

Turtle Games

Customer Insights Analysis

Background and Objectives

Turtle Games business objective

Improve overall sales performance by analysing and considering customer trends

Initial questions

- How do customers engage with and accumulate loyalty points?
- How can customers be segmented into groups, and which groups can be targeted by the marketing department?
- How can text data (e.g. social data such as customer reviews) be used to inform marketing campaigns and make improvements to the business?
- Can we use descriptive statistics to provide insights into the suitability of the loyalty points data to create predictive models?



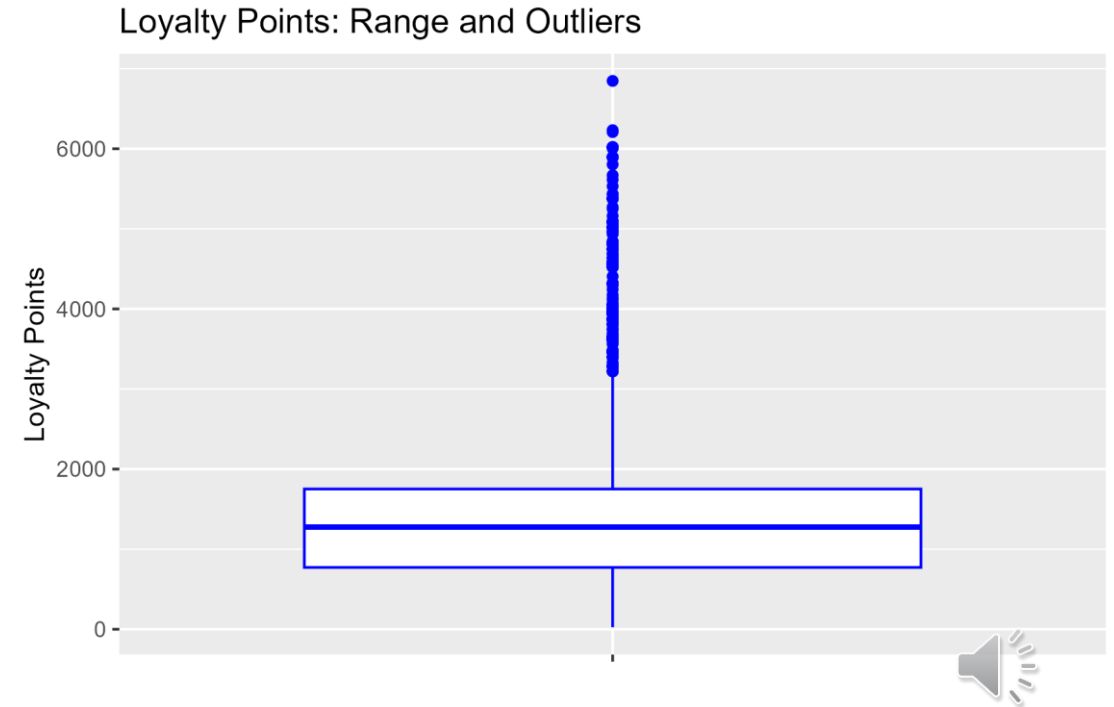
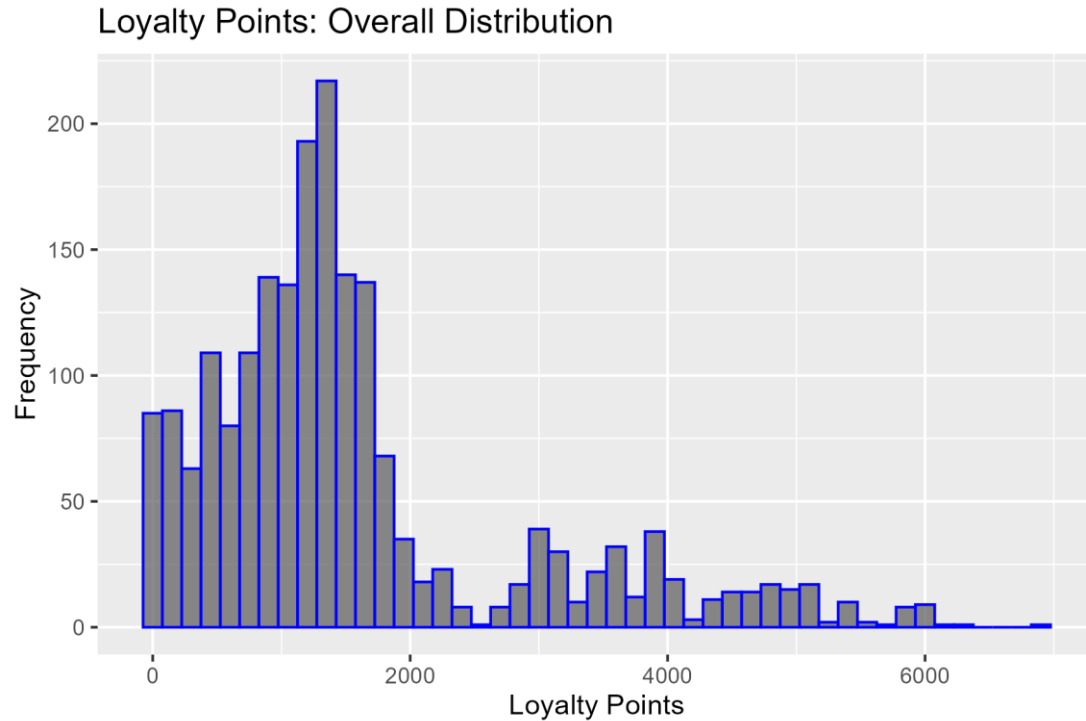
Our Analytical Approach

- Descriptive statistics and visualisations
- Correlation and regression analysis
- Clustering
- Natural Language Processing



Insights: Loyalty Point Distribution

Most customers accumulate a moderate number of points, while a small proportion of customers accumulate an exceptionally high number of points.



Insights: Loyalty Point Data Suitability

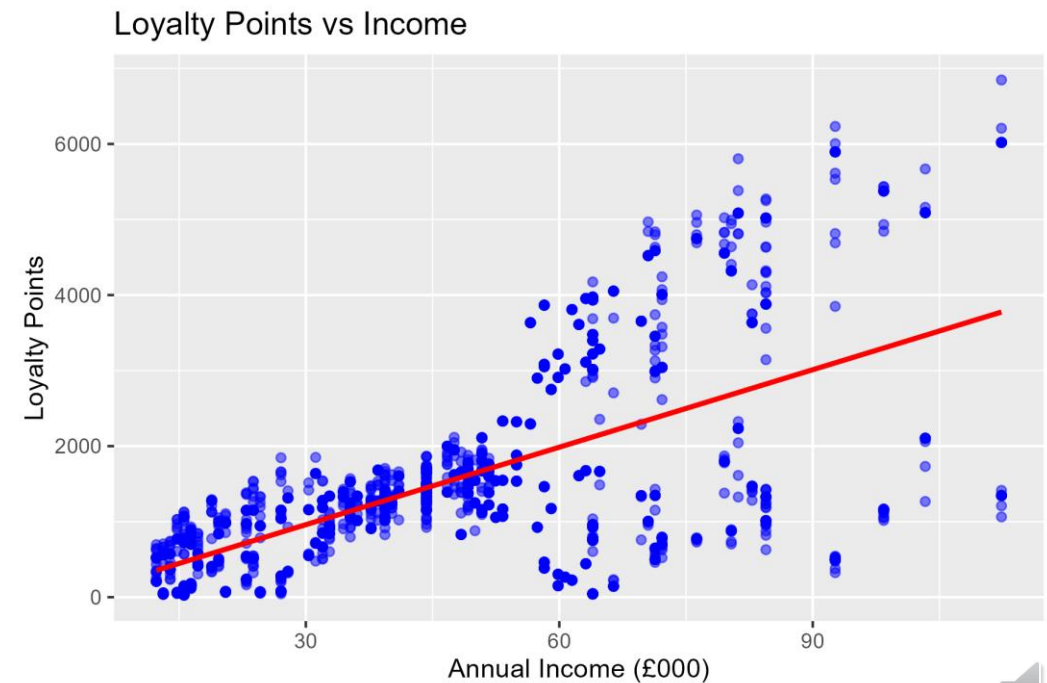
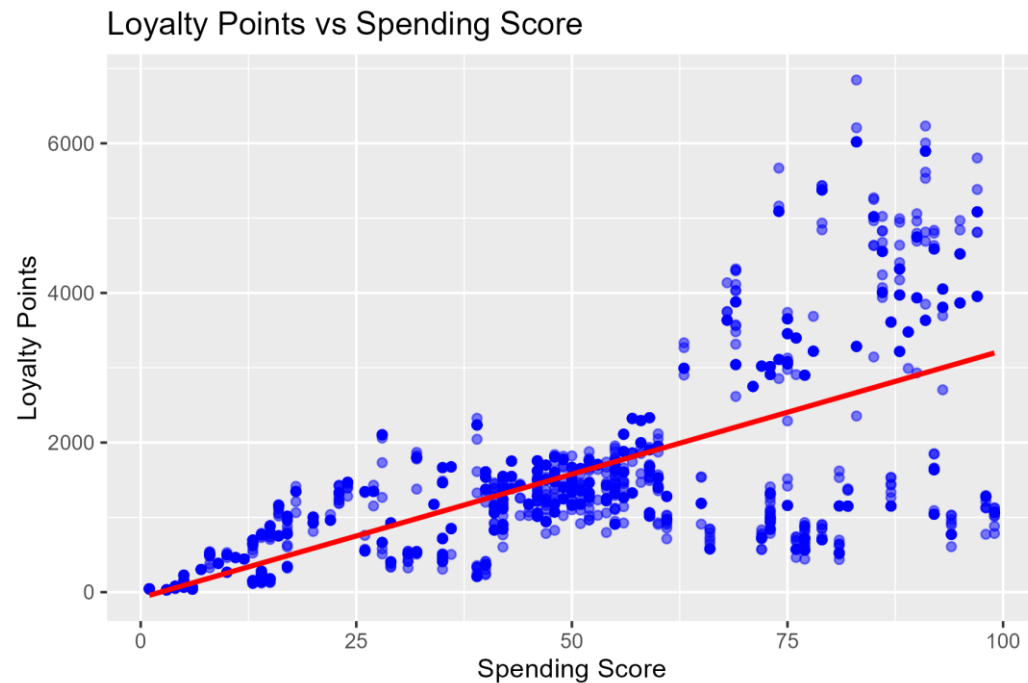
Key findings

- ✓ Meaningful variation
- ✓ Genuine high-value customers
- ✓ Realistic distribution



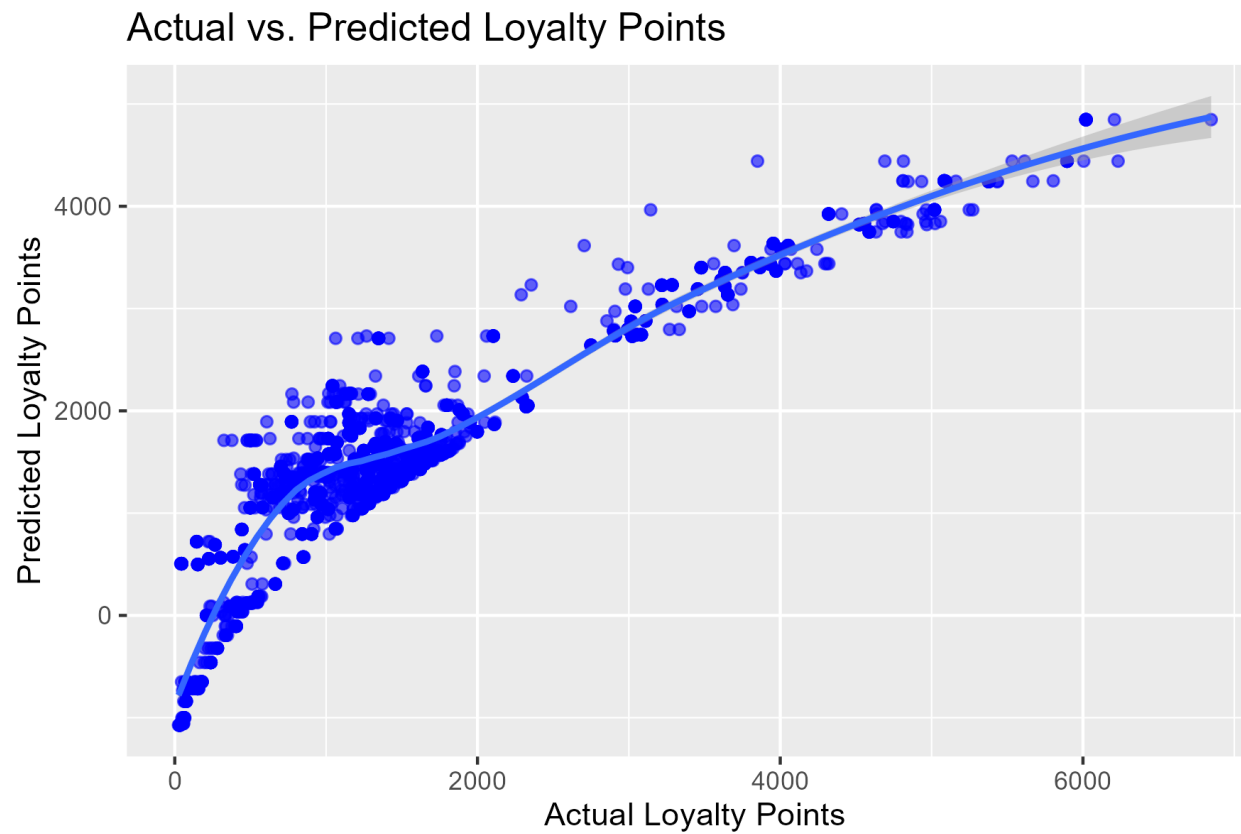
Insights: What Drives Loyalty?

Customer spending score and income both have a positive relationship with loyalty points.



Insights: Can You Predict Loyalty?

Loyalty behaviour is highly predictable from income and spending score.

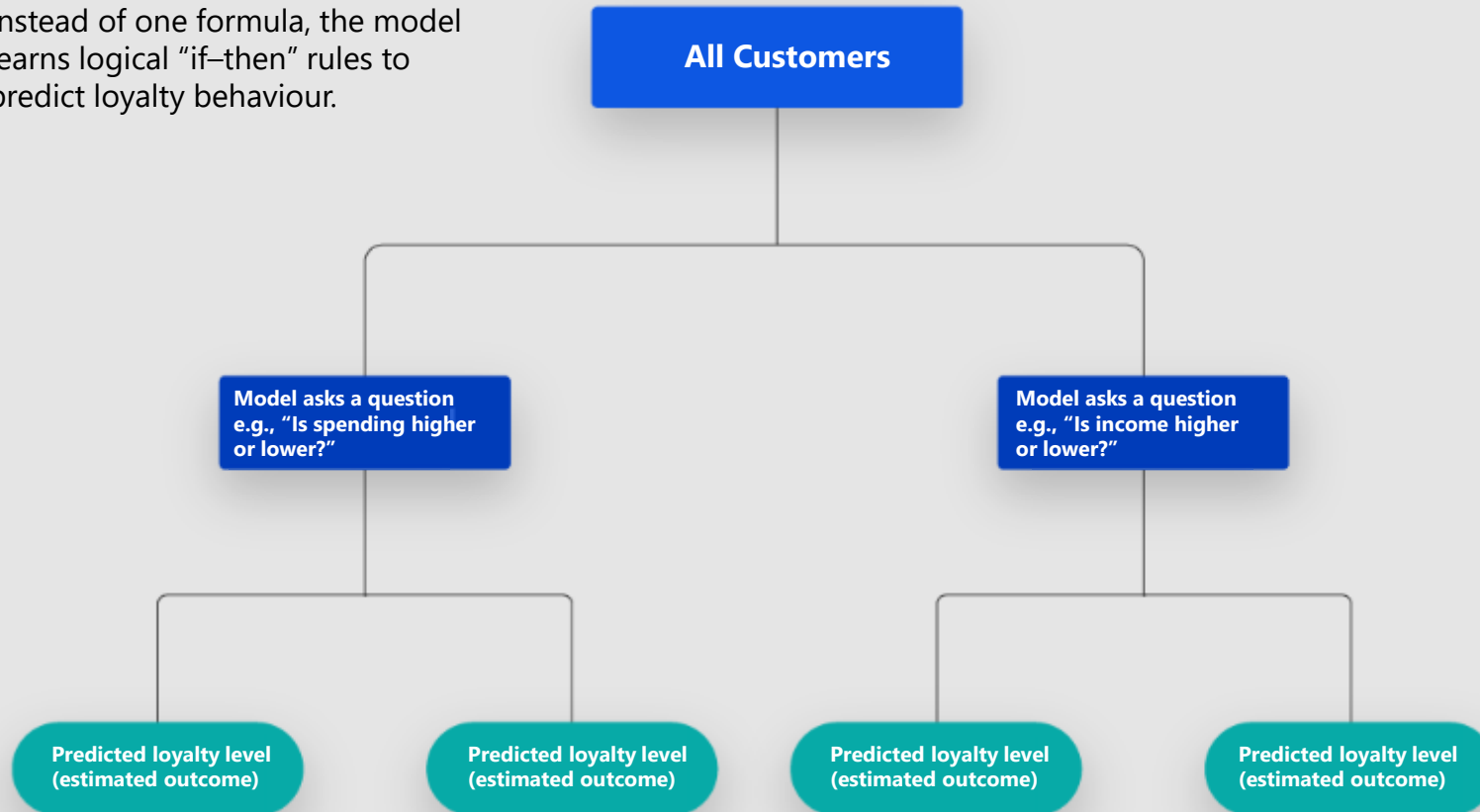


Insights: Decision Tree

Decision tree modelling shows that loyalty behavior is complex but predictable.

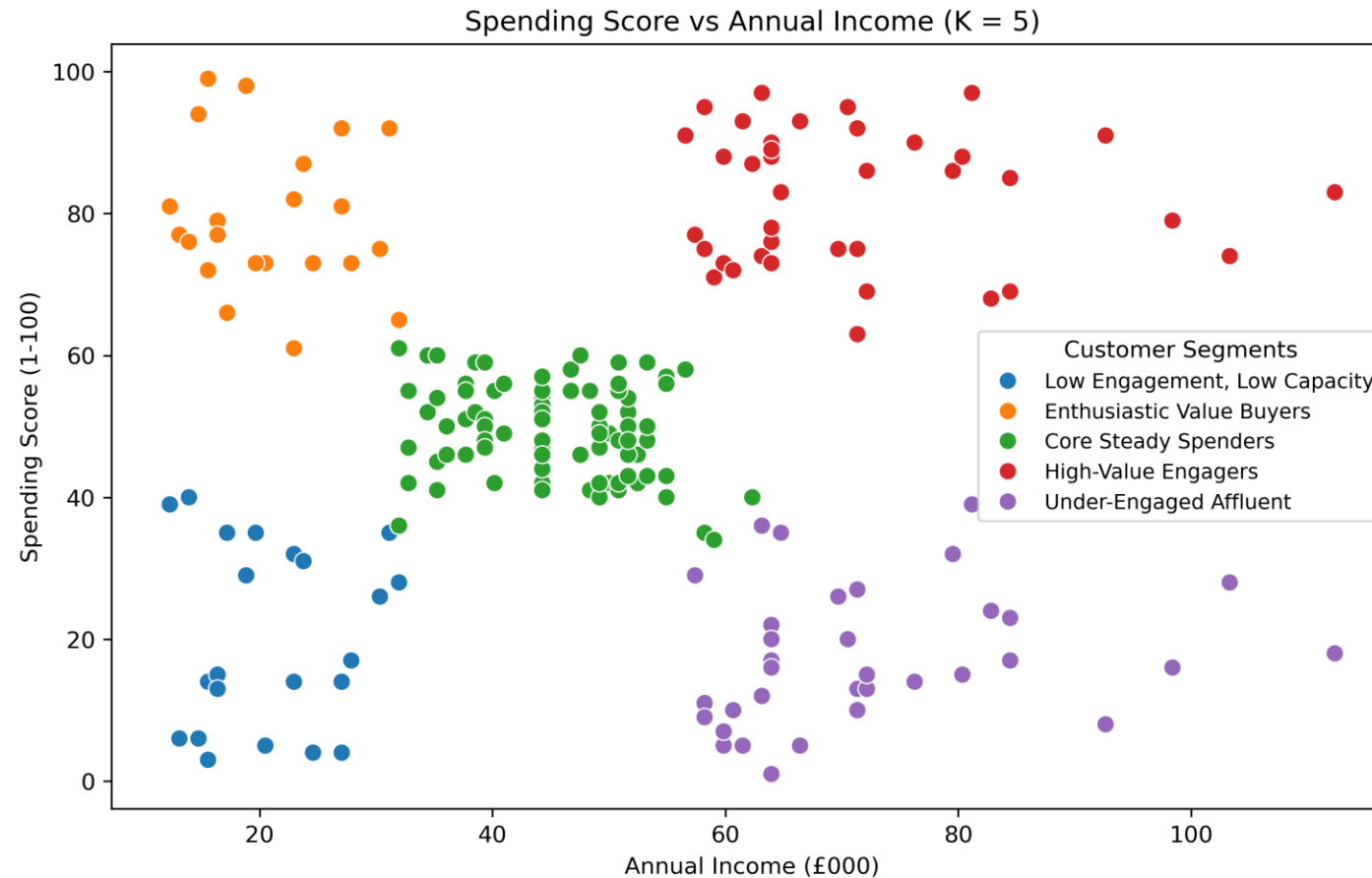
How a Decision Tree Learns Loyalty Behaviour

Instead of one formula, the model learns logical “if-then” rules to predict loyalty behaviour.



Insights: Customer Segmentation

Segmenting customers into five groups will enable more targeted marketing and promotions.



Insights: Customer Share vs. Loyalty Share

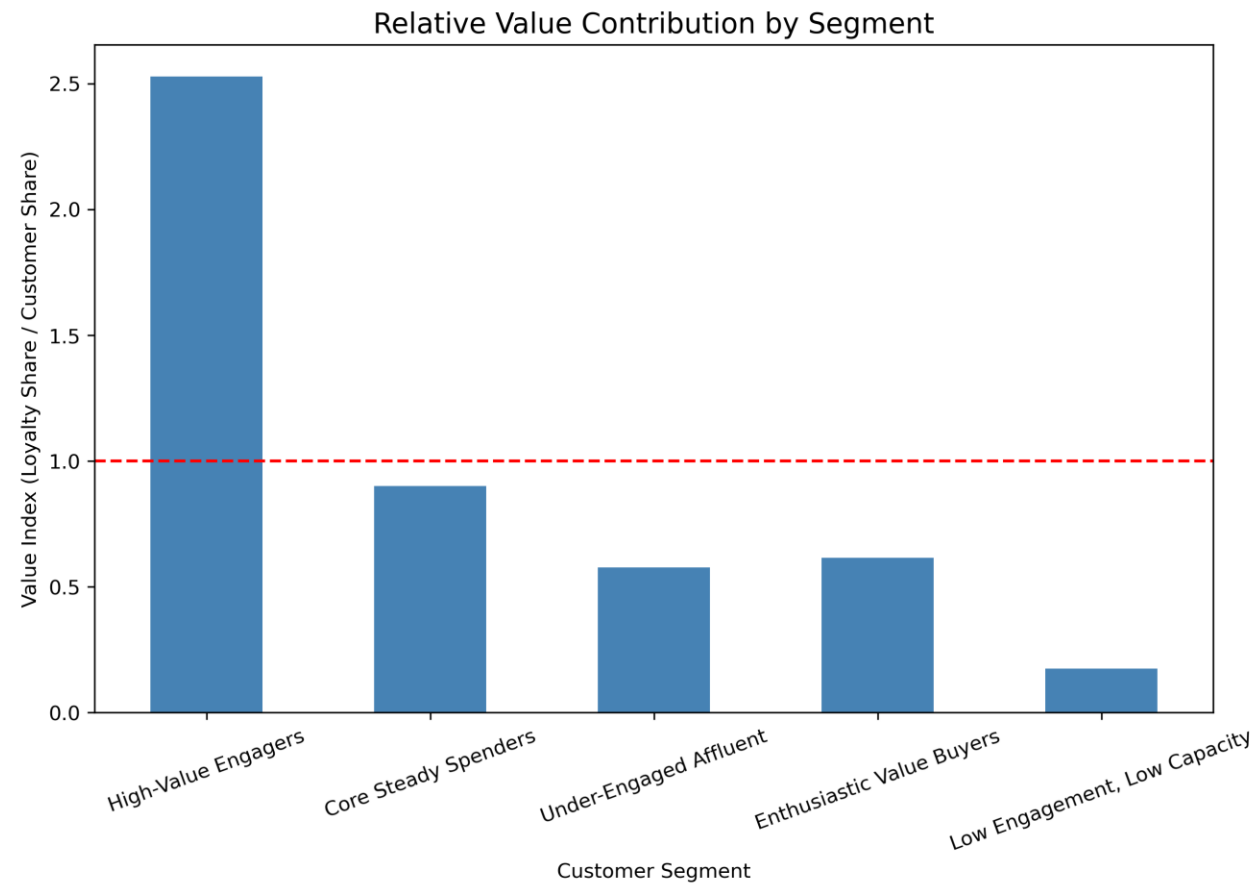
High-Value Engagers are a relatively small segment but contribute a large share of value. **Core Steady Spenders** broadly match their size, and the other three segments contribute significantly less.

Customer Segment	Number of Customers	% of Customer Base	Avg Loyalty Points	Total Loyalty Points	% of Loyalty Value
High-Value Engagers	356	18	3,988	1,419,813	45
Core Steady Spenders	774	39	1,420	1,099,376	35
Under-Engaged Affluent	330	16	912	300,881	10
Enthusiastic Value Buyers	269	13	972	261,453	8
Low Engagement, Low Capacity	271	14	275	74,541	2



Insights: Relative Value Contribution (Customer Value Index)

High-Value Engagers are a relatively small segment but contribute a disproportionately large share of value.



Insights: What Customers Say

Overall, customers love Turtle Games, with positive sentiment consistent across segments. Frustrations tended to focus on usability and quality.

Word	Frequency	Sample positive comments	Sample negative comments
stars	466		
five	381	<ul style="list-style-type: none">came in perfect condition	<ul style="list-style-type: none">booo unles you are patient know how to measure i didnt have the patience neither did my daughter
game	319	<ul style="list-style-type: none">awesome gift	<ul style="list-style-type: none">boring unless you are a craft person which i am not
great	295	<ul style="list-style-type: none">excellent activity for teaching selfmanagement skills	<ul style="list-style-type: none">incomplete kit very disappointing
fun	218	<ul style="list-style-type: none">perfect just what i ordered	<ul style="list-style-type: none">this was a gift for my daughter i found it difficult to use
love	93	<ul style="list-style-type: none">wonderful product	<ul style="list-style-type: none">i found the directions difficult
good	92	<ul style="list-style-type: none">delightful product	<ul style="list-style-type: none">instructions are complicated to follow
four	58	<ul style="list-style-type: none">awesome addition to my rpg gm system	<ul style="list-style-type: none">Difficult
like	54	<ul style="list-style-type: none">one of the best board games i played in a long time	
expansion	52	<ul style="list-style-type: none">my daughter loves her stickers awesome seller	
kids	50	<ul style="list-style-type: none">thank you	
cute	45	<ul style="list-style-type: none">it is the best thing to play with and also mind blowing in some ways	
book	43		
one	38		
awesome	36		




Recommendations

Segmentation insights

- Retain and grow High-Value Engagers with **retention**, **recognition**, and **premium experiences**
- Unlock potential of Under-Engaged Affluents with **targeted research** to understand barriers
- Nurture Core Steady Spenders with **mainstream marketing** and **loyalty programs**...
...and consider discount pricing offers for Enthusiastic Value Buyers

NLP insights

- Utilize insights on what customers currently value about Turtle Games with campaigns that emphasize **fun, gifting, family experiences**, and **shared enjoyment**
- Reduce frustration by improving product experience: **clearer instructions, realistic age guidance**, and **stronger quality control** 

Conclusion

Summary

- Loyalty behaviour is highly predictable
- Customers fall into clear and meaningful segments
- Customer reviews tell a very positive emotional story, with a small number of consistent pain points

Future Analysis / Further Exploration

- Product-level analysis
- Evaluate impact of marketing and loyalty activity



Appendix: Loyalty Point Statistics

Measures of central tendency and dispersion	Distribution shape
<ul style="list-style-type: none">• Mean: 1,578• Median: 1,276• Mode: 1,014• Range: 25 - 6847• Difference between highest and lowest value: 6,822• Inter-Quartile Range: 979.25• Variance: 1,646,704• Standard Deviation: 1,283.24	<ul style="list-style-type: none">• Skewness: 1.46• Kurtosis: 4.70• Shapiro-Wilk normality test: $W = 0.84307$, $p\text{-value} < 2.2e-16$