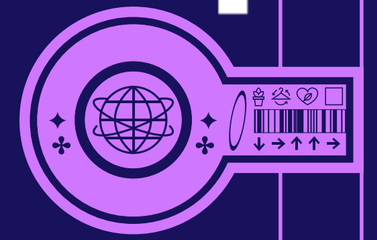
CAPSTONE

SENTIMENT ANALYSIS OF VIDEO GAME REVIEWS



BY: SAM HOPKINS

Institute of Data

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BIOGRAPHY

- From Miami, Florida
- Living in Broome, WA
- Bachelor of Science Degree in Business Management from Florida Gulf Coast University
- Passions
  - Sports
  - Video Games

BUSINESS GOAL

Use Sentiment analysis to extract meaningful insights:

- Prioritize updates based on player feedback
- Improve customer satisfaction
- Optimize marketing and communication strategies

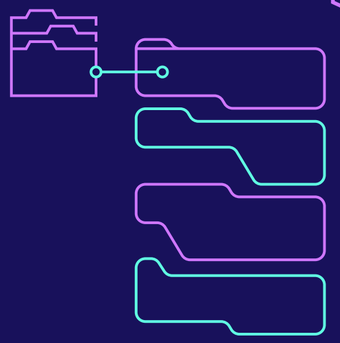
BUSINESS PROBLEM

Developers receive large amounts of player feedback:

- Difficult to identify what the player thinks
- Marketing team difficulties
- Unclear updates rolled out

OBJECTIVES

- Classify Reviews
- Identify key themes/topics
- Generate actionable insights



KAGGLE DATASET

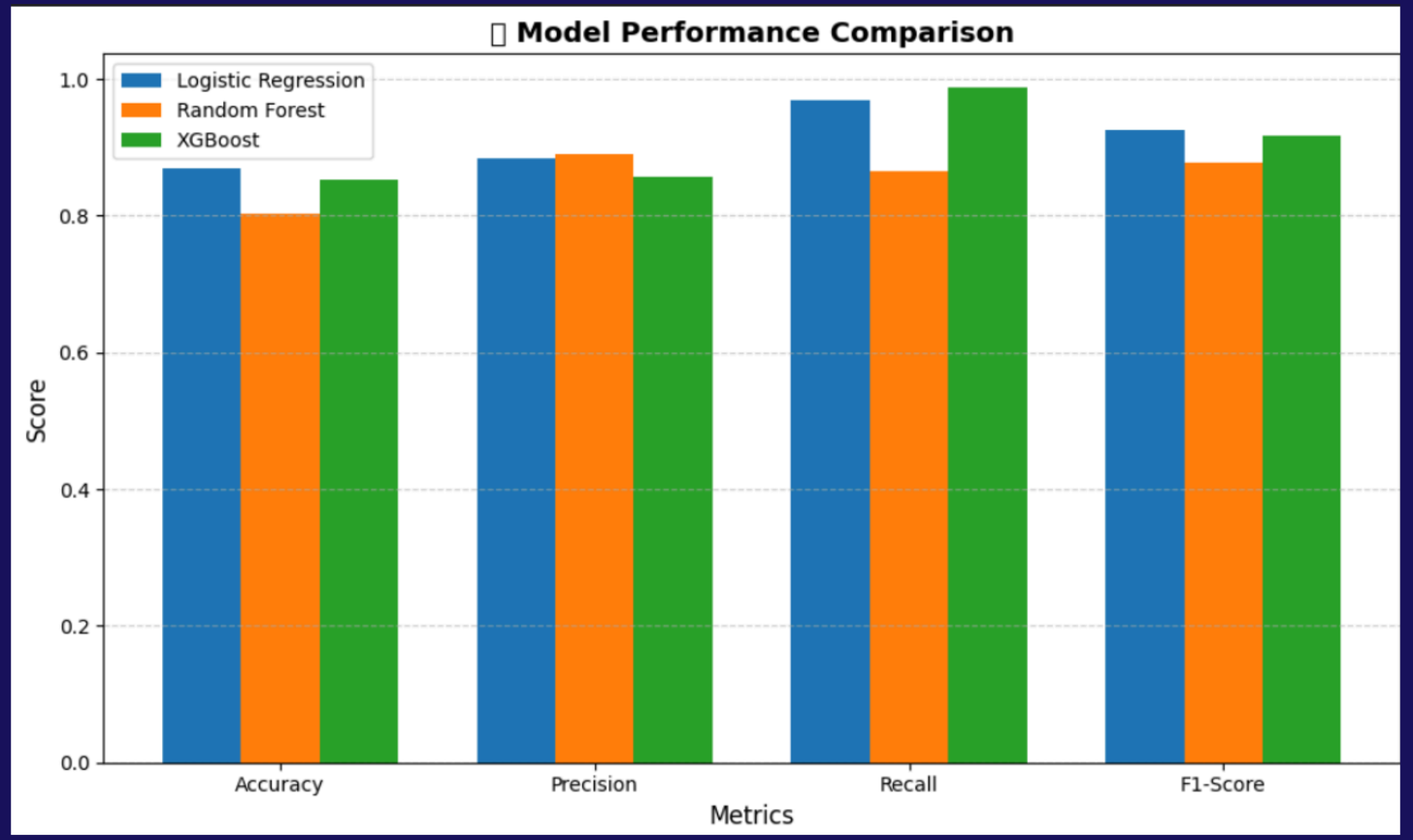
Steam Game Reviews

- Large Dataset
- Cleaned Data
- Focused on Positive / Negative Reviews

STAKEHOLDERS

- Game Developers
- Marketing Team
- Product Managers
- Players / Community Managers

MACHINE LEARNING MODELS



- Logistic Regression -
  Accuracy = 88%
- Random Forest -
  Accuracy = 91%
- XGBoost -
  Accuracy = 94%

PROVING OUR SENTIMENT ANALYSIS IS THE RIGHT SOLUTION

EVIDENCE BASED VALIDATION:

- TESTED ML MODELS
- CROSS VALIDATION
- HIGH ACCURACY
- SHAP ANALYSIS

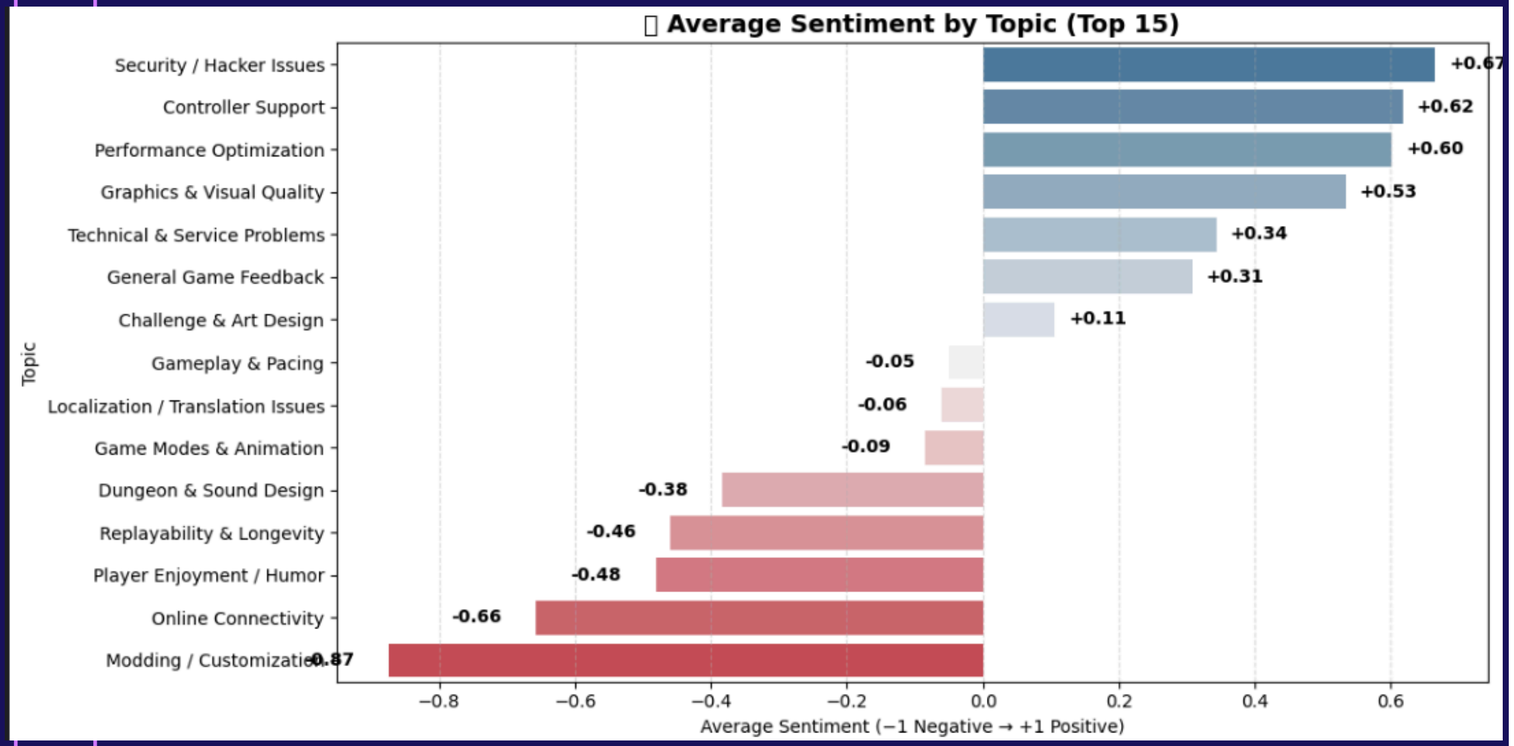
VISUALIZATION PROOF:

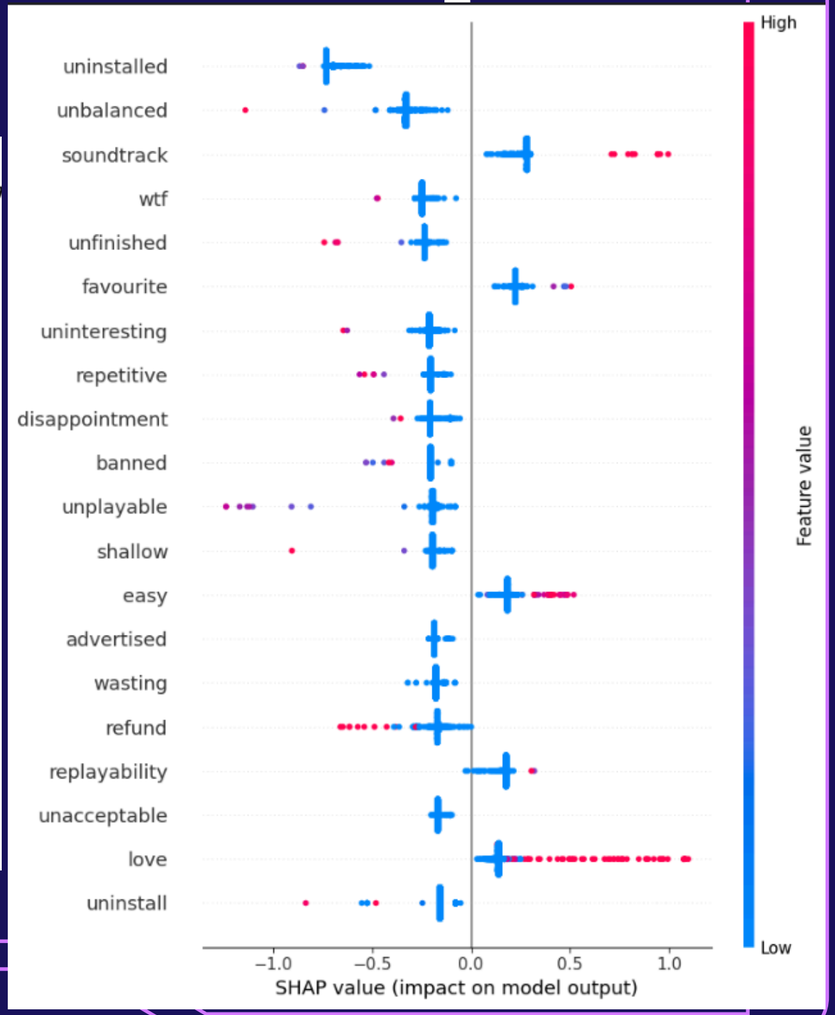
- SENTIMENT WORD CLOUDS
- TOP FEATURE IMPORTANCE
- SHAP SUMMARY PLOTS


Directional Chi^2 — Positive
addictive
highly
love
fantastic
beautiful
favorite
addicting
soundtrack
excellent
awsome
incredible
fallout
challenging
Directional Chi^2 — Negative
terrible
waste
suck
refund
horrible
unplayable
microtransactions
garbage
broken
trash
poorly

WORD CLOUD

TOP WORDS / SHAP SUMMARY





RECOMMENDATIONS

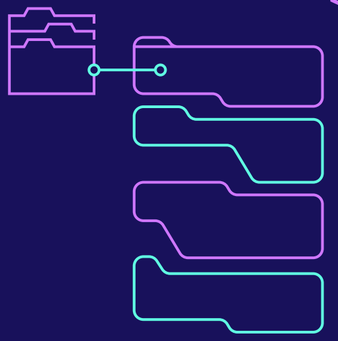
- Prioritize fixes
- Promote marketing
- Integrate Streamlit model
- Monitor sentiment monthly

LIMITING FACTORS

- Dataset was very large and needed deep cleaning
- Difficulties tokenizing
- Sarcasm and irony, obstacle for ML

CONCLUSIONS

- Best Model: XGBoost
- Impact on Developers
- Multiple positive outcomes



THANK YOU