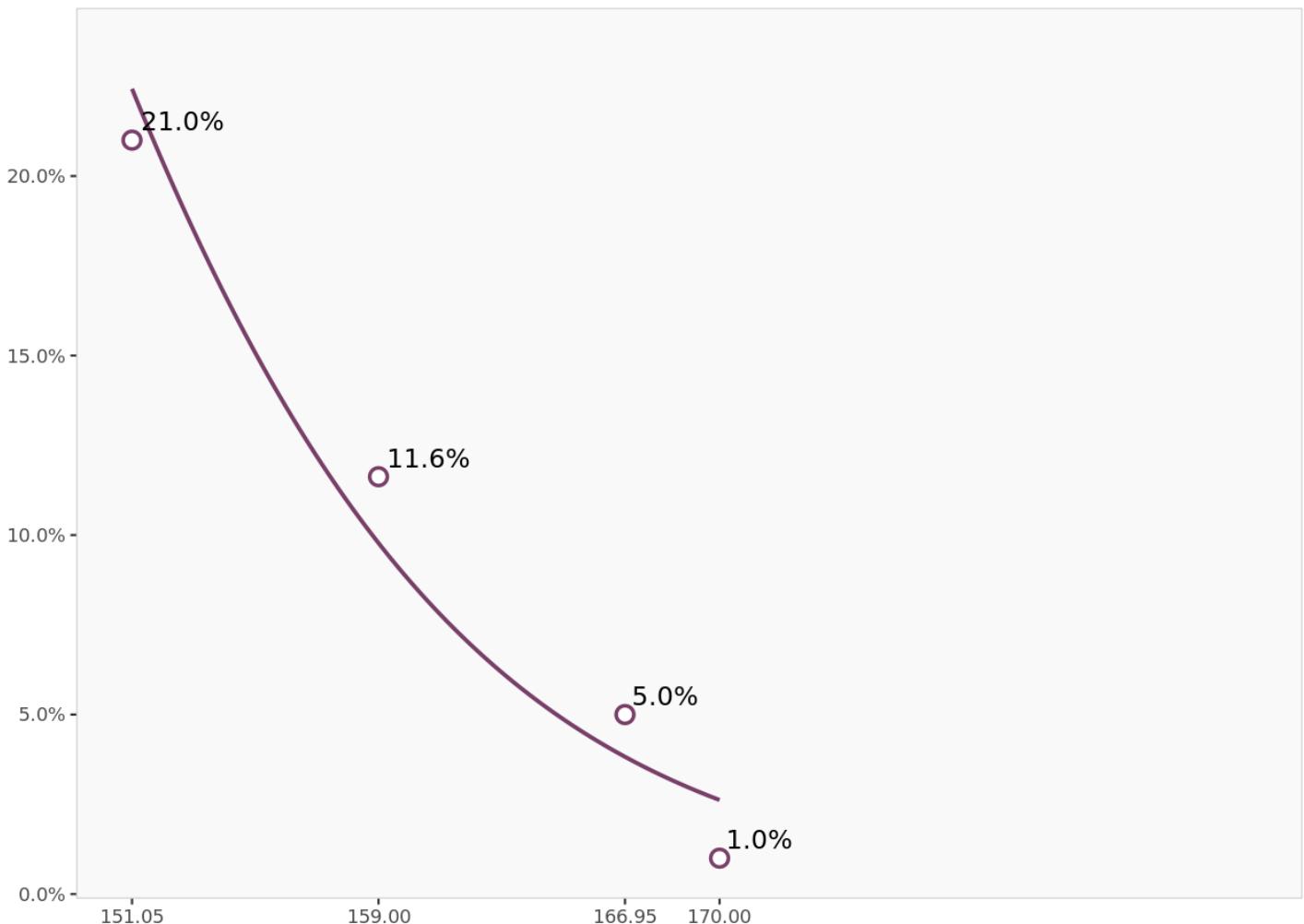
Model Parameters.

Model fit

	Measures of model fit
Root Mean Squared Error	0.0154
R-squared	1.0766
McFadden R-squared	0.1033
Bayesian Information Criterion	189.1264

Model Fit.

Predicted purchase likelihood



Predicted likelihood. The dots represent the purchase likelihood derived from the survey for different price levels. The line represents the model predictions.

	Price level 1	Price level 2	Price level 3	Price level 4
Price levels	151.05	159.00	166.95	170.00
Purchase likelihood (from survey)	21.0%	11.6%	5.0%	1.0%
Predicted likelihood (from model)	22.4%	9.8%	3.8%	2.6%

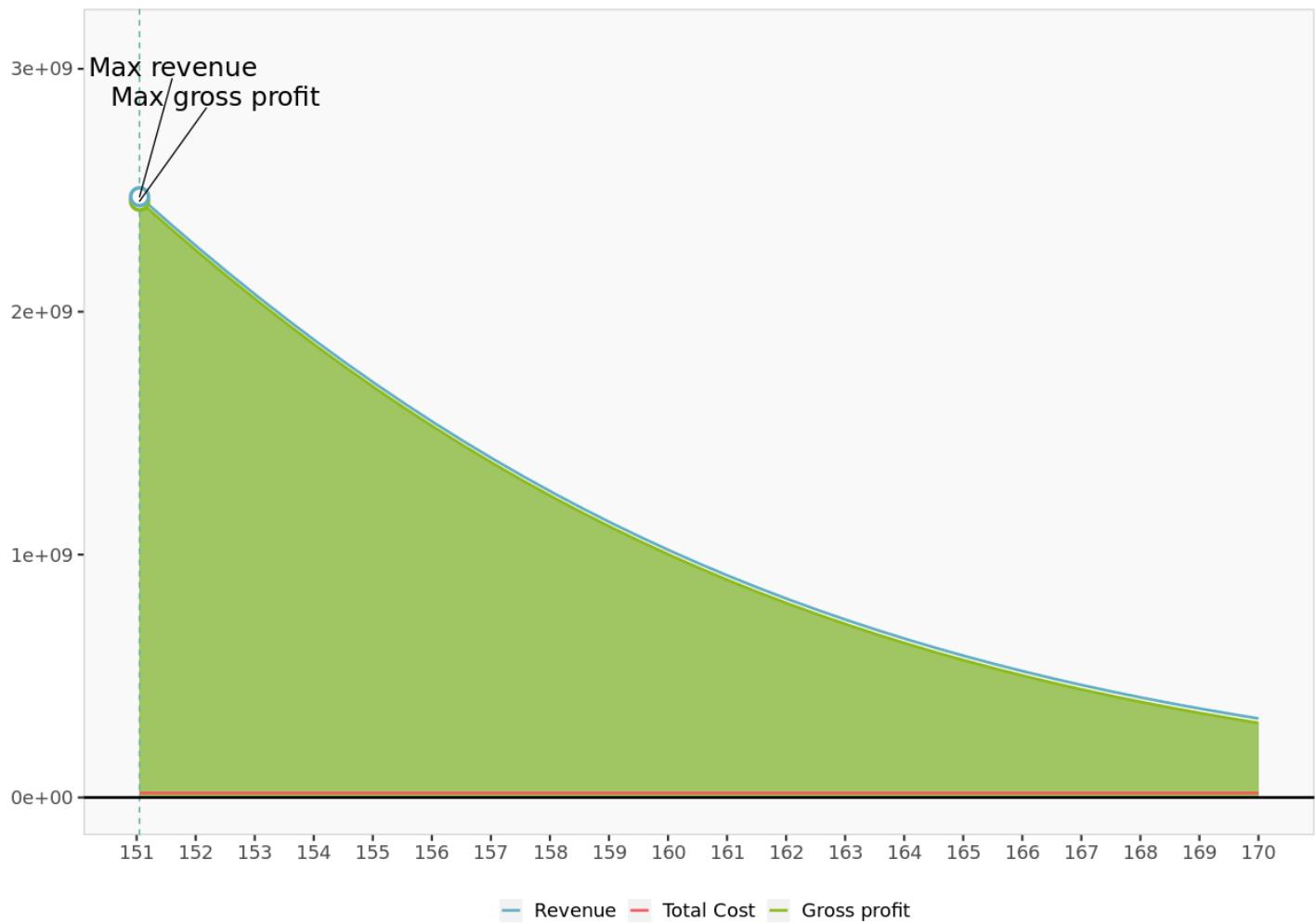
Model predictions.

Price optimization

Optimization results

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	159.00	9.8%	7 137 869	1 134 921 184.60	18 250 000.00	1 116 671 184.60
Level 2	166.95	3.8%	2 790 959	465 950 560.79	18 250 000.00	447 700 560.79
Level 3	170.00	2.6%	1 912 949	325 201 285.01	18 250 000.00	306 951 285.01
Max revenue	151.05	22.4%	16 374 279	2 473 334 903.59	18 250 000.00	2 455 084 903.59

Optimization results.



Price optimization.

Price point examples

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	151.55	21.4%	15 611 846	2 365 975 213.20	18 250 000.00	2 347 725 213.20
Level 2	152.05	20.4%	14 874 503	2 261 668 138.18	18 250 000.00	2 243 418 138.18
Level 3	152.55	19.4%	14 162 350	2 160 466 461.94	18 250 000.00	2 142 216 461.94
Level 4	153.05	18.5%	13 475 392	2 062 408 719.88	18 250 000.00	2 044 158 719.88
Level 5	153.55	17.6%	12 813 545	1 967 519 885.48	18 250 000.00	1 949 269 885.48
Level 6	154.05	16.7%	12 176 645	1 875 812 124.56	18 250 000.00	1 857 562 124.56
Level 7	154.55	15.8%	11 564 449	1 787 285 602.62	18 250 000.00	1 769 035 602.62
Level 8	155.05	15.0%	10 976 648	1 701 929 330.50	18 250 000.00	1 683 679 330.50
Level 9	155.55	14.3%	10 412 871	1 619 722 034.66	18 250 000.00	1 601 472 034.66
Level 10	156.05	13.5%	9 872 688	1 540 633 039.48	18 250 000.00	1 522 383 039.48
Level 11	156.55	12.8%	9 355 625	1 464 623 150.24	18 250 000.00	1 446 373 150.24
Level 12	157.05	12.1%	8 861 162	1 391 645 526.63	18 250 000.00	1 373 395 526.63
Level 13	157.55	11.5%	8 388 743	1 321 646 538.03	18 250 000.00	1 303 396 538.03
Level 14	158.05	10.9%	7 937 783	1 254 566 593.01	18 250 000.00	1 236 316 593.01
Level 15	158.55	10.3%	7 507 669	1 190 340 937.00	18 250 000.00	1 172 090 937.00
Level 16	159.00	9.8%	7 137 869	1 134 921 184.60	18 250 000.00	1 116 671 184.60
Level 17	159.05	9.7%	7 097 771	1 128 900 412.92	18 250 000.00	1 110 650 412.92
Level 18	159.55	9.2%	6 707 441	1 070 172 181.08	18 250 000.00	1 051 922 181.08
Level 19	160.05	8.7%	6 336 022	1 014 080 395.43	18 250 000.00	995 830 395.43
Level 20	160.55	8.2%	5 982 852	960 546 834.34	18 250 000.00	942 296 834.34
Level 21	161.05	7.7%	5 647 262	909 491 484.80	18 250 000.00	891 241 484.80
Level 22	161.55	7.3%	5 328 586	860 833 079.86	18 250 000.00	842 583 079.86
Level 23	162.05	6.9%	5 026 162	814 489 589.55	18 250 000.00	796 239 589.55
Level 24	162.55	6.5%	4 739 334	770 378 666.16	18 250 000.00	752 128 666.16
Level 25	163.05	6.1%	4 467 452	728 418 045.30	18 250 000.00	710 168 045.30
Level 26	163.55	5.8%	4 209 880	688 525 904.27	18 250 000.00	670 275 904.27
Level 27	164.05	5.4%	3 965 993	650 621 179.76	18 250 000.00	632 371 179.76
Level 28	164.55	5.1%	3 735 180	614 623 847.05	18 250 000.00	596 373 847.05
Level 29	165.05	4.8%	3 516 844	580 455 163.00	18 250 000.00	562 205 163.00
Level 30	165.55	4.5%	3 310 407	548 037 875.12	18 250 000.00	529 787 875.12
Level 31	166.05	4.3%	3 115 305	517 296 399.35	18 250 000.00	499 046 399.35

Level 32	166.55	4.0%	2 930 994	488 156 968.74	18 250 000.00	469 906 968.74
Level 33	166.95	3.8%	2 790 959	465 950 560.79	18 250 000.00	447 700 560.79
Level 34	167.05	3.8%	2 756 946	460 547 755.60	18 250 000.00	442 297 755.60
Level 35	167.55	3.6%	2 592 653	434 398 969.38	18 250 000.00	416 148 969.38
Level 36	168.05	3.3%	2 437 625	409 642 932.56	18 250 000.00	391 392 932.56
Level 37	168.55	3.1%	2 291 392	386 214 136.70	18 250 000.00	367 964 136.70
Level 38	169.05	3.0%	2 153 501	364 049 280.67	18 250 000.00	345 799 280.67
Level 39	169.55	2.8%	2 023 517	343 087 293.13	18 250 000.00	324 837 293.13
Level 40	170.00	2.6%	1 912 949	325 201 285.01	18 250 000.00	306 951 285.01

Example results.

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Price Optimization

Julia Tarhini, University of Tampa

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Model selection

Introduction

Different models have been tested to model the data you have provided, and the one model that led to the best fit was retained.

The tested models differ in the way the influence of price is encoded. The price influence can be:

- Linear (price)
- Logarithmic ($\log(\text{price})$)
- Square root ($\sqrt{\text{price}}$)

Different combinations of the above price encodings can be combined, depending on the nature of the data.

Model selection

	Ceiling	Intercept	Price	$\log(\text{Price})$	$\sqrt{\text{Price}}$	BIC	Selected
Model 1	0.97	9.81	-0.10			313.34	
Model 2	1.00	0.34	-0.18		1.77	313.28	
Model 3	1.00	0.69	-0.13	2.56		313.36	
Model 4	0.27	1.85	-1.25	6.94	10.16	308.97	YES

Model selection.

The survey data of observed purchase behaviour is best described by a logit model with the following number of parameters: 5

The estimated model has a ceiling parameter of 0.2744 . This means that the maximum attainable market share is 27.44 %

This logit model includes a ceiling, intercept and three slope parameters. Likelihood is a function of price, the natural logarithm and the square root of price.

Model fit

Model parameters

	Ceiling	Intercept	Price	sqrt.Price.	log.Price.
Values	0.27	1.85	-1.25	6.94	10.16

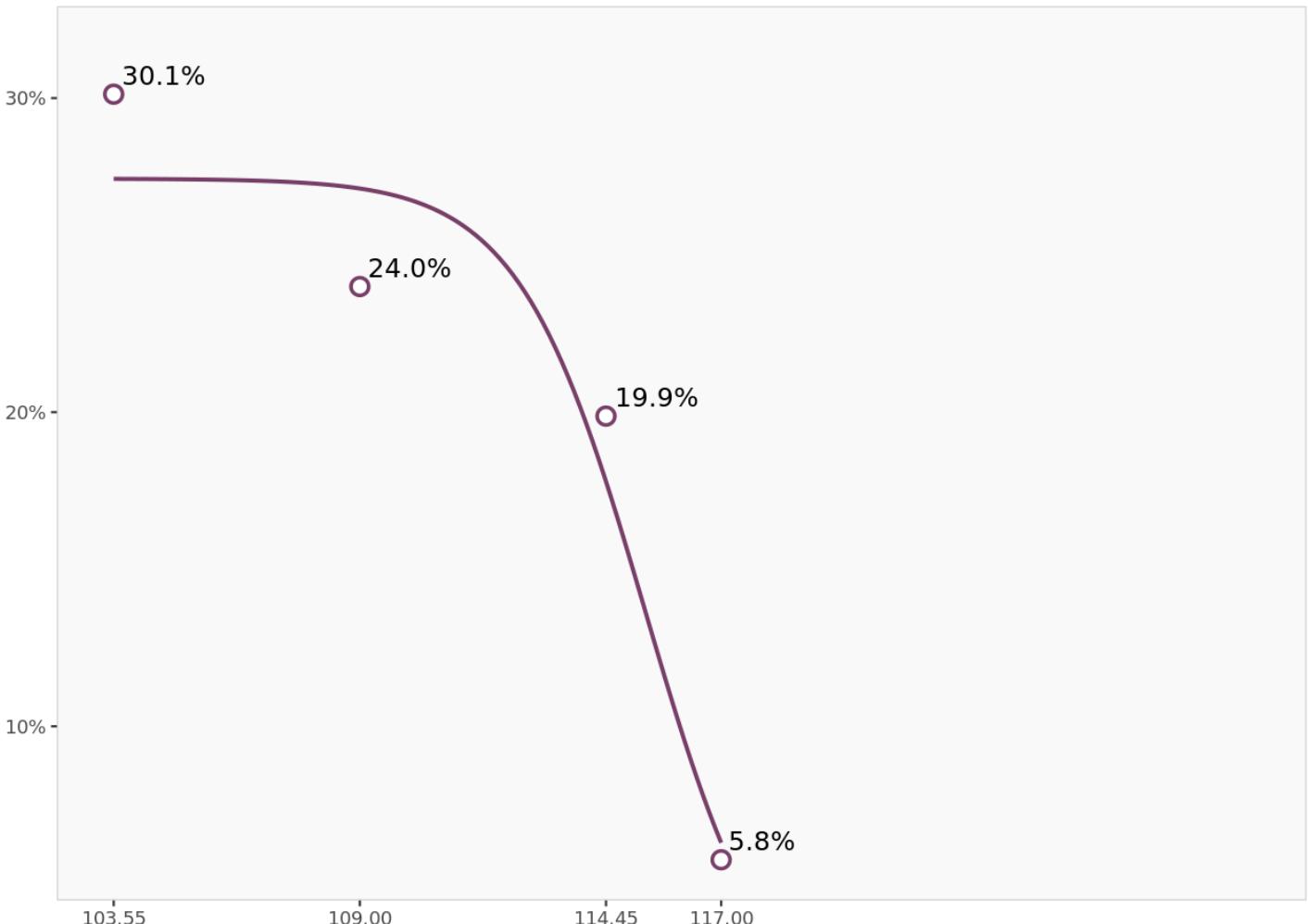
Model Parameters.

Model fit

	Measures of model fit
Root Mean Squared Error	0.0233
R-squared	0.9284
McFadden R-squared	0.0553
Bayesian Information Criterion	308.9650

Model Fit.

Predicted purchase likelihood



Predicted likelihood. The dots represent the purchase likelihood derived from the survey for different price levels. The line represents the model predictions.

	Price level 1	Price level 2	Price level 3	Price level 4
Price levels	103.55	109.00	114.45	117.00
Purchase likelihood (from survey)	30.1%	24.0%	19.9%	5.8%
Predicted likelihood (from model)	27.4%	27.1%	17.8%	6.3%

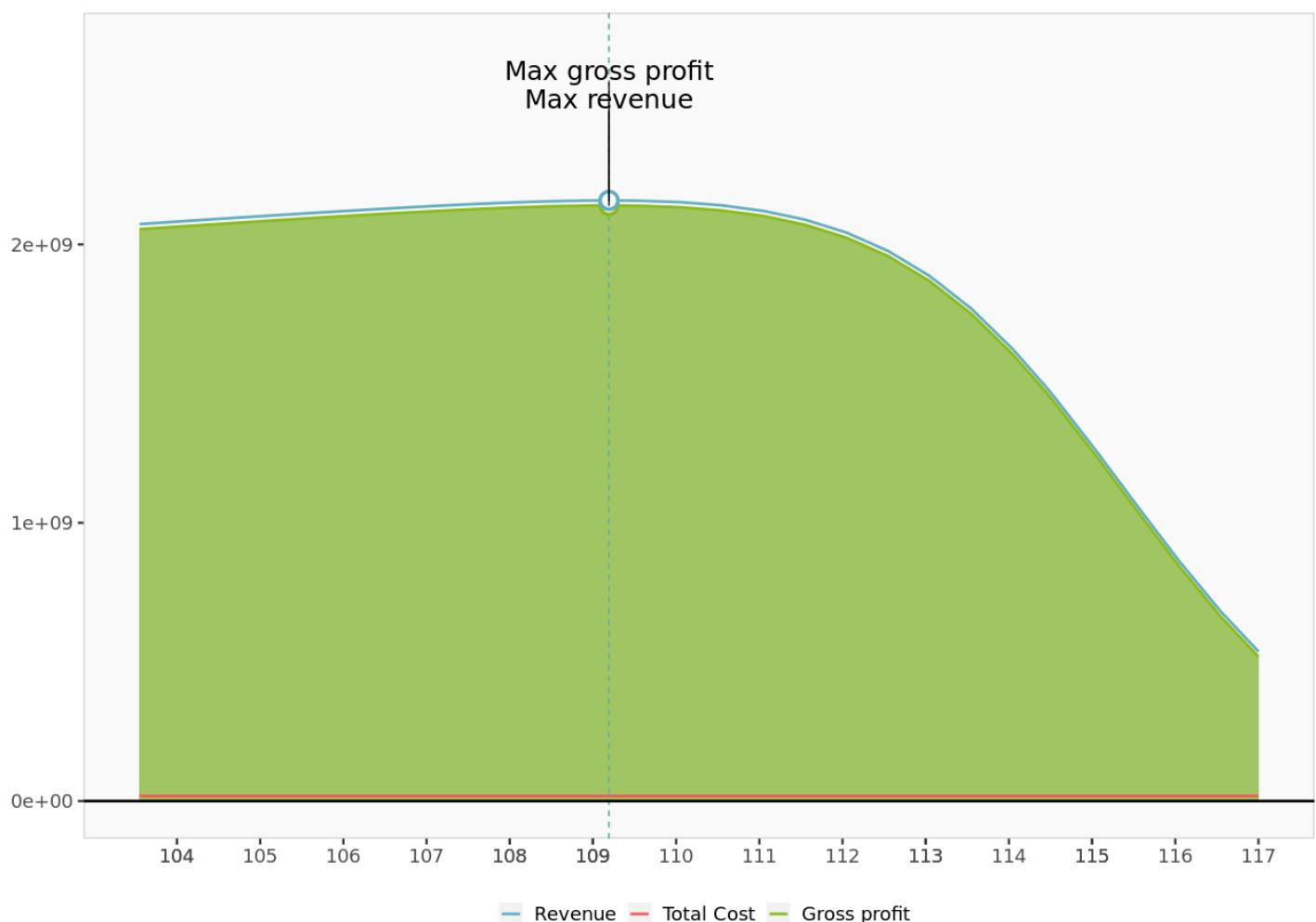
Model predictions.

Price optimization

Optimization results

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	103.55	27.4%	20 022 987	2 073 380 298.11	18 250 000.00	2 055 130 298.11
Level 2	109.00	27.1%	19 798 402	2 158 025 765.23	18 250 000.00	2 139 775 765.23
Level 3	114.45	17.8%	12 989 220	1 486 616 195.05	18 250 000.00	1 468 366 195.05
Level 4	117.00	6.3%	4 592 631	537 337 869.01	18 250 000.00	519 087 869.01
Max gross profit	109.19	27.1%	19 765 677	2 158 273 262.37	18 250 000.00	2 140 023 262.37
Max revenue	109.19	27.1%	19 765 677	2 158 273 262.37	18 250 000.00	2 140 023 262.37

Optimization results.



Price optimization.

Price point examples

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	103.55	27.4%	20 022 987	2 073 380 298.11	18 250 000.00	2 055 130 298.11
Level 2	104.05	27.4%	20 020 783	2 083 162 480.24	18 250 000.00	2 064 912 480.24
Level 3	104.55	27.4%	20 017 676	2 092 848 005.90	18 250 000.00	2 074 598 005.90
Level 4	105.05	27.4%	20 013 292	2 102 396 328.54	18 250 000.00	2 084 146 328.54
Level 5	105.55	27.4%	20 007 104	2 111 749 808.68	18 250 000.00	2 093 499 808.68
Level 6	106.05	27.4%	19 998 364	2 120 826 504.14	18 250 000.00	2 102 576 504.14
Level 7	106.55	27.4%	19 986 015	2 129 509 947.96	18 250 000.00	2 111 259 947.96
Level 8	107.05	27.4%	19 968 563	2 137 634 698.67	18 250 000.00	2 119 384 698.67
Level 9	107.55	27.3%	19 943 896	2 144 966 007.44	18 250 000.00	2 126 716 007.44
Level 10	108.05	27.3%	19 909 037	2 151 171 402.09	18 250 000.00	2 132 921 402.09
Level 11	108.55	27.2%	19 859 801	2 155 781 381.21	18 250 000.00	2 137 531 381.21
Level 12	109.00	27.1%	19 798 402	2 158 025 765.23	18 250 000.00	2 139 775 765.23
Level 13	109.05	27.1%	19 790 334	2 158 135 879.86	18 250 000.00	2 139 885 879.86
Level 14	109.55	27.0%	19 692 497	2 157 313 057.14	18 250 000.00	2 139 063 057.14
Level 15	110.05	26.8%	19 555 093	2 152 038 008.86	18 250 000.00	2 133 788 008.86
Level 16	110.55	26.5%	19 362 937	2 140 572 666.64	18 250 000.00	2 122 322 666.64
Level 17	111.05	26.2%	19 095 875	2 120 596 909.78	18 250 000.00	2 102 346 909.78
Level 18	111.55	25.7%	18 728 000	2 089 108 455.36	18 250 000.00	2 070 858 455.36
Level 19	112.05	25.0%	18 227 569	2 042 399 159.11	18 250 000.00	2 024 149 159.11
Level 20	112.55	24.1%	17 558 485	1 976 207 434.68	18 250 000.00	1 957 957 434.68
Level 21	113.05	22.9%	16 684 524	1 886 185 464.11	18 250 000.00	1 867 935 464.11
Level 22	113.55	21.3%	15 577 374	1 768 810 872.71	18 250 000.00	1 750 560 872.71
Level 23	114.05	19.5%	14 228 308	1 622 738 541.11	18 250 000.00	1 604 488 541.11
Level 24	114.45	17.8%	12 989 220	1 486 616 195.05	18 250 000.00	1 468 366 195.05

Level 25	114.55	17.3%	12 660 620	1 450 274 002.29	18 250 000.00	1 432 024 002.29
Level 26	115.05	15.0%	10 936 639	1 258 260 370.57	18 250 000.00	1 240 010 370.57
Level 27	115.55	12.5%	9 152 484	1 057 569 523.54	18 250 000.00	1 039 319 523.54
Level 28	116.05	10.2%	7 418 795	860 951 192.28	18 250 000.00	842 701 192.28
Level 29	116.55	8.0%	5 834 617	680 024 584.05	18 250 000.00	661 774 584.05
Level 30	117.00	6.3%	4 592 631	537 337 869.01	18 250 000.00	519 087 869.01

Example results.

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