



A D 654
Marketing Analytics

— Team Charlie

Agenda



Financial

- Forecasting Net income
 - Conjoint Analysis
 - A/B testing

Marketing

- Segmentation & Targeting
 - Classification

Innovation

- Movie & Visualization
 - Strategic Memo



Financial: Forecasting Net income

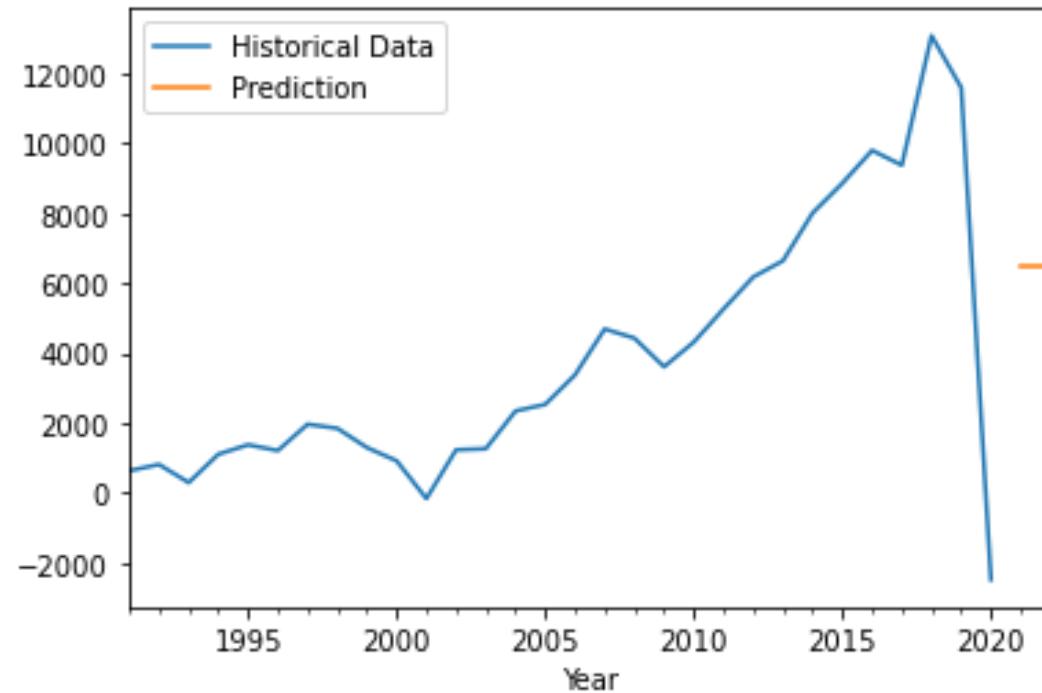
Money \$ Mickey \$ Money



Forecasting Net income



Disney's Net Income between 1991-2020 & 2021



Financial: Conjoint Analysis

Hotel features in Hawaii



Model

Dataset
(hotel_amenities.csv)



Dummied



Multiple linear regression

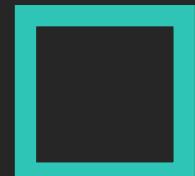


	Coefficient
WiFi_Network_Best in Class	1.726814
WiFi_Network_Strong	1.187700
breakfast_Full Buffet	0.500998
breakfast_None	-0.225924
parking_Valet	0.093678
gym_Basic	-0.146314
gym_None	-0.168484
gym_Super	0.044363
flex_check_Yes	0.478220
shuttle_bus_Yes	0.419939
air_pure_Yes	0.075258
jacuzzi_Yes	0.183909
VIP_shop_Yes	0.217925
pool_temp_80	0.074744
pool_temp_84	0.263806



Coefficient of features

Coefficients \longrightarrow People's preference



Wi-Fi Network: Best in Class --- **1.726814 !**



	Coefficient
WiFi_Network_Best in Class	1.726814
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jacuzzi_Yes	0.183909
parking_Valet	0.093678
air_pure_Yes	0.075258
pool_temp_80	0.074744
gym_Super	0.044363
gym_Basic	-0.146314
gym_None	-0.168484
breakfast_None	-0.225924



Select features

Customer's favorite bundle:

- Each features are the best
- Average rating: 8.21 Great!
- Cost: \$363.45 >> \$250 !



Remain strong coefficient or low cost:

- | | |
|--------------------------------|---------------|
| • Wi-Fi network: | Best-In-Class |
| • Breakfast type: | Full buffett |
| • Flexible check-in/check-out: | Yes |
| • Shuttle bus: | Yes |
| • VIP Shopping: | Yes |

Change for weak coefficient or high cost:

- Air pure: Yes ----->No
- Jacuzzi: Yes ----->No
- Parking: Valet -----> Open lot

Test best levels:

- Gym type: Super
- Outdoor Pool Temp: 84 °F





Test different levels

Base on Advanced Gym to test first

Option - 84°F:

- average rating: 7.82
- cost: \$235.6

Option - 80°F:

- average rating: 9.35
- cost: \$225.6



Option - Advanced Gym:

- average rating: 9.35
- cost: \$225.6

Option - Basic Gym:

- average rating: 8.21
- cost: \$200.6

Option - None Gym:

- average rating: 9.97
- cost: \$190.6

Select 80 °F Outdoor Pool Temp and none Gym





Conclusion

WiFi_Network	breakfast	parking	gym	flex_check	shuttle_bus
Best in Class	Full Buffet	Open Lot	None	Yes	Yes

air_pure	jacuzzi	VIP_shop	pool_temp	avg_rating
No	No	Yes	80	9.97

- Focus on the features that guests desire most, average rating of **9.97 !!**

- Minimizing the costs, only **\$190.6 !!**

- Cost leadership strategies:
 - more profits
 - competitive advantages



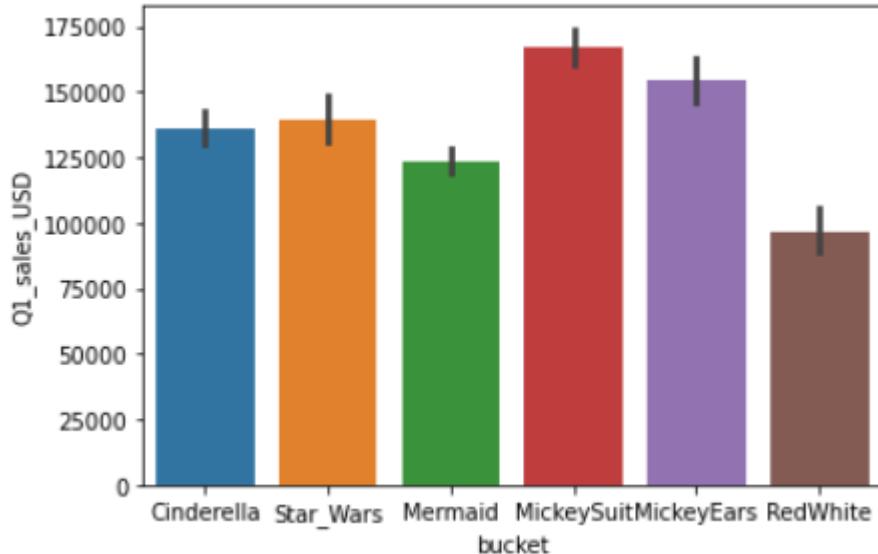
Financial: A/B Testing

Popcorn Buckets

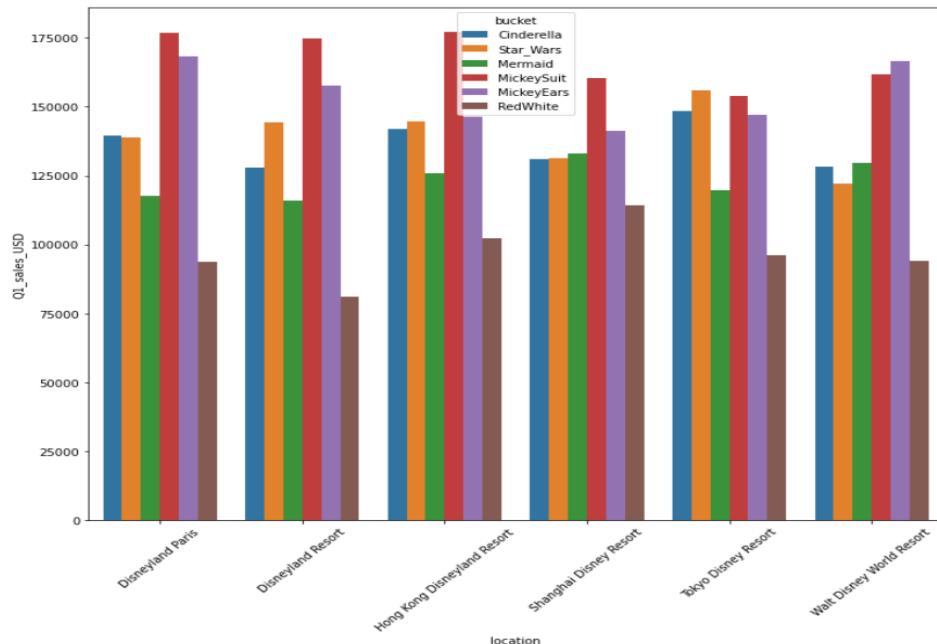




Total Sales Volume for each Popcorn Bucket



The Sales Volume for each Popcorn Bucket in different locations



A/B testing

Analyze popularity for each popcorn bucket



Determine which head-to-head popcorn bucket matchups show meaningfully different results



Narrow down the offerings





T-statistics



MickeySuit vs MickeyEars

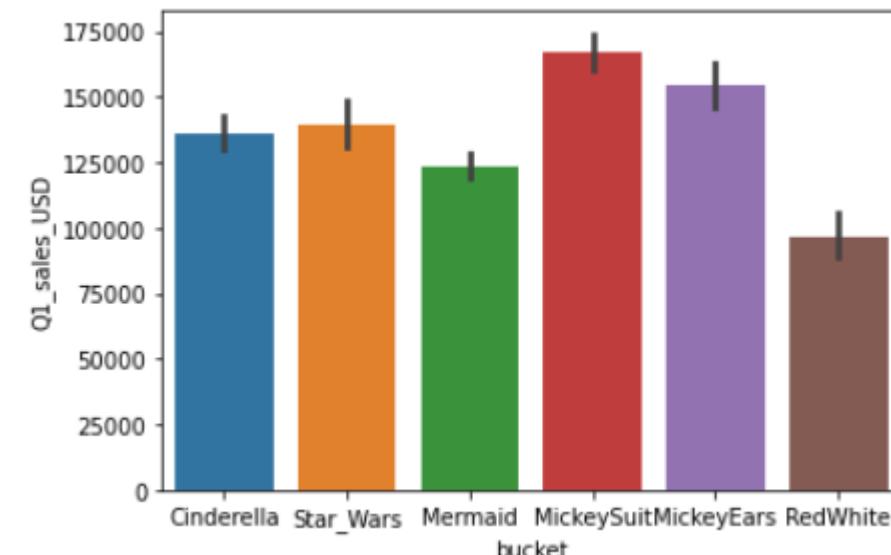
```
In [32]: tstat, p_value = stats.ttest_ind(buckets.loc[buckets['bucket']=='MickeySuit'  
round(p_value, 5)
```

```
Out[32]: 0.06372  
Cinderella vs Star_Wars
```

```
In [17]: tstat, p_value = stats.ttest_ind(buckets.loc[buckets['bucket']=='Cinderella'  
round(p_value, 5)
```

```
Out[17]: 0.57565
```

Total Sales Volume for each Popcorn Bucket



Marketing: Segmentation & Targeting

Customer Matters



Market Segmentation

- Determine important characteristics of each market segment



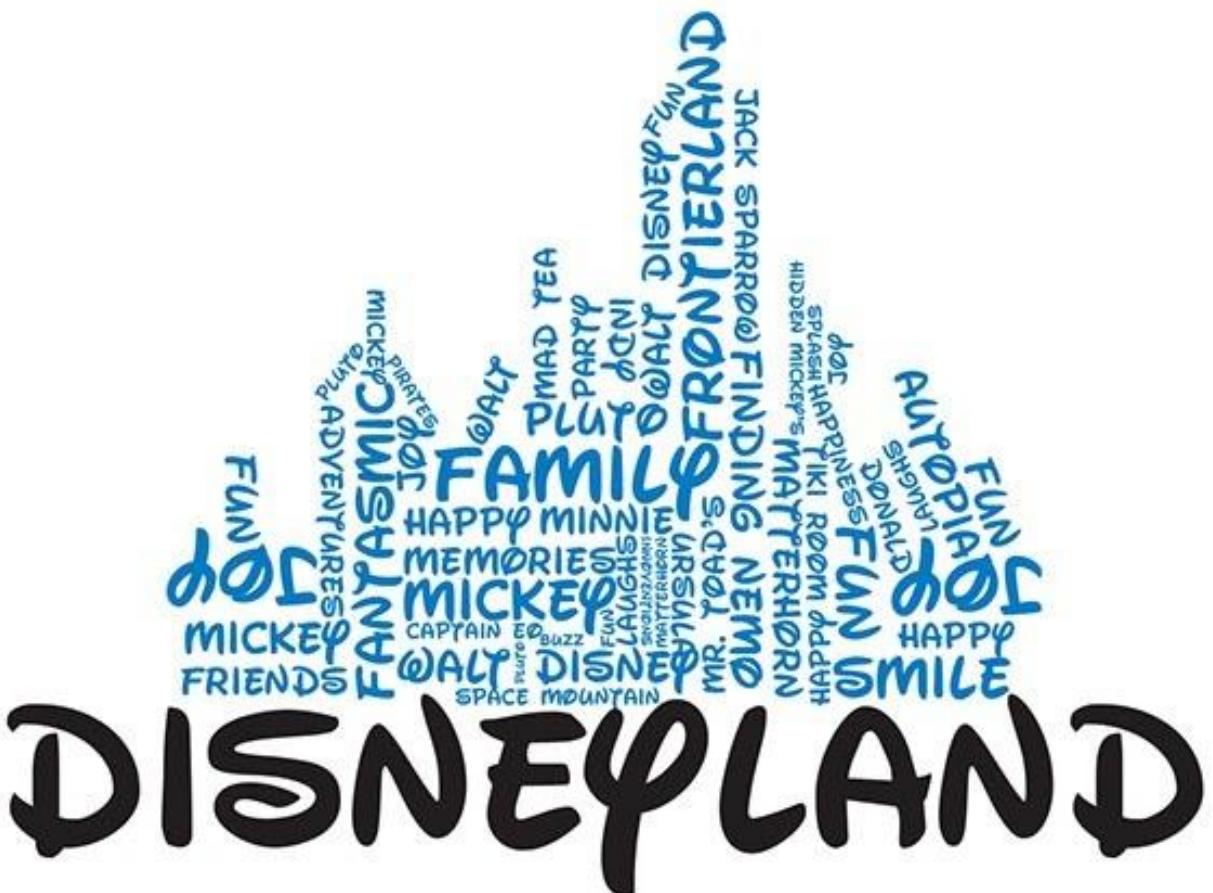
Market Targeting

- Evaluate potential and commercial attractiveness of each segments



Product Positioning

- Develop detailed product positioning for selected segments



K-means Clustering

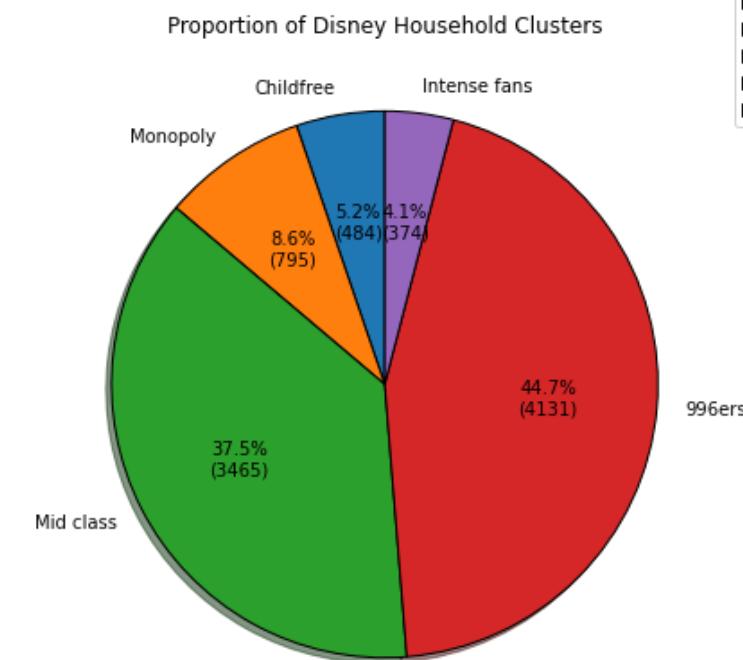
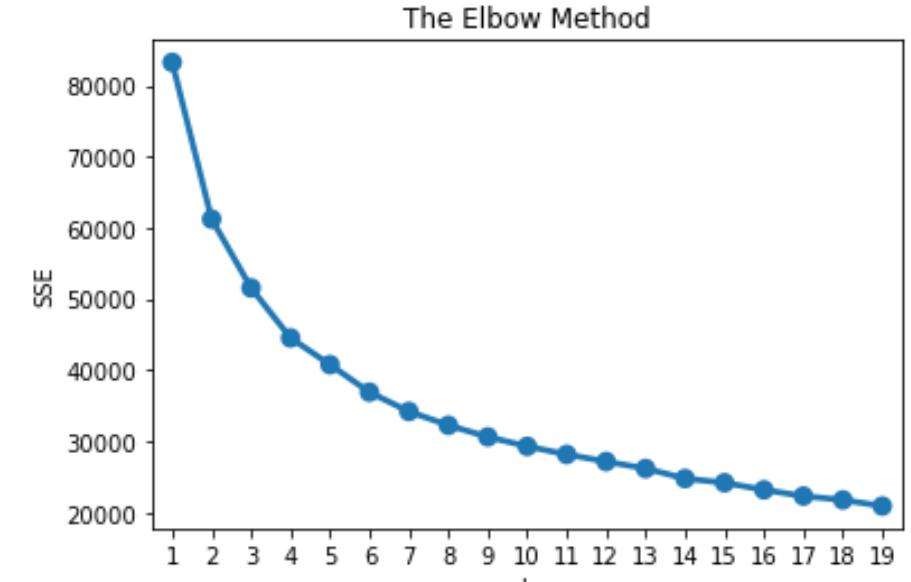
4 Clusters (k=4)

Certain characteristics are not revealed

6 Clusters (k=6)

Certain characteristics are further subdivided

- 5 Clusters:
- Childfree
 - Monopoly
 - Mid Class
 - 996ers
 - Intense fans





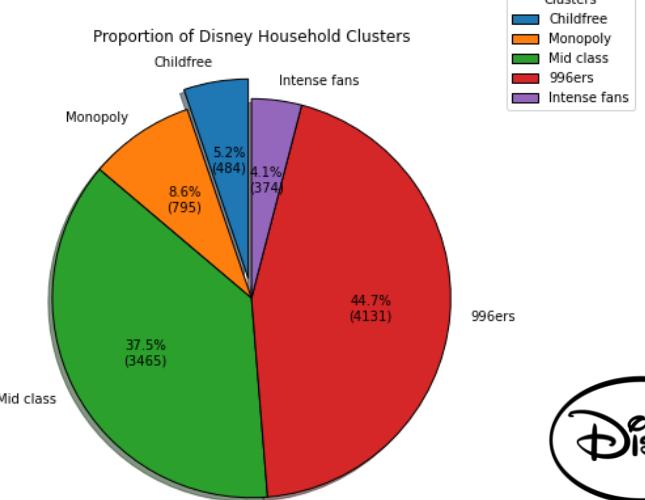
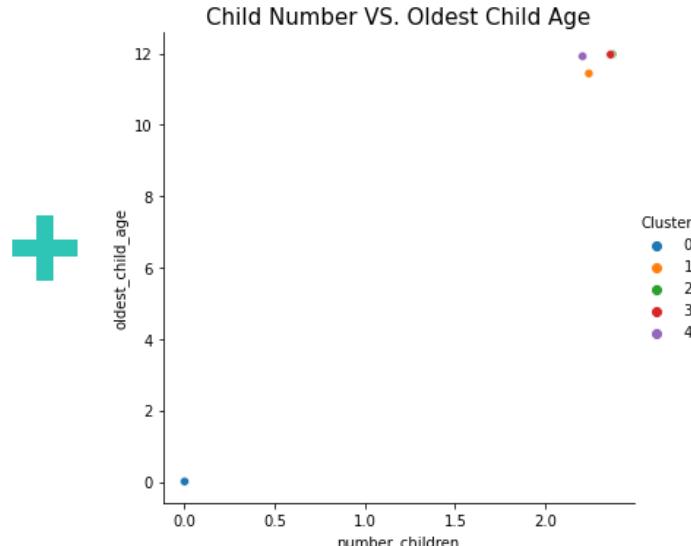
Segmentation:

- 5.2%
- No child
- Average at other

Targeting:
Enjoy no child time

Positioning:
Special events

Childfree





Segmentation:

- 8.6%
- Extremely high net worth
- Highest level online shopping demand



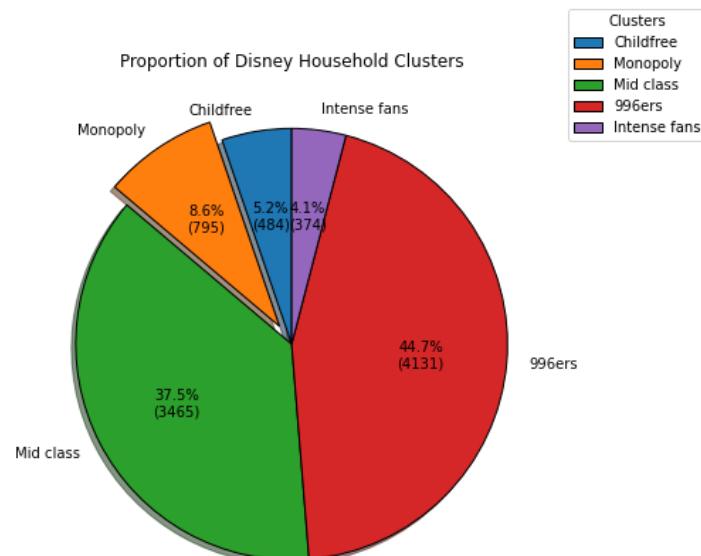
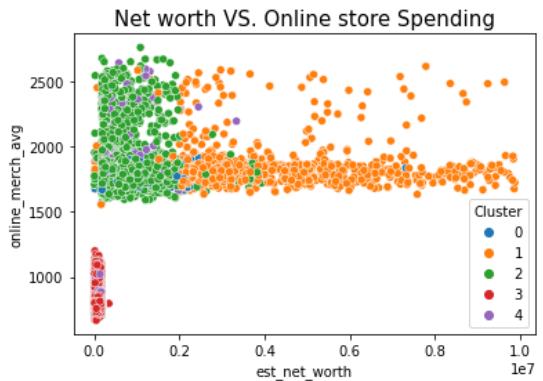
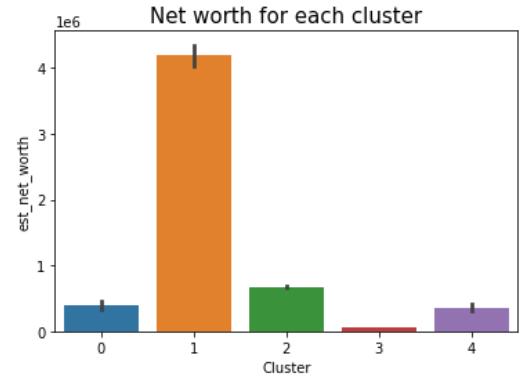
Targeting:

Overall travel experience

Positioning:

- VIP rooms
- Fast lanes
- Private tour guides

Monopoly





Segmentation:

- 37.5%
- Second high net worth and travel spending
- Highest level online shopping demand

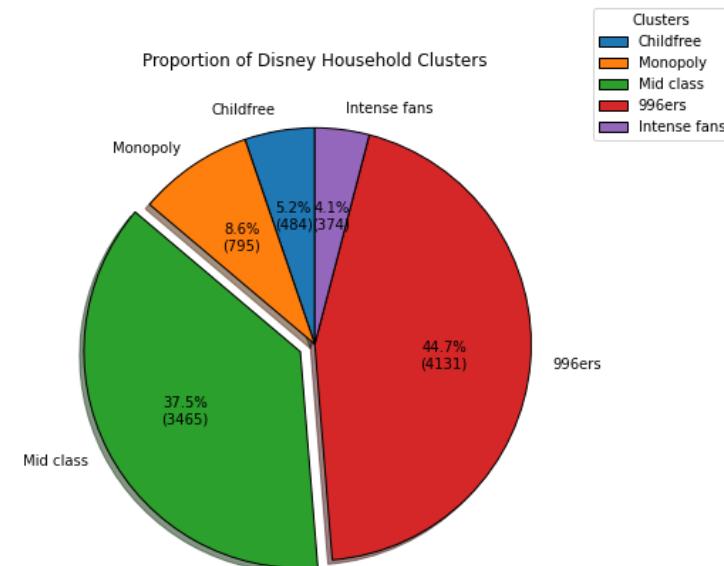
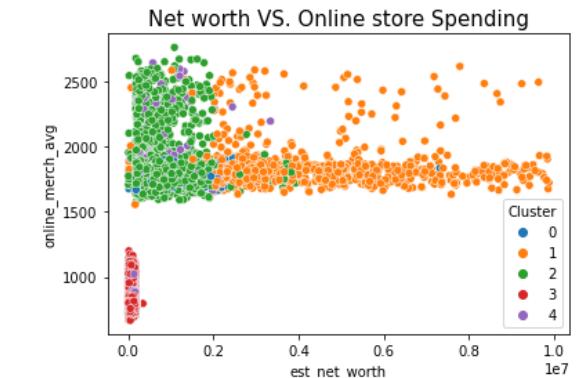
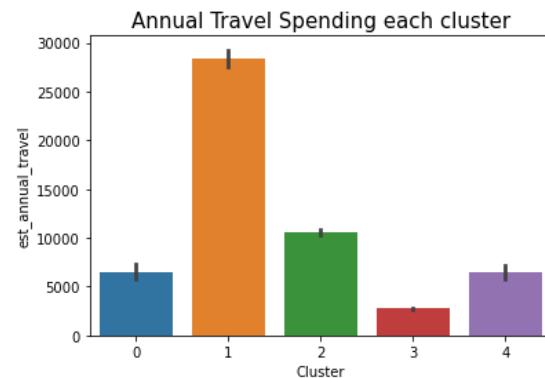
Targeting:

High demand of online merchandise store purchase.

Positioning:

Enriching our online merchandise store products.
Free online purchase shipping.

Mid Class



Segmentation:

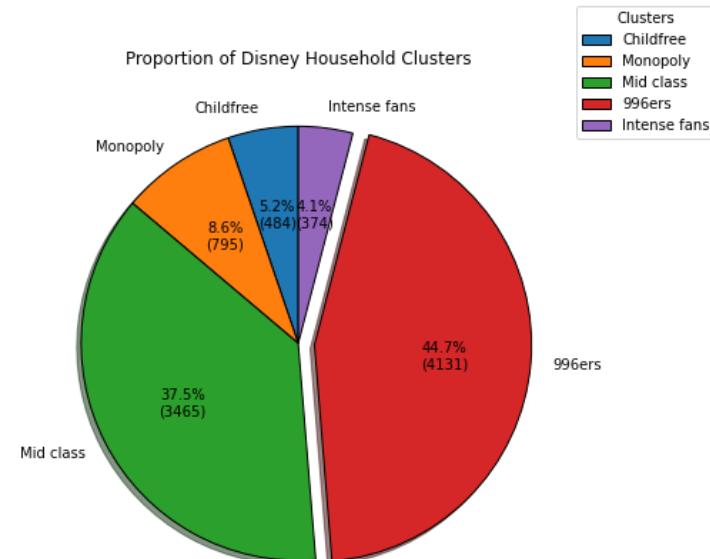
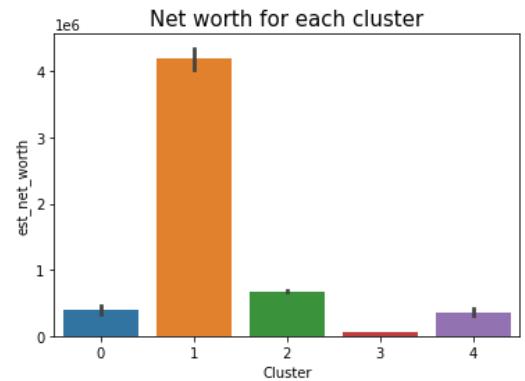
- 44.7% (Largest)
- Lowest net worth
- Lowest Online store shopping demand



Targeting:
Focus on advertising effects

Positioning:
Promotion !
Promotion !!
Promotion !!!

996ers

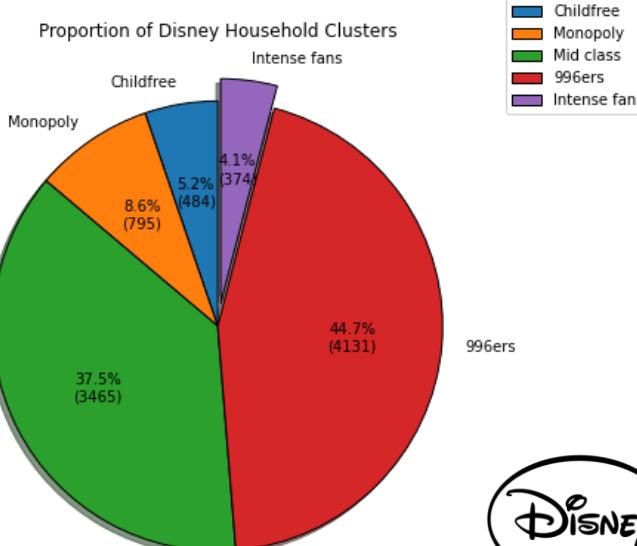
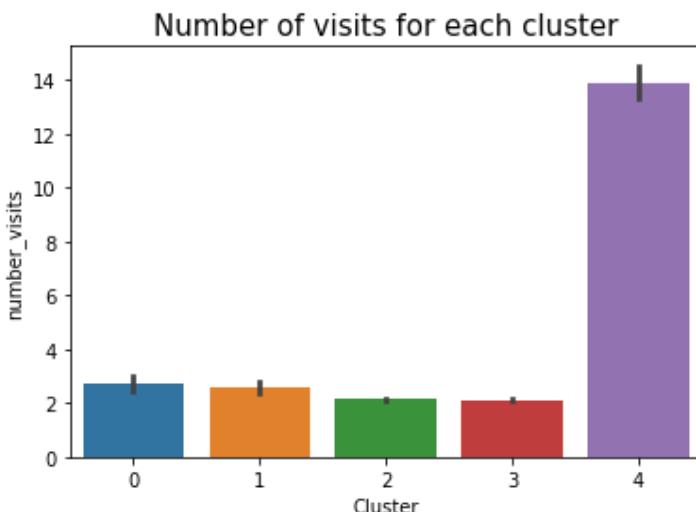




Targeting:
Disney Culture.

Positioning:
Special exclusive events for fans.

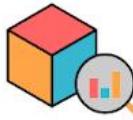
Segmentation:
• 4.1%
• **14** times visits
per year



Marketing: Classification Model

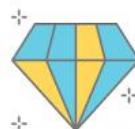
Explore Customer Return Cruise





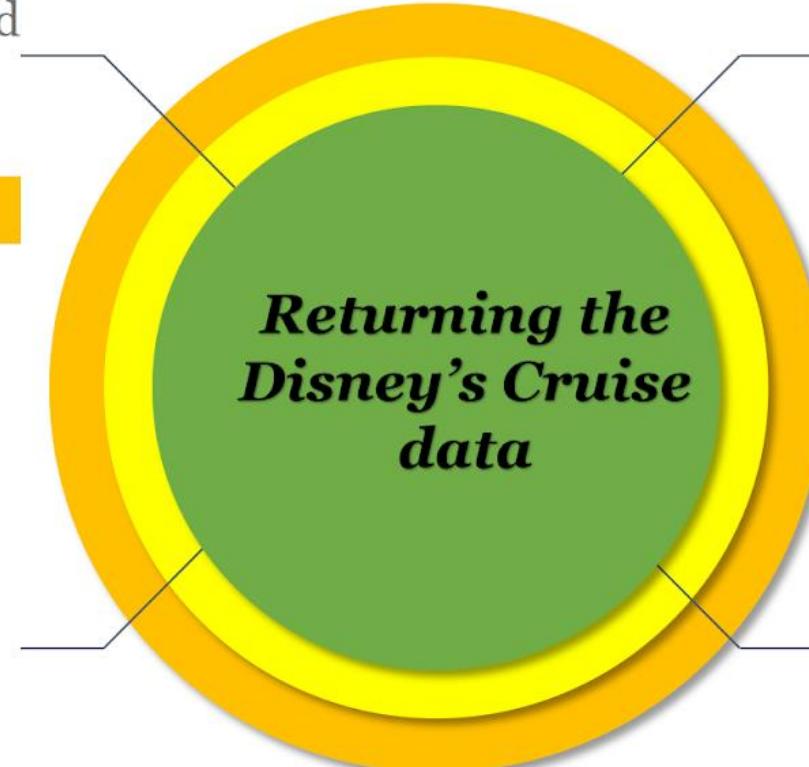
Data Wrangling: NAs and outlier detection, replace duplicate. Data cleaning

Prepare for future analysis



Machine Learning:
Classifications, Features
Importance, Model
Performance and Selection

Be effective and creative



Data Exploratory

Analysis:

Statistics
Summaries、Data
Visualizations and Influential
factors identification



Finding values and patterns



Personalized Forecast:

Three households from
different background

Future directions to gain
values from data

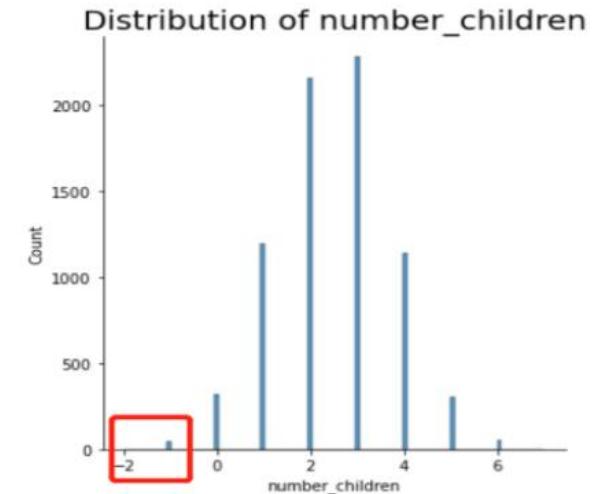
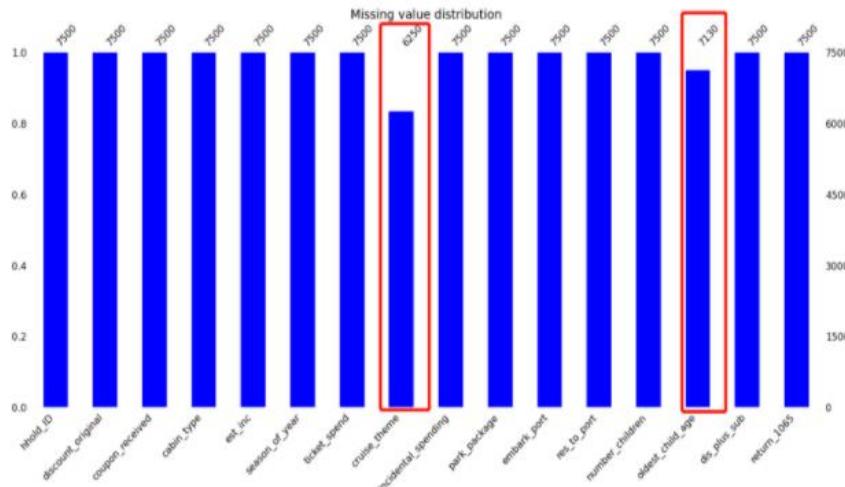


Data Wrangling



```
In [87]: return_dff['cruise_theme'].value_counts()
```

```
Out[87]: Princess/Frozen    1275  
Marvel                  1260  
Star Wars                1245  
starwars                 1238  
prin_fro                 1232  
Name: cruise_theme, dtype: int64
```



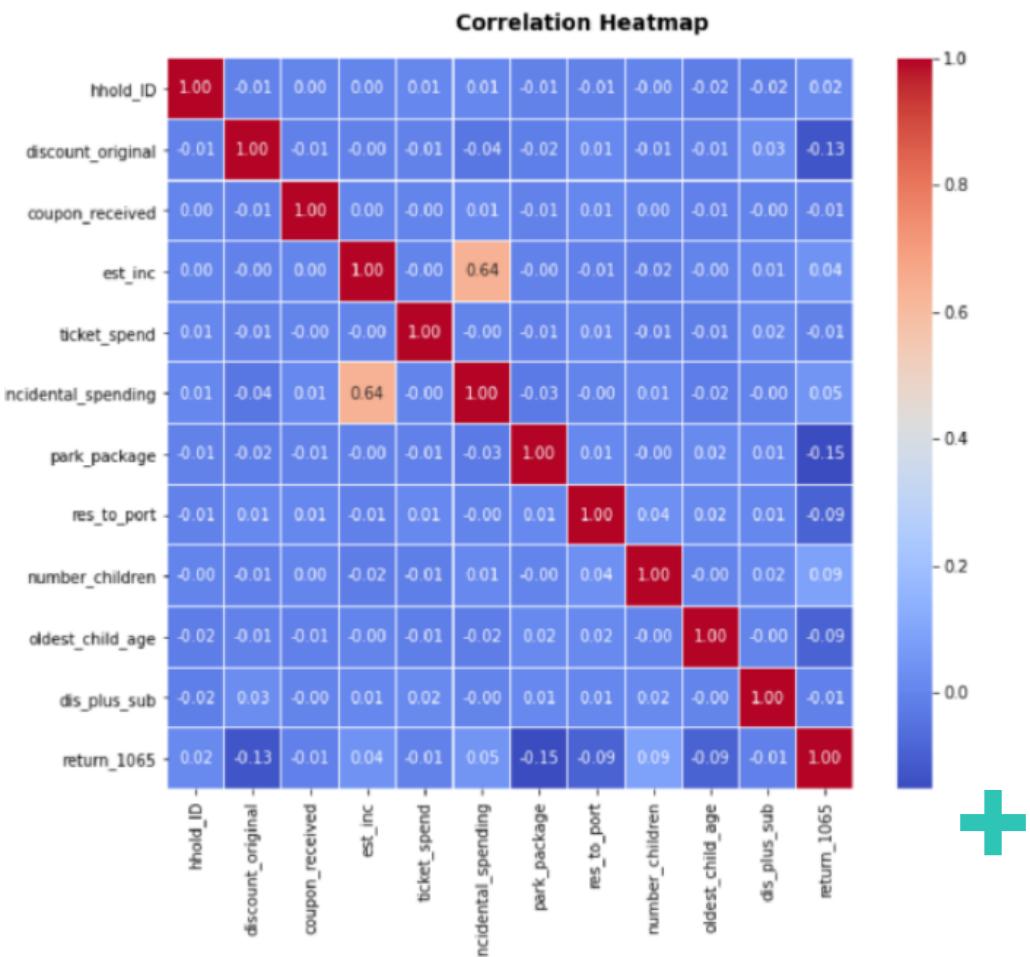
- 'cruise_theme' appears both 'Star Wars' and 'starwars'
 - integrate two levels into one called 'StarWars'
- 'cruise_theme' and 'oldest_child_age' exist NA
 - replace 0 with NA
- 'number_children' has outliers
 - remove '-1' & '-2'



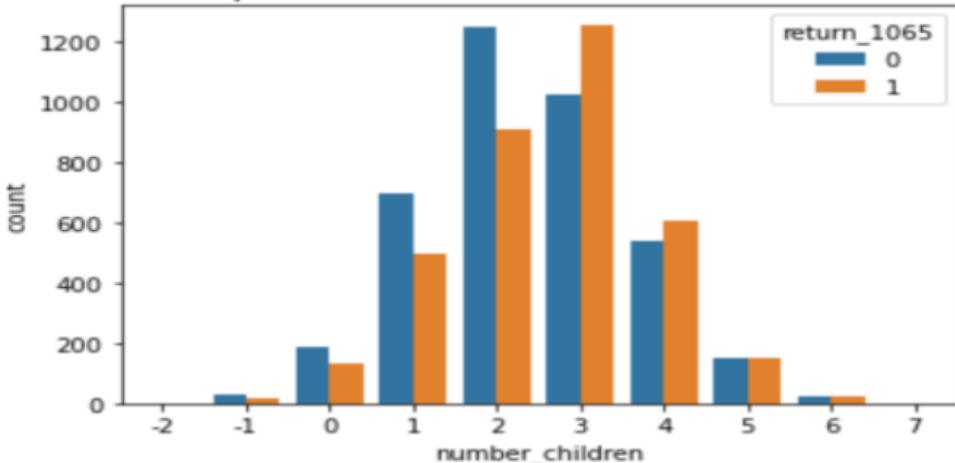
res_to_port	number_children	oldest_child_age	dis_plus_sub	return_1065
20	0	NaN	0	0
73	0	NaN	0	0
93	0	NaN	0	1
38	0	NaN	0	0
32	0	NaN	0	1



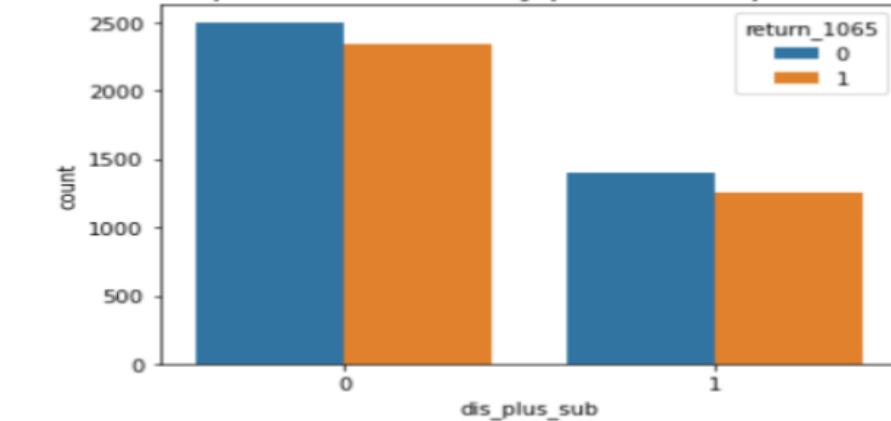
Data Exploration



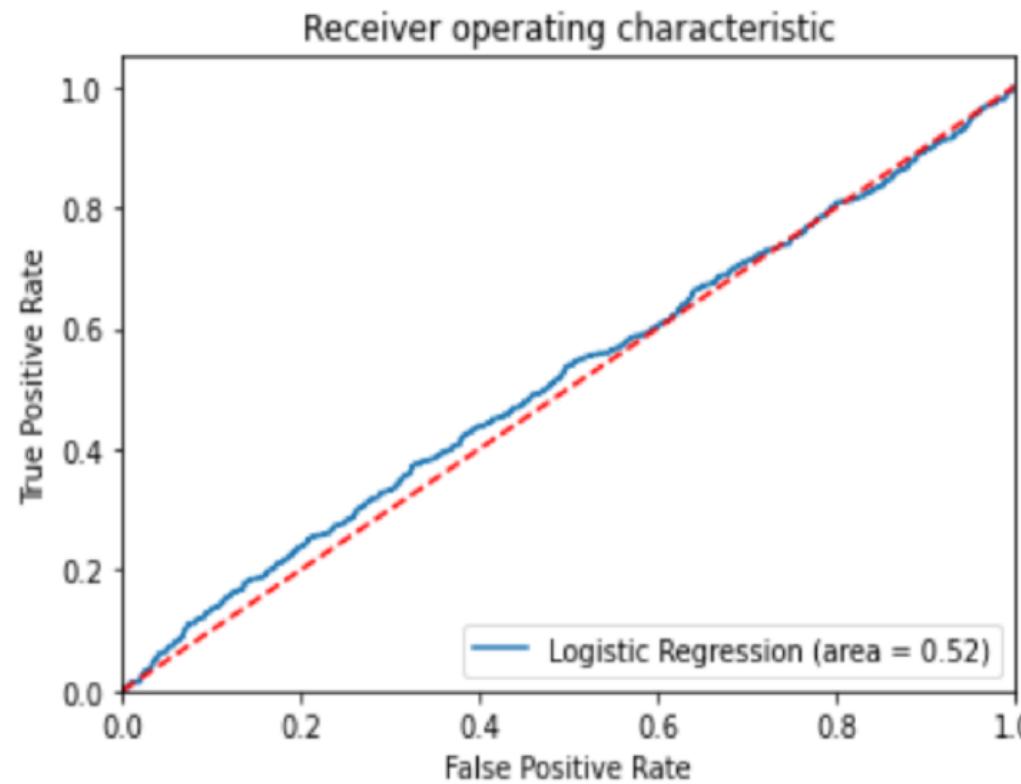
Relationship bewtween number of children and Return



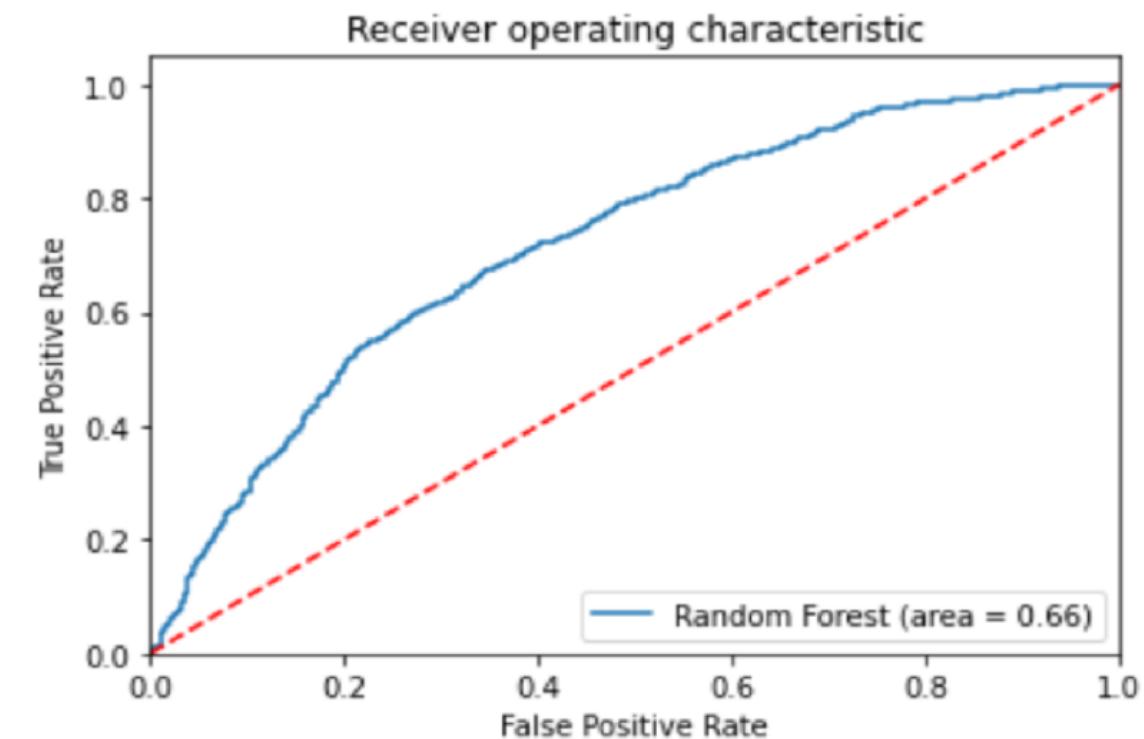
Relationship bewtween Disney plus Subscription and Return



+ Logistic Regression VS Random Forest +



LR's Accuracy: 0.53

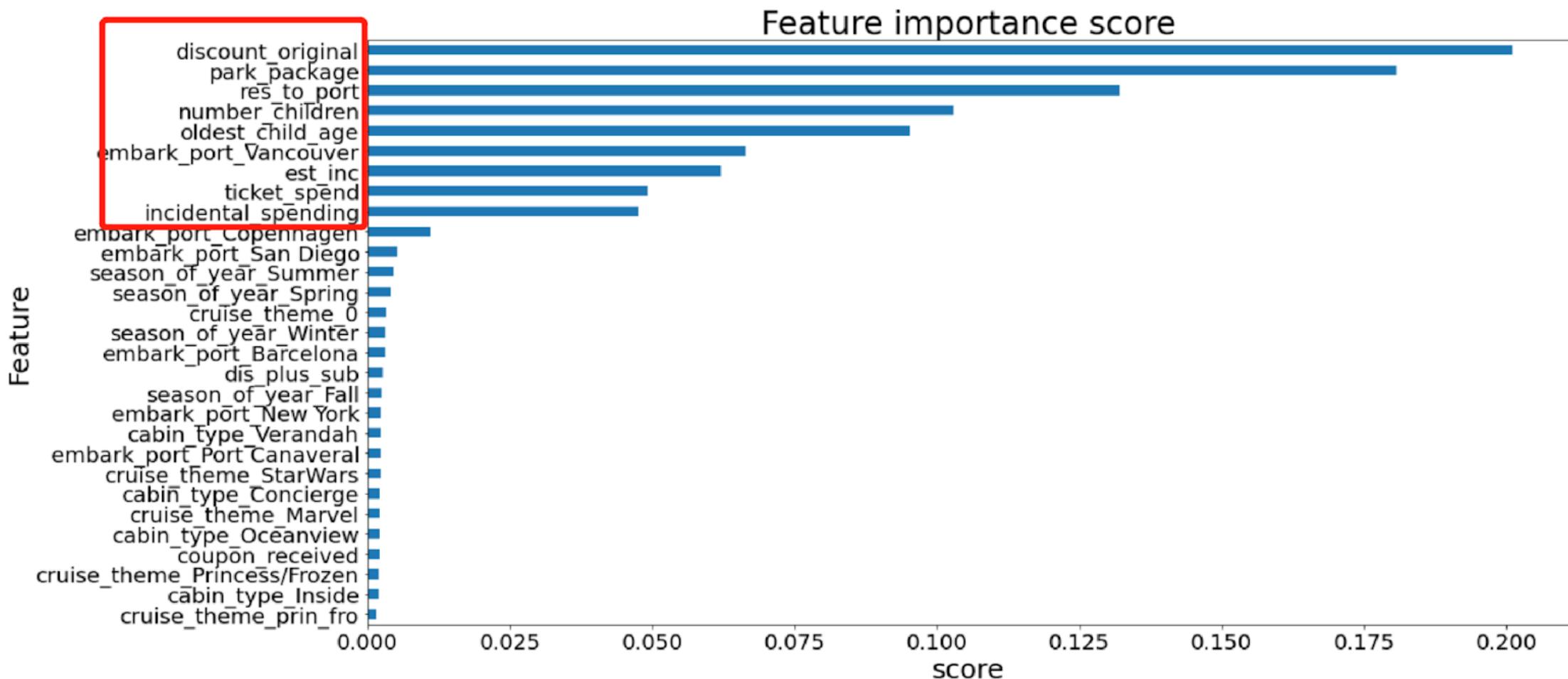


RF's Accuracy: 0.66

The model performance for Random Forest is better than Logistic Regression



+ Model Feature Importance +



Personalized Prediction



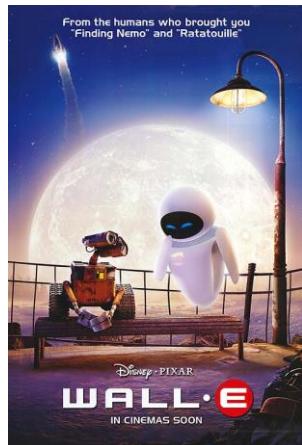
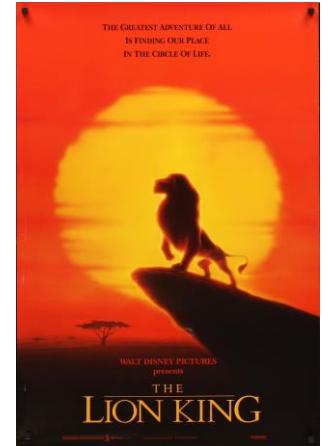
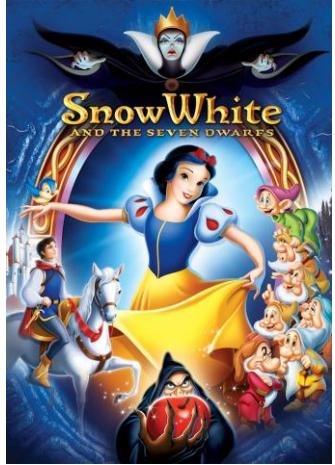
Attribude	Tony(Low-income)	Mary(Middle-class)	Jack(Rich)
Discount_original	YES	YES	NO
Park_parkage	YES	NO	NO
Res_to_port	15	100	700
Number_children	0	3	6
Oldest_child_age	0	6	10
est_income	7,000	120,000	700,000
incidental spending	500	20,000	30,000
Final outcome	No return(70.4%)	Return(68.4%)	No return(86.6%)



Innovation: Disney Movies Gross Analysis

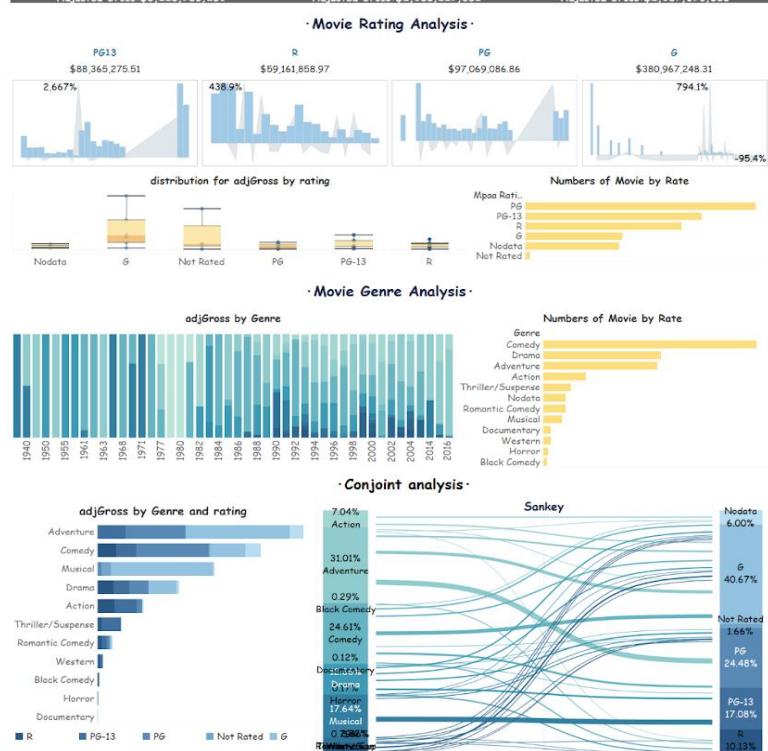
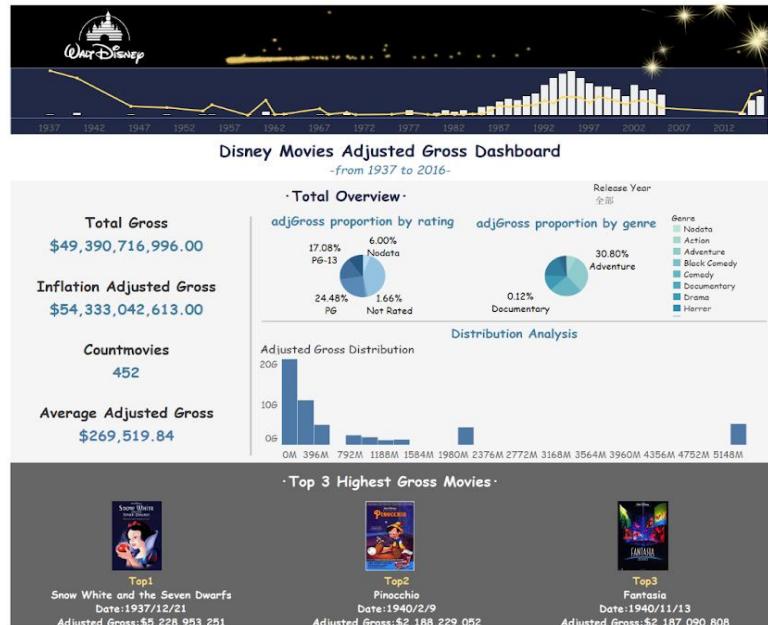
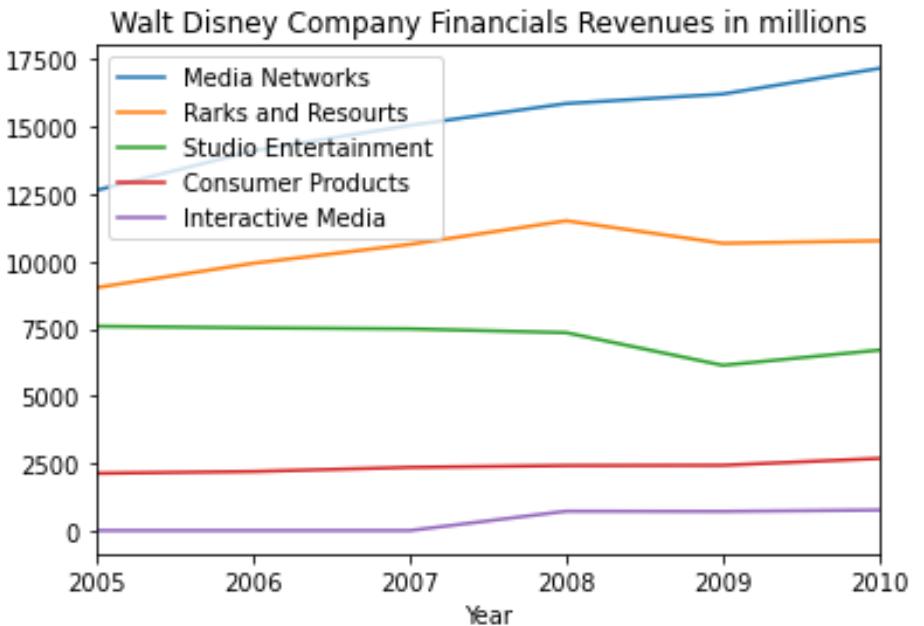
Explore high-value movies





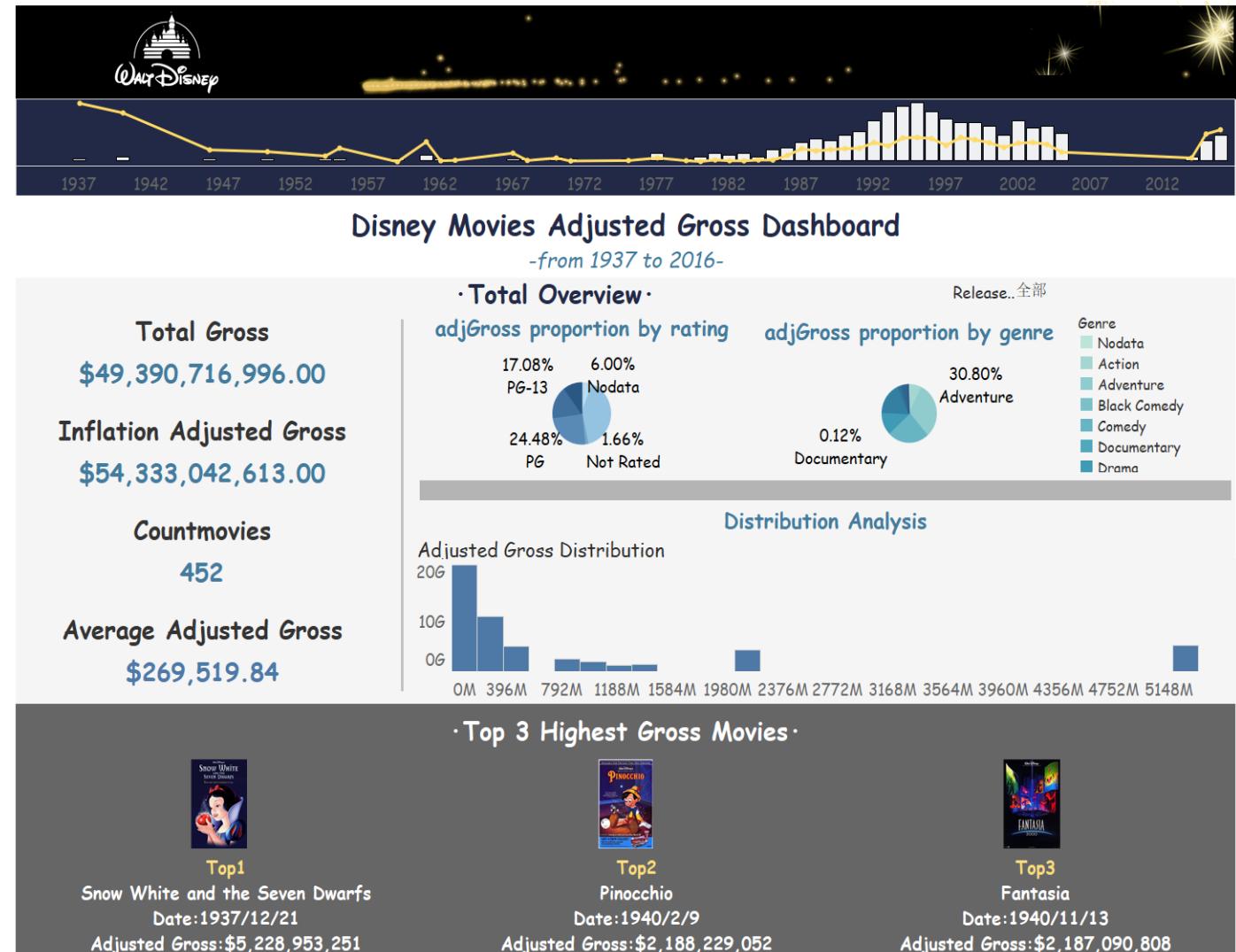
Descriptive analysis

- Summary Statistics
- Visualization



Overview

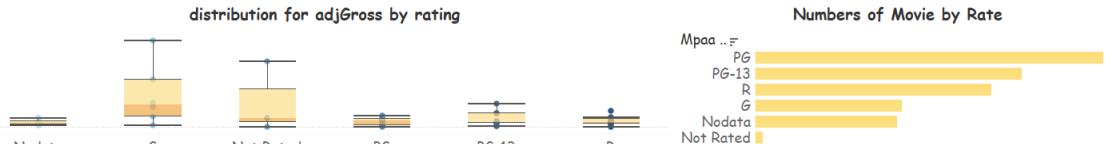
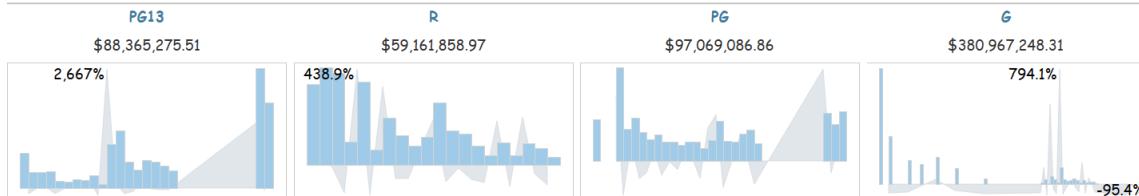
	total_gross	inflation_adjusted_gross
count	579.00	579.00
mean	64701788.52	118762523.31
std	93013006.12	286085280.04
min	0.00	0.00
25%	12788864.00	22741232.00
50%	30702446.00	55159783.00
75%	75709033.00	119202000.00
max	936662225.00	5228953251.00





Rating & Genre

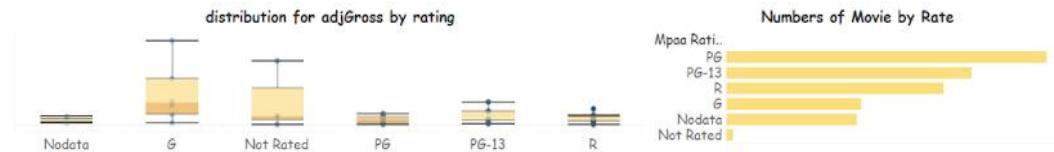
· Movie Rating Analysis ·



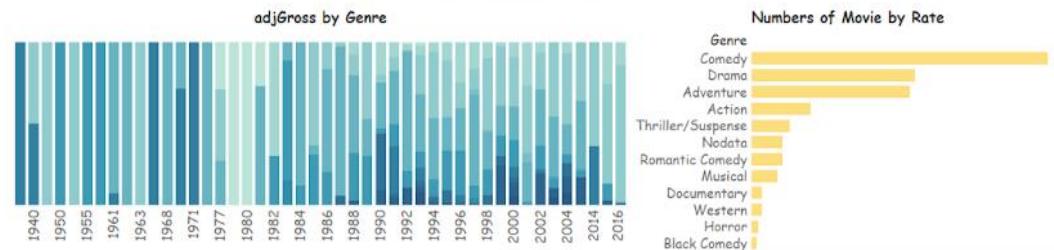
	genre	mpaa_rating	inflation_adjusted_gross	release_year	total_gross
Musical	G	934604859.11	1978.78	82083109.44	
	Not Rated	789612346.00	1967.00	141843000.00	
Drama	G	473178139.00	1983.00	67994825.40	
	PG-13	267694568.71	2007.47	233934567.18	
Adventure	G	241333442.02	1998.45	113183079.19	
	PG-13	217420275.24	1999.47	100845217.59	
Comedy	G	190664441.50	1990.50	95430518.00	
	R	185075490.58	2006.79	166405170.21	
Romantic Comedy	PG	151329080.67	2005.61	128949508.04	
	PG-13	135120911.23	2002.54	91583867.54	
Action	G	129164207.00	2004.00	95149435.00	
	R	117253727.17	1995.75	62405121.67	



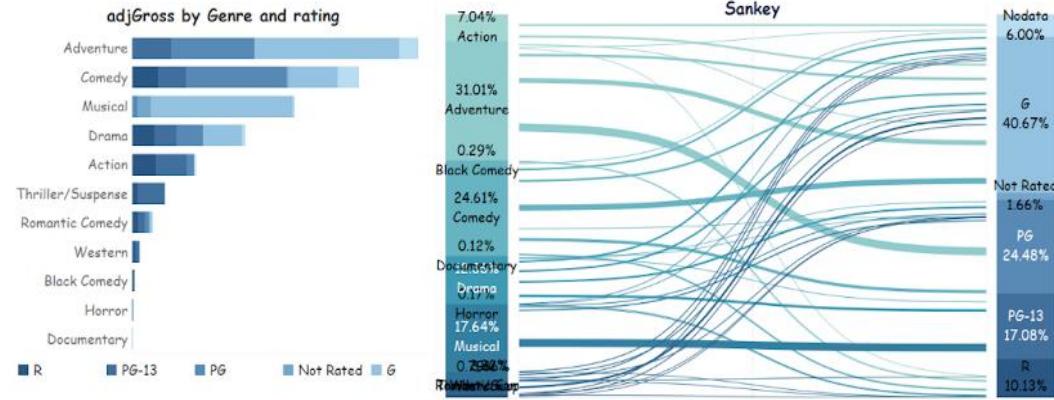
distribution for adjGross by rating



· Movie Genre Analysis ·



· Conjoint analysis ·

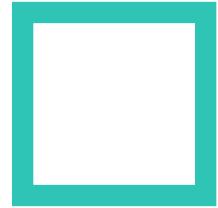


Conclusion

Popular IP

|

High Values



- Win by the quality and not just by quantity.
- Focus on adventure and comedy.
- Maintain the good performance of PG-13 movies, improve the stability of R-rated movies
- Reproduce the successful elements in the hit movies and create the next classic.
- Increase the proportion of popular IPs in the park to attract tourists with a nostalgic theme.



Innovation: Strategic Memo

Mindset

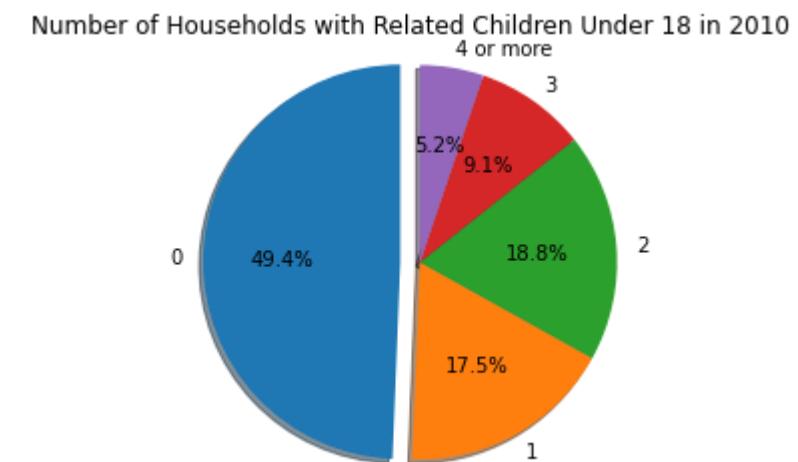
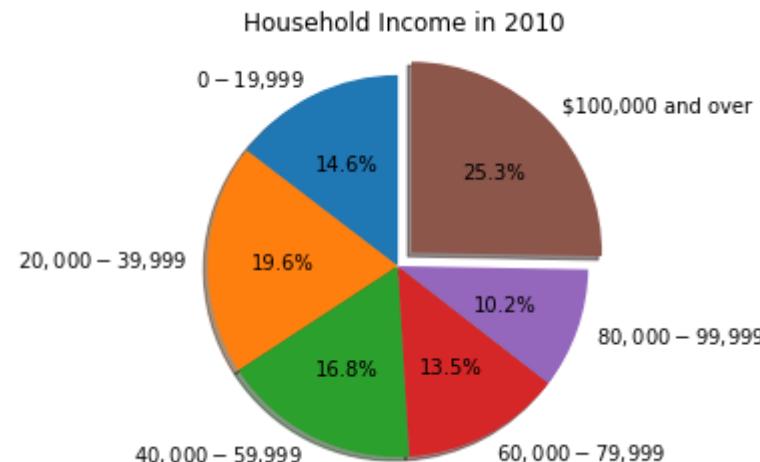


Strategic Memo



AULANI

A Disney RESORT & SPA, HAWAII



Conclusion



OPTIMIZATION



CUSTOMIZATION



THANK
YOU

