

# Turtle Games

Customer Insights Analysis

# Background and Objectives

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## **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

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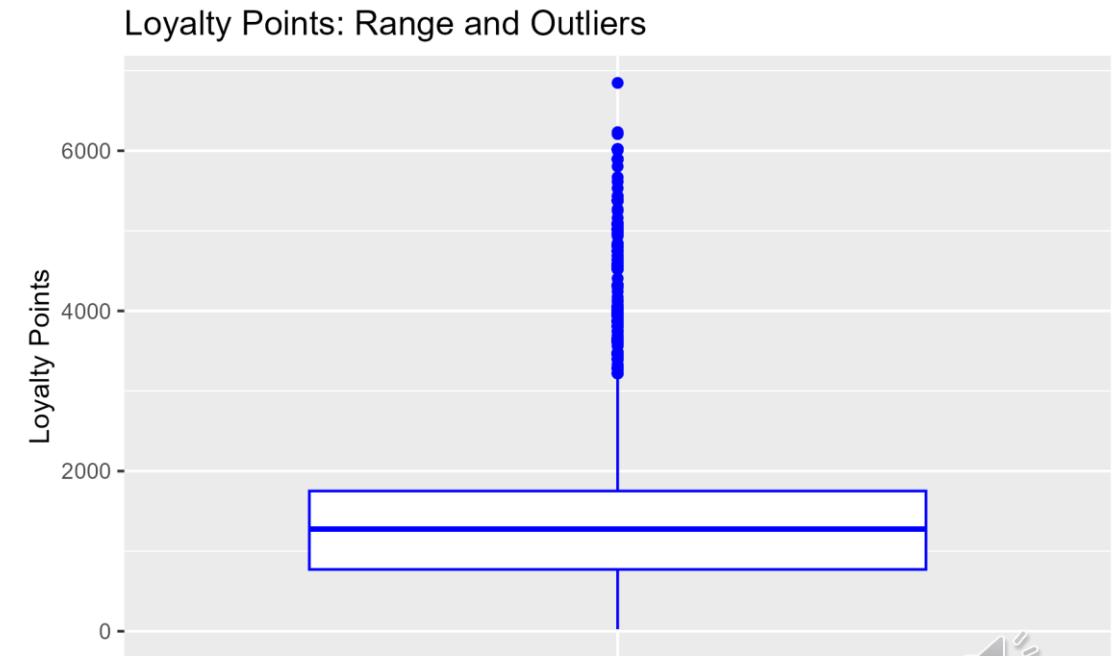
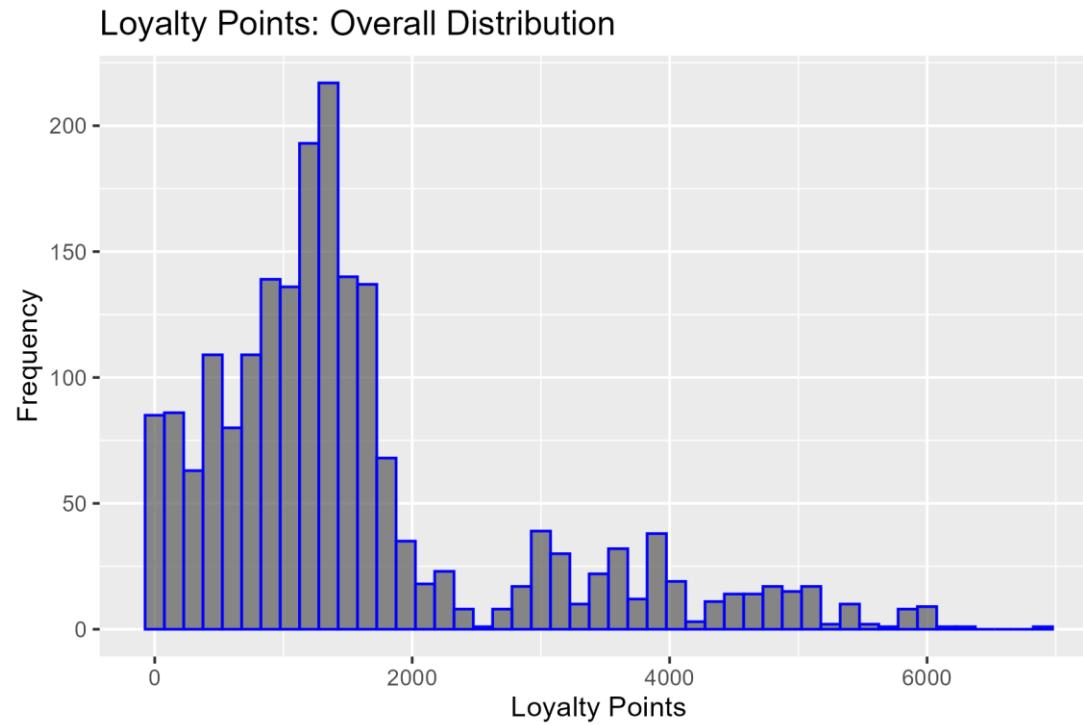
- Descriptive statistics and visualisations
- Correlation and regression analysis
- Clustering
- Natural Language Processing



# Insights: Loyalty Point Distribution

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**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

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## Key findings

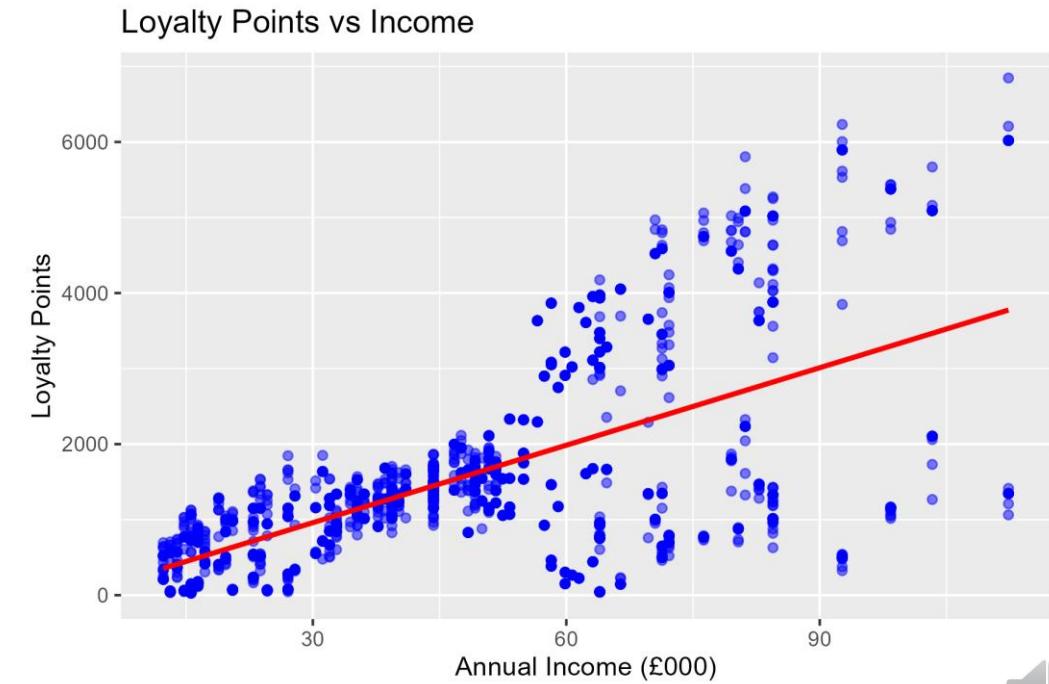
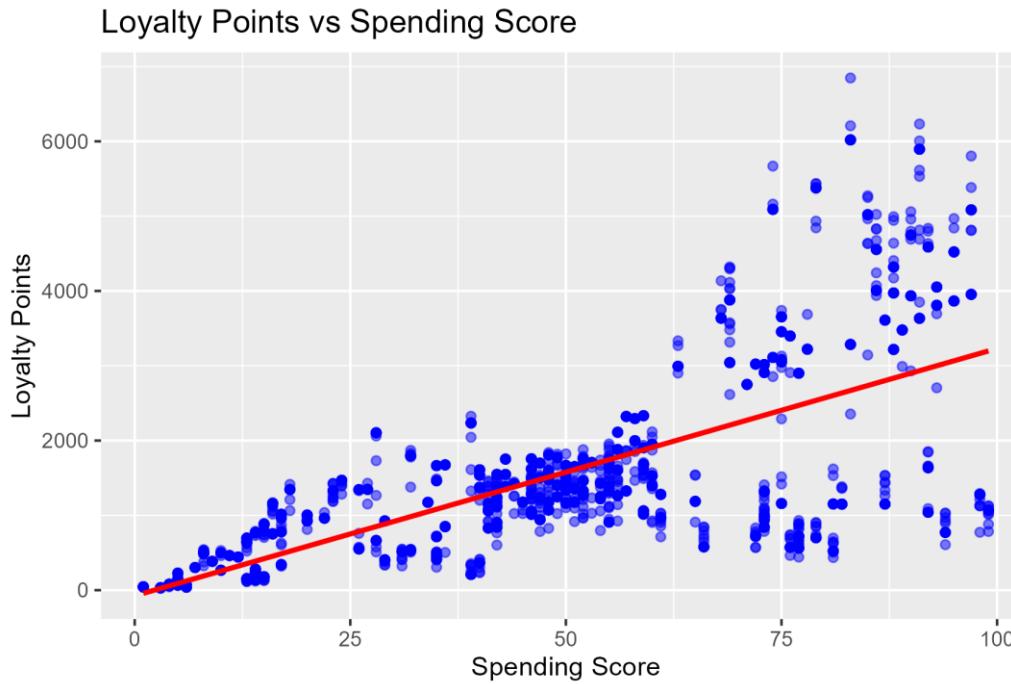
- ✓ Meaningful variation
- ✓ Genuine high-value customers
- ✓ Realistic distribution



# Insights: What Drives Loyalty?

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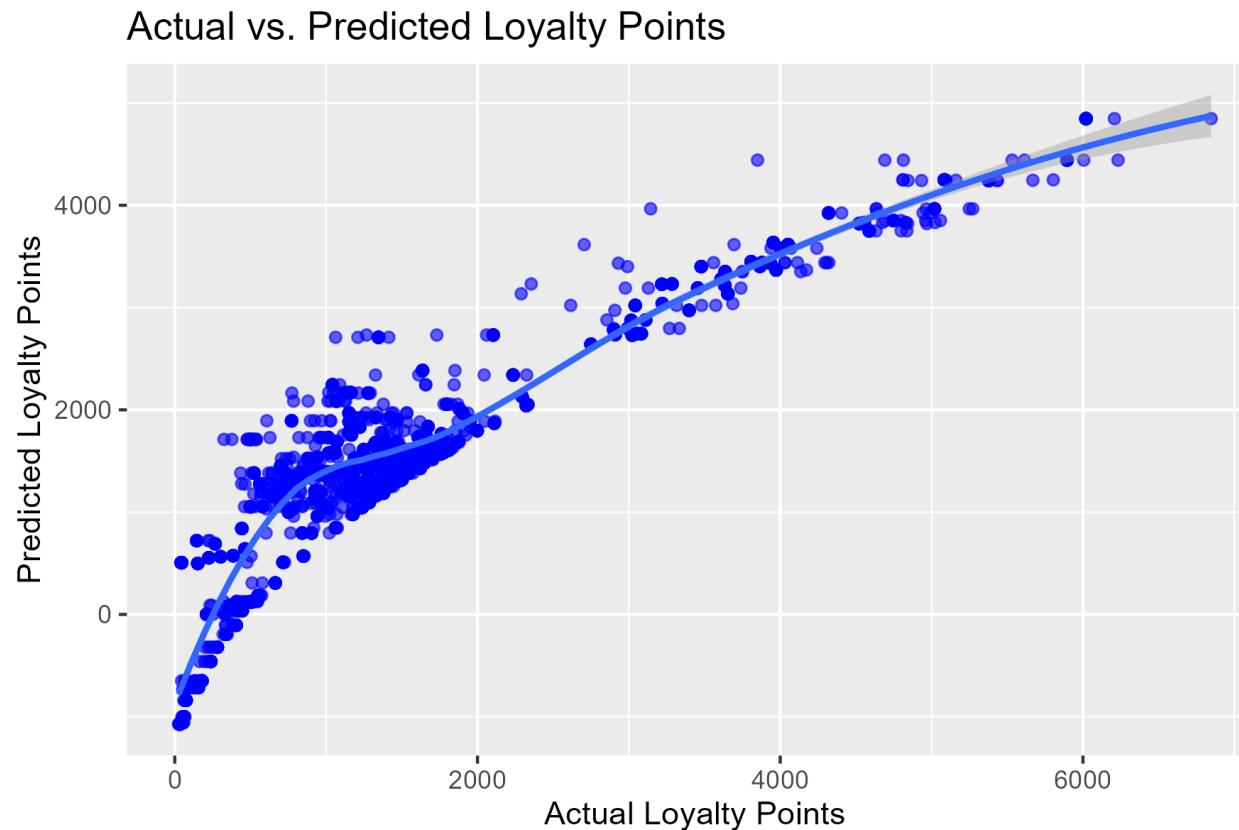
**Customer spending score and income both have a positive relationship with loyalty points.**



# Insights: Can You Predict Loyalty?

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Loyalty behaviour is highly predictable from income and spending score.



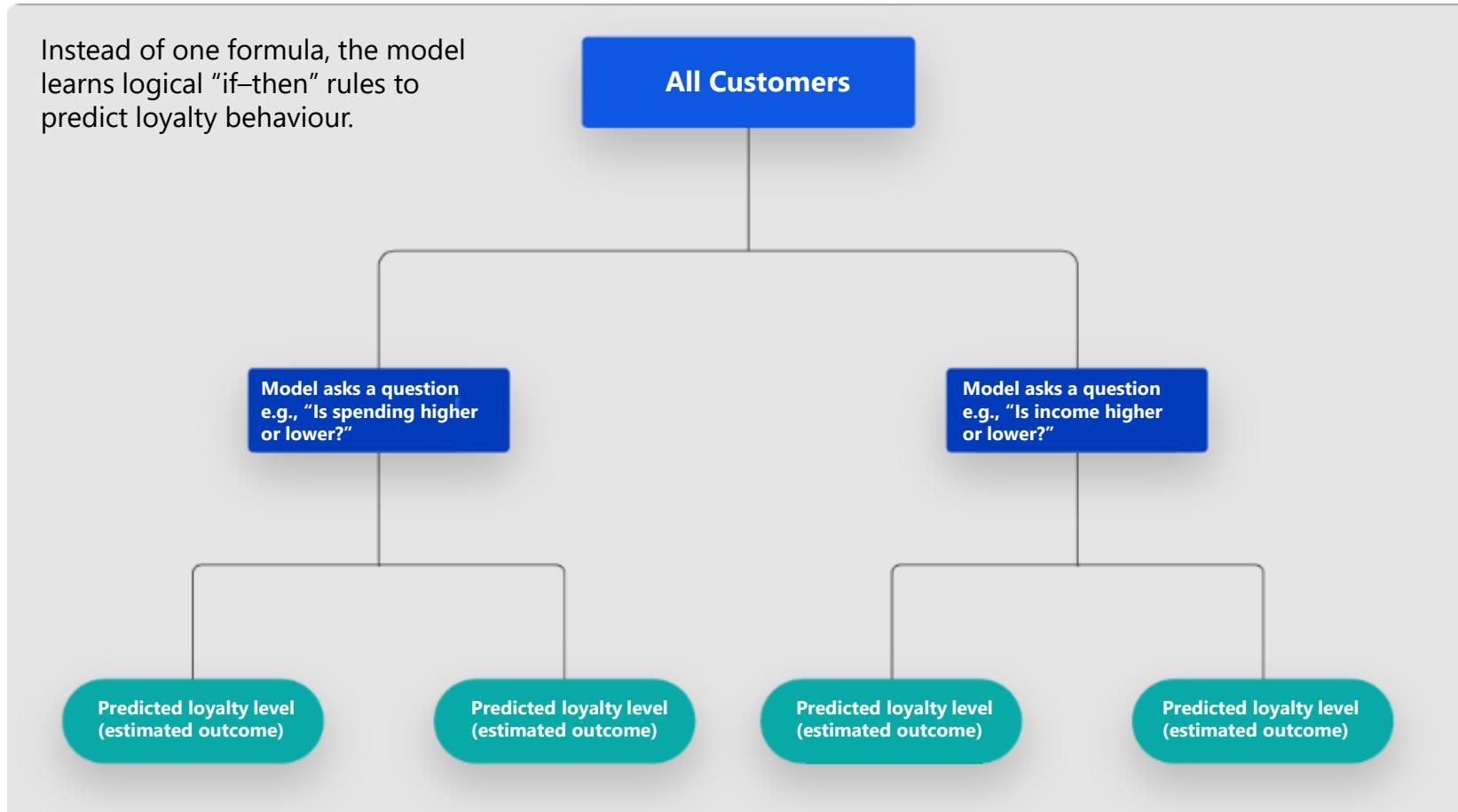
# Insights: Decision Tree

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

## How a Decision Tree Learns Loyalty Behaviour

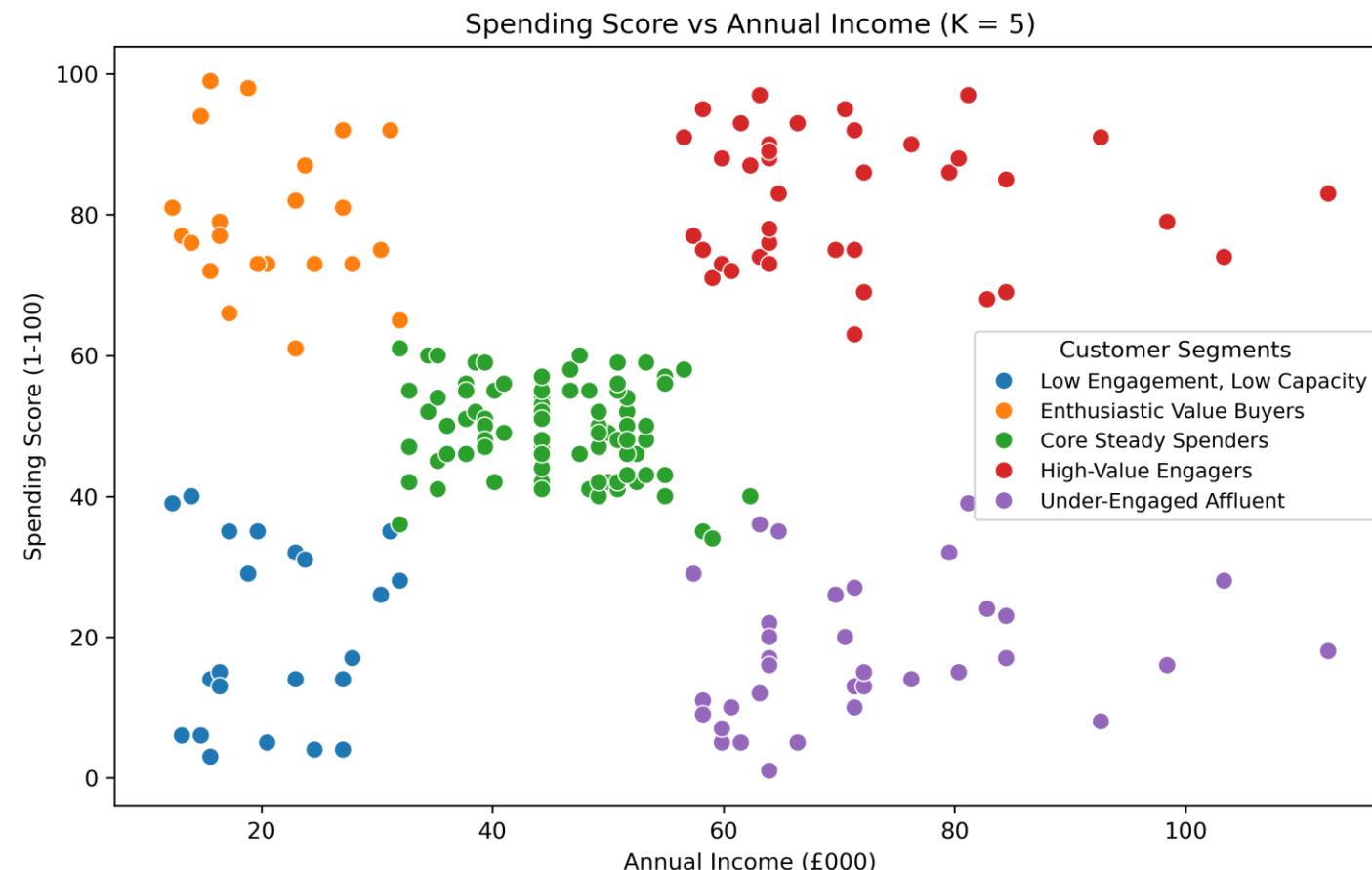
Instead of one formula, the model learns logical "if–then" rules to predict loyalty behaviour.



# Insights: Customer Segmentation

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



# Insights: Customer Share vs. Loyalty Share

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**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.

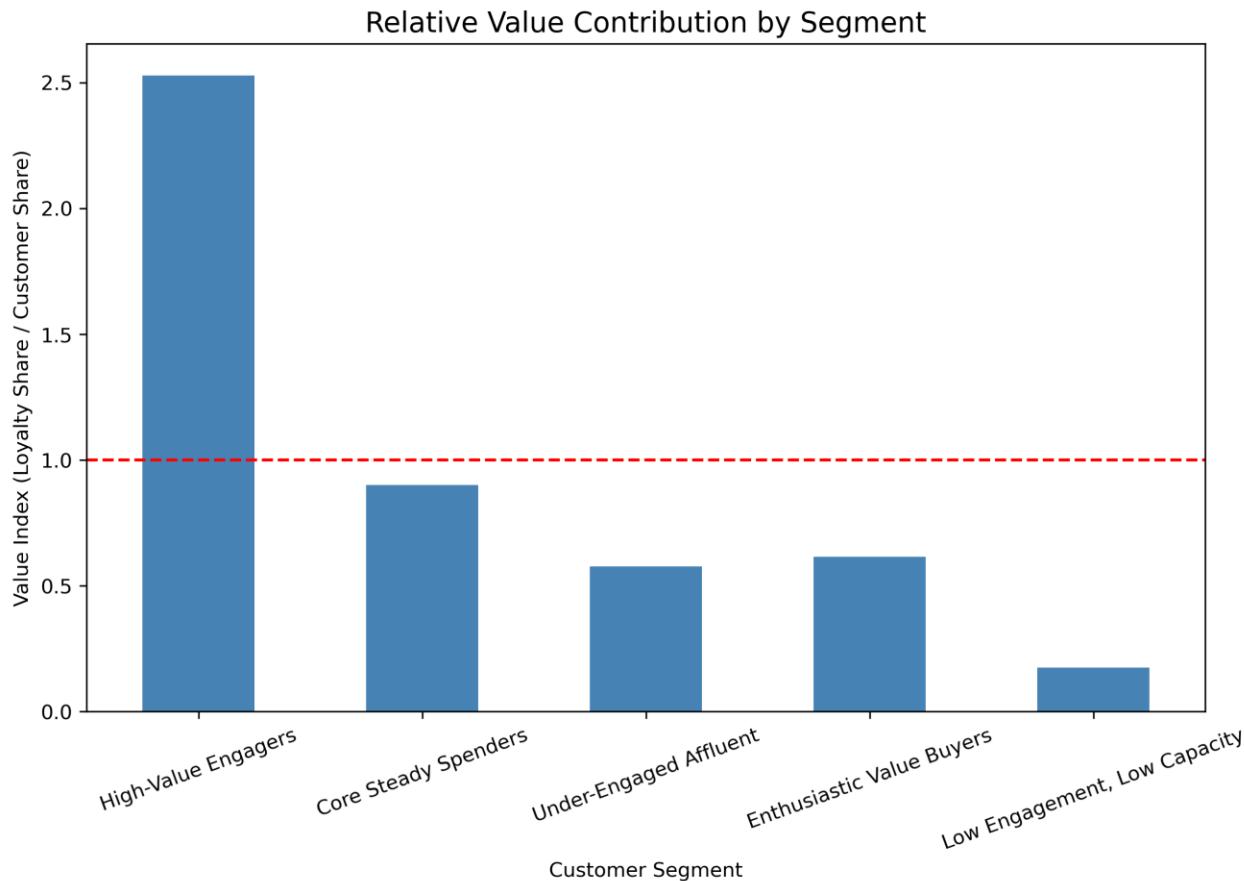
Customer Segment	Number of Customers	% of Customer Base	Avg Loyalty Points	Total Loyalty Points	% of Loyalty Value
High-Value Engagers	356	18	3,988	1,419,813	45
Core Steady Spenders	774	39	1,420	1,099,376	35
Under-Engaged Affluent	330	16	912	300,881	10
Enthusiastic Value Buyers	269	13	972	261,453	8
Low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



# Insights: Relative Value Contribution (Customer Value Index)

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



# Insights: What Customers Say

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



# Recommendations

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## 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

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## 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

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