

Save Dying “”

Earn \$100 Million

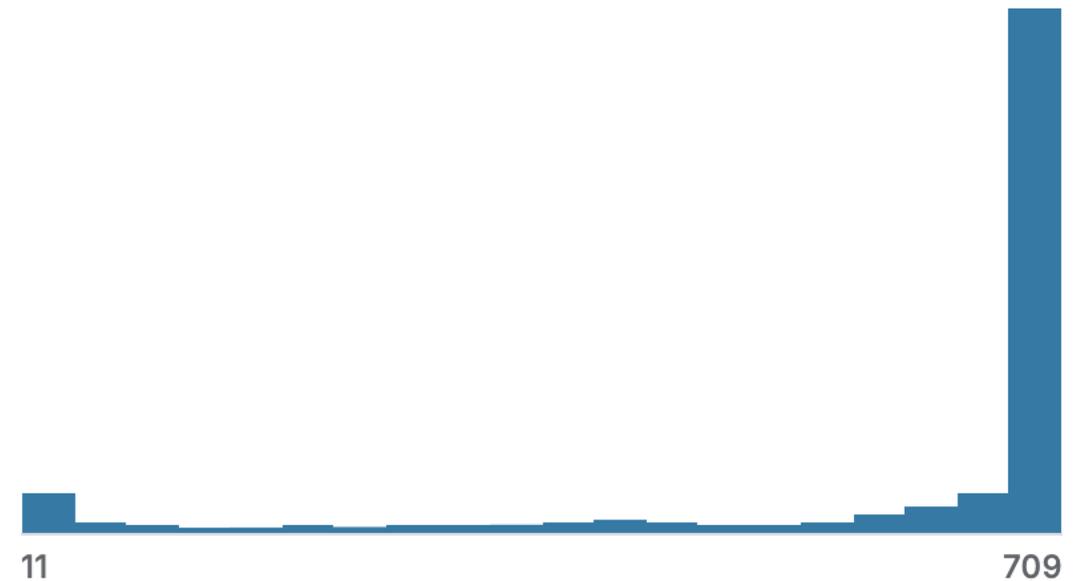
STAT 451 group 2

Eva Song, Ani Shi, Jiahua Zhang, Peter Li, Sam Li

French C2C Fashion E-commerce Platform

10 M registered users

Number of days since the last login



Data information

n=98913
p=17

Variables are categorized as follows

Basic Information

- Gender
- Country
- Language

Usage Duration

- DaysSinceLastLogin
- Seniority

Device Preference

- HasApp
- HasIOSApp / HasAndroidApp
- HasSocialProfile

Community Interaction

- SocialNbFollowers
- SocialNbFollows

Transaction Interests

- SocialProductsLiked
- ProductsWished
- ProductsListed

Transaction Quantity

- ProductsBought
- ProductsSold

Transaction Quality

- ProductsPassRate

1

User Acquisition

Where can we find new, high-quality users?

Identifying Target Countries/Regions
for Marketing

2

User Retention

What do our active users look like?

Identifying Key User Segments
for Retention

3

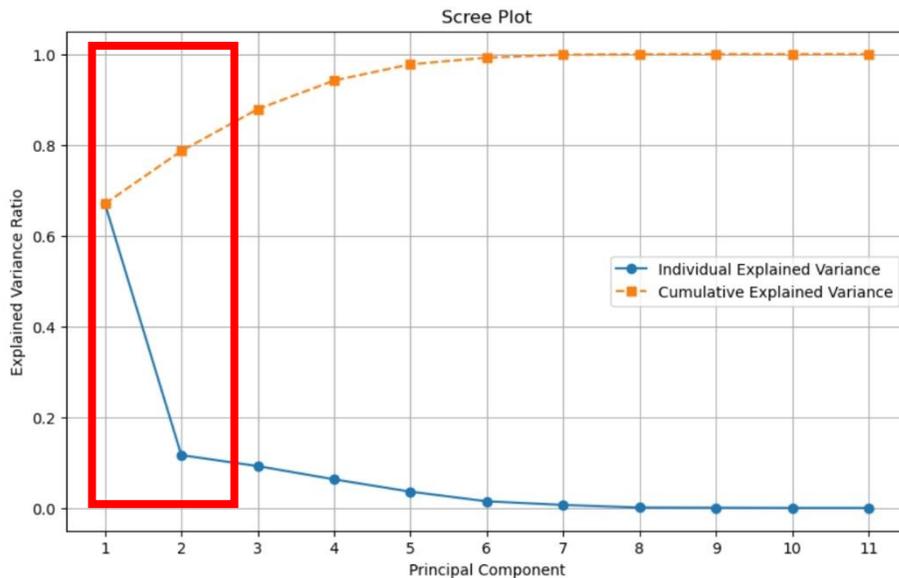
User Conversion

What types of users prefer to sell / buy?

Identifying Key Features of the platform
for User Conversion

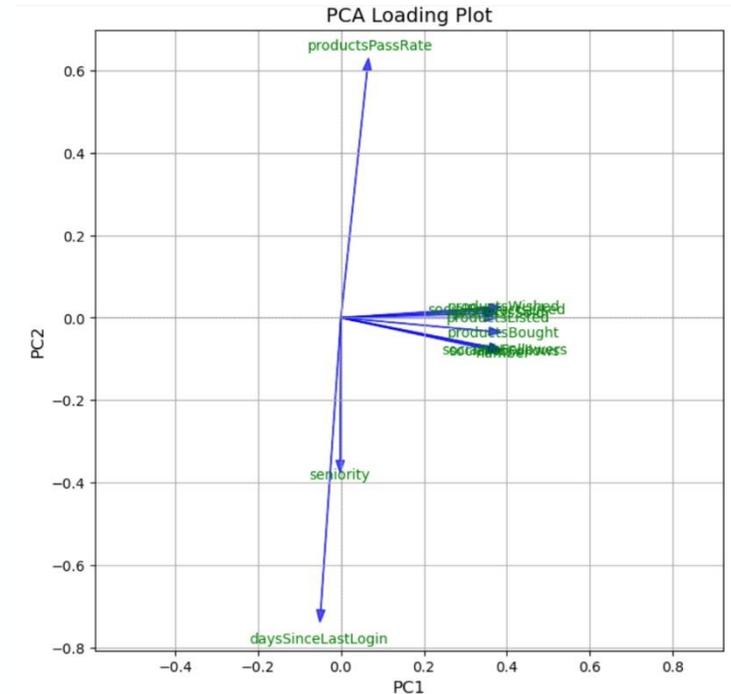
Regional Marketing Strategies

PCA 1 Principal Component Selection



loadings:

	PC1	PC2
number	0.355047	-0.076985
socialNbFollowers	0.358200	-0.071010
socialNbFollows	0.358268	-0.073554
socialProductsLiked	0.341340	0.016784
productsListed	0.345453	-0.000121
productsSold	0.347320	0.010577
productsPassRate	0.063357	0.599775
productsWished	0.356262	0.023917
productsBought	0.357075	-0.032919
daysSinceLastLogin	-0.048515	-0.708575
seniority	-0.001785	-0.346068

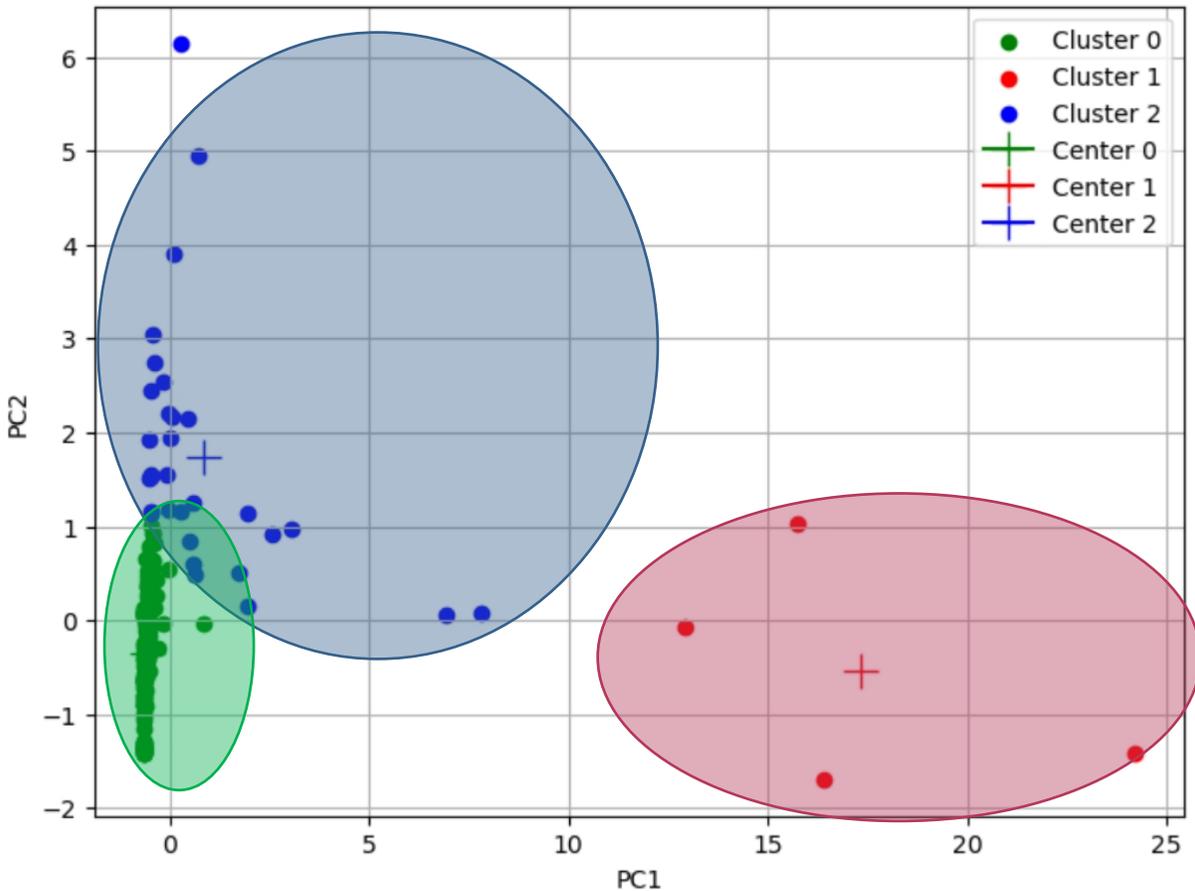


- The first 2 principal components explain 80% of the variance and represent the elbow point in the scree plot.
- PC1 Usage activity (# registered user + Community Interaction + Transaction Interests + Transaction Quantity)
- PC2 User behavior (Transaction Quality - Usage Duration)

Regional Marketing Strategies

Clustering 2 Country-wise clustering

K-Means Clustering on PCA Data



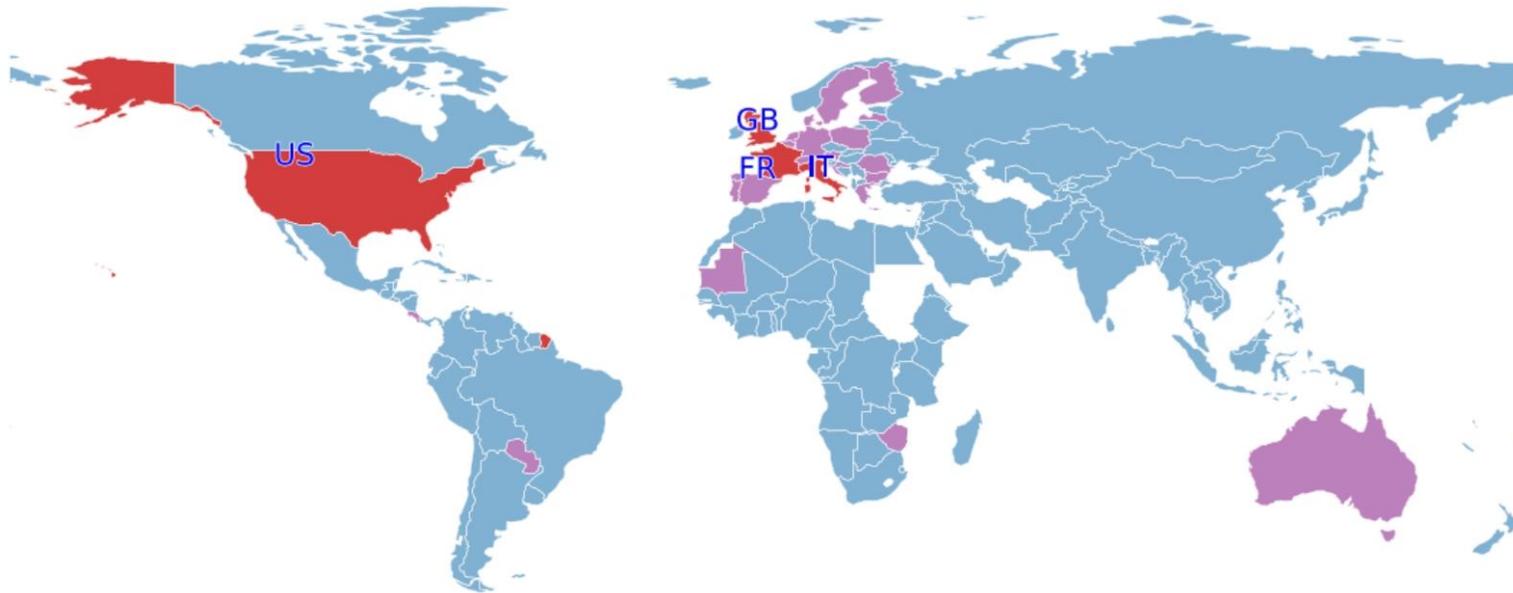
Clusters

- ① **Active** Country: **high PC1, low PC2**
- ② **Moderately Active** Country: **low PC1, high PC2**
- ③ **Inactive** Country: **low PC1, low PC2**

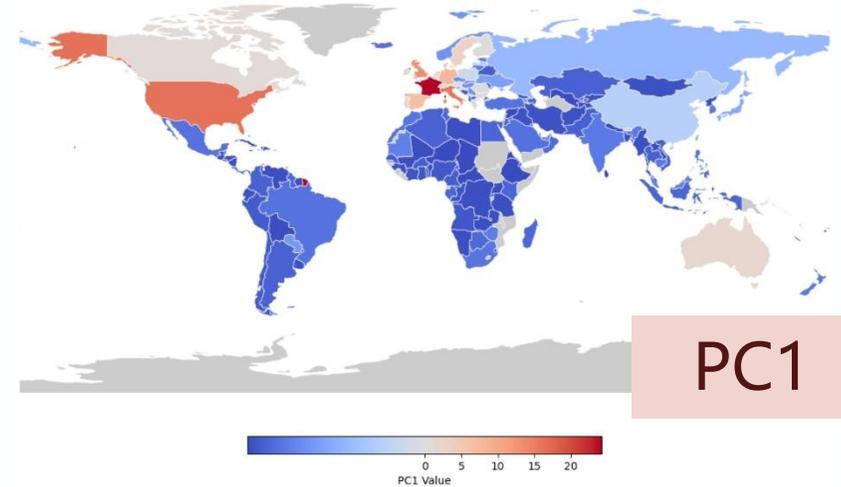
Regional Marketing Strategies

Clustering **3** Visualization

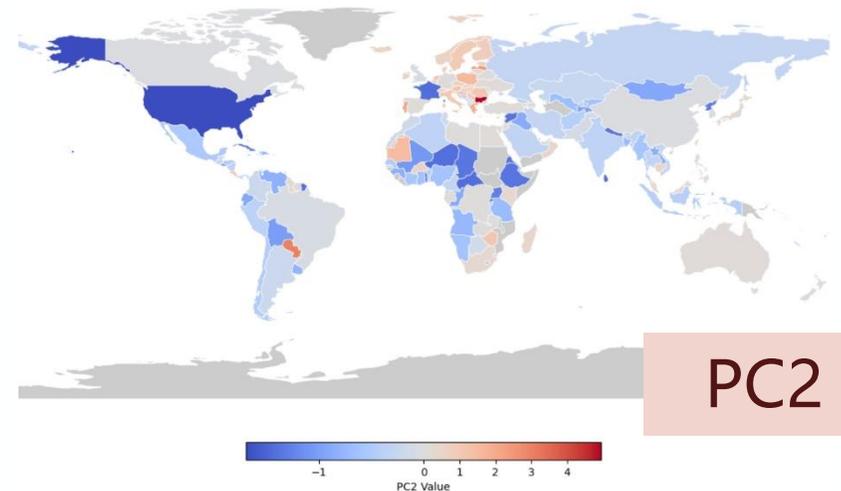
World Map with KMeans Clusters



World Map Colored by PC1



World Map Colored by PC2



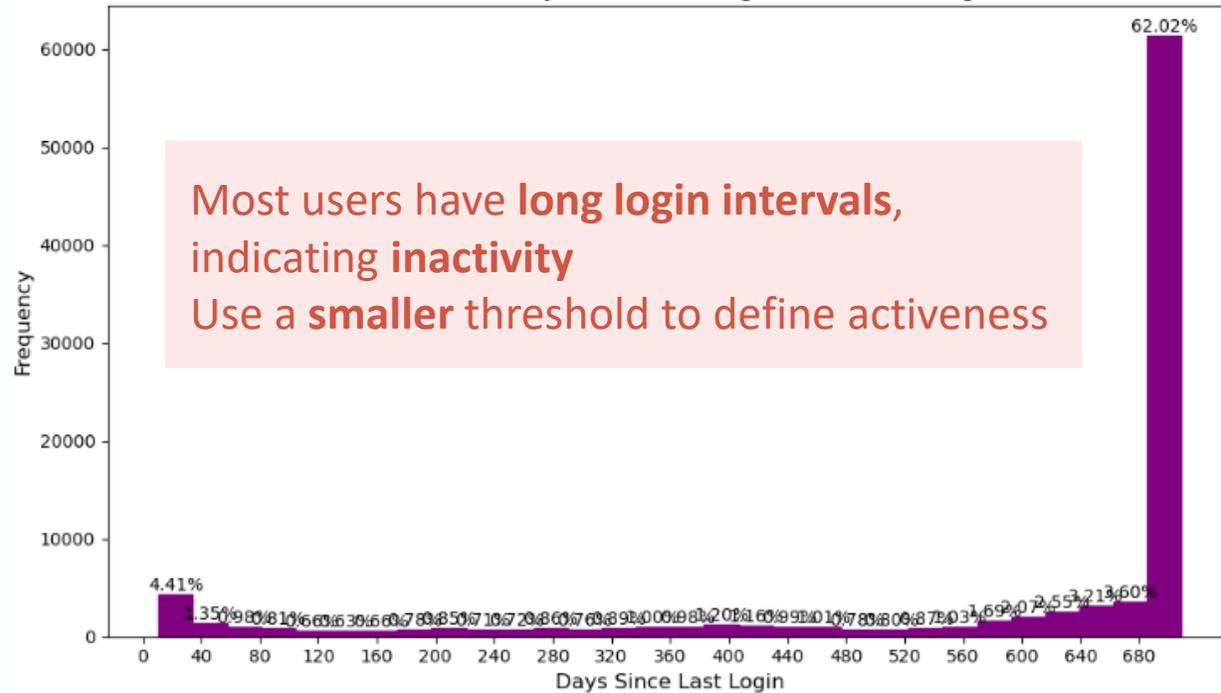
User Retention Strategies

Define
Active Users

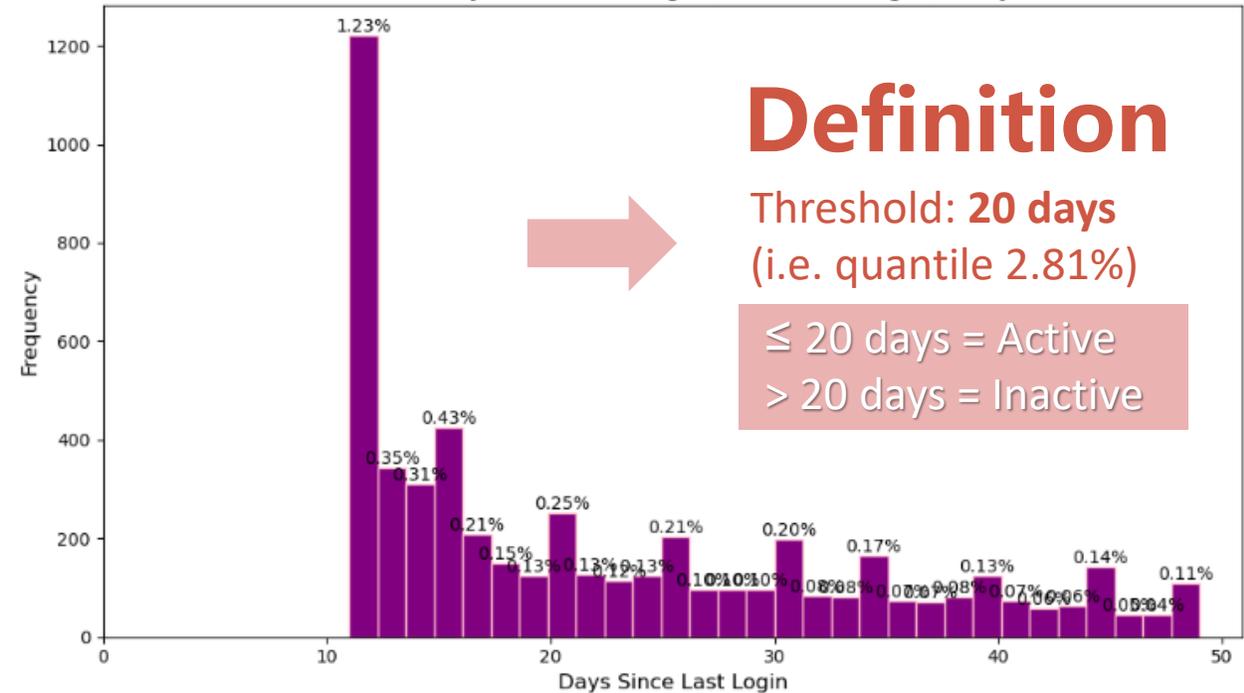
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Visualize user login interval distribution

Distribution of Days Since Last Login (with Percentages)



Distribution of Days Since Last Login (with Percentages) - Days < 50



User Retention Strategies

Classification **2** User Activeness Classification

Classifier	TP	FP	TN	FN
Decision Tree	464	2150	17082	87
Random Forest	449	2100	17132	102
Logistic Regression	395	1321	17911	156

Train:Test = 8:2

Target: IsUserActive

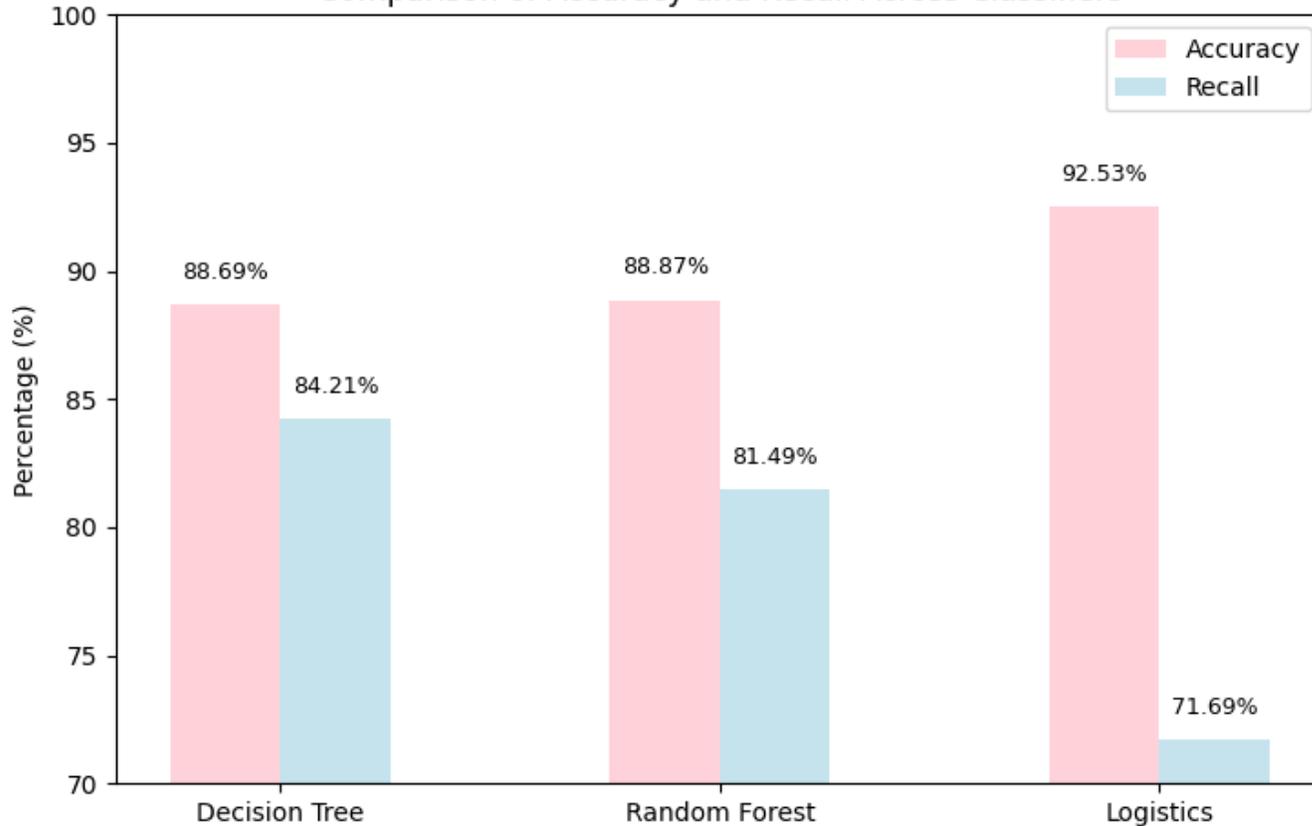
Feature: All Possible Factors

- Basic Information (gender..)
- Device Preference (IOS..)
- Community Interaction (#Follows..)
- Transaction Interests (producesLiked)
- Transaction Quantity (#Bought)
- Transaction Quality (PassRate)

User Retention Strategies

Classification 2 User Activeness Classification

Comparison of Accuracy and Recall Across Classifiers



Enhance Personalization

Cover more active users

Enhance user dependency

High Recall

Decision Tree

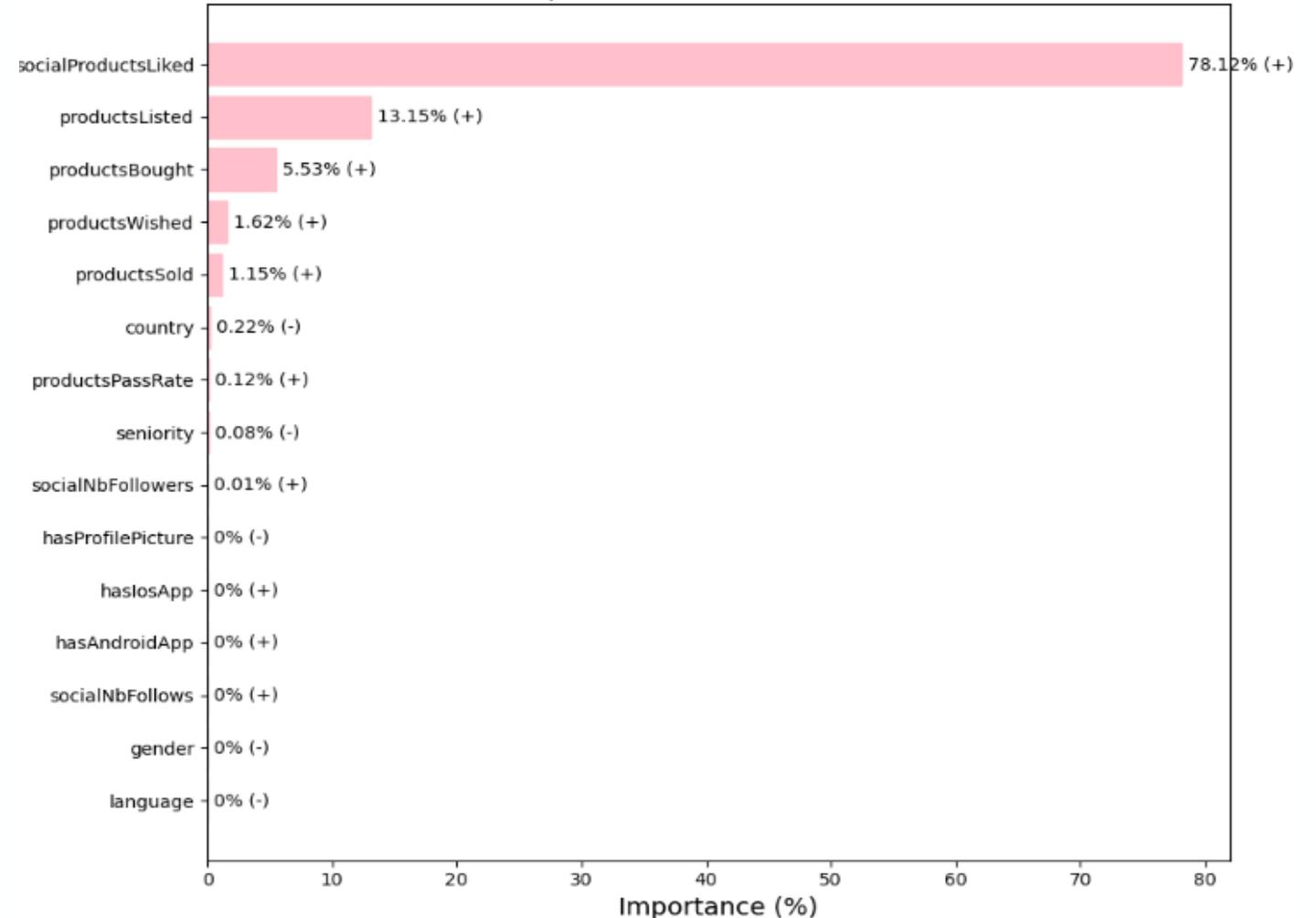
User Retention Strategies

Classification 2 Feature Importance

Distinctive Characteristics

- **socialProductsLiked**
- **productsListed**
- **productsBought**
- **productsWished**
- **productsSold**

Feature Importance - Decision Tree Classifier



User Conversion Strategies

Definition **1** Inclination to buy/sell

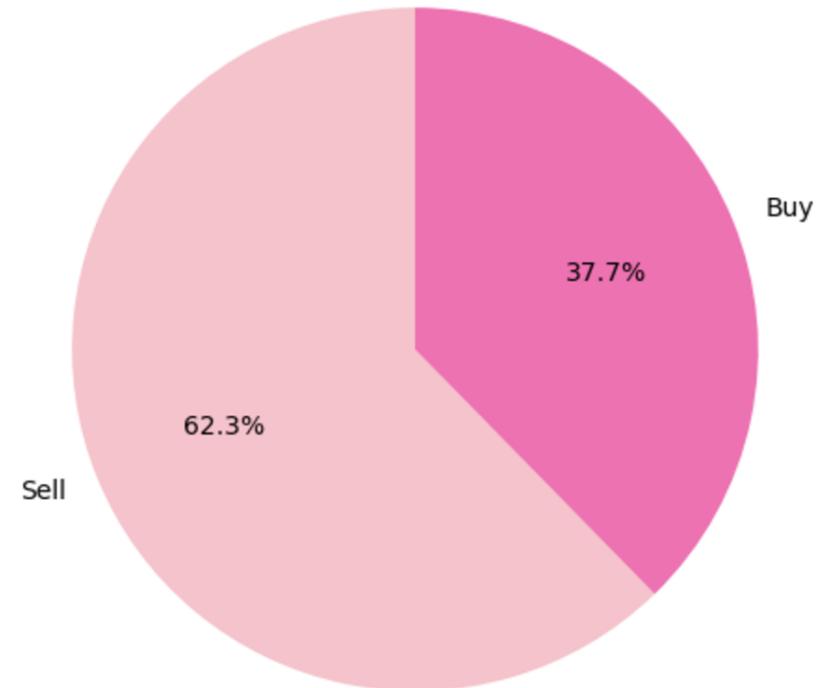
Only for active users

InclineToBuy

=1, if #bought > #sold

=0, otherwise

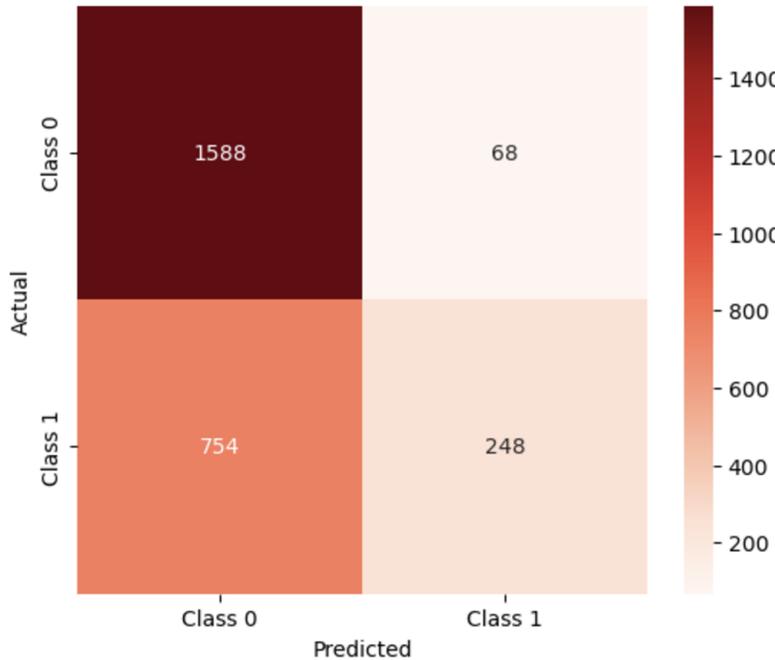
InclineToBuy Category Proportion



User Conversion Strategies

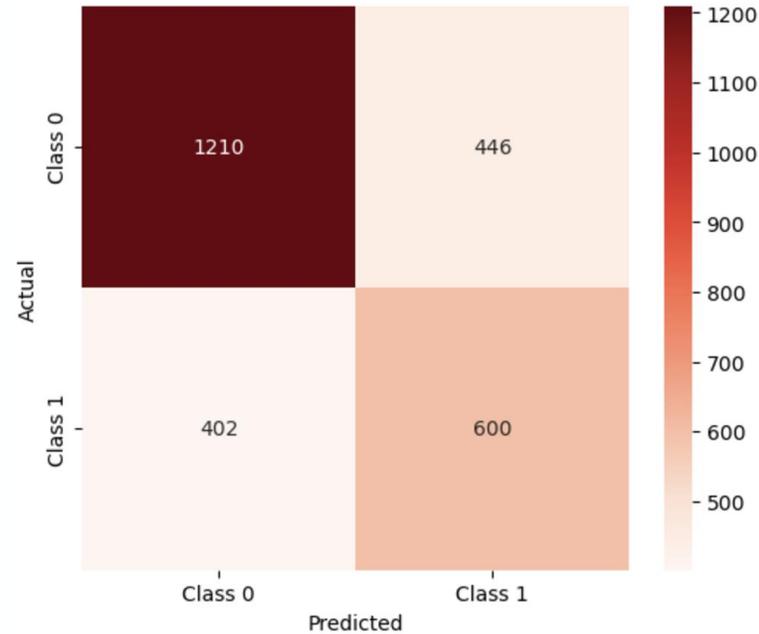
Classification 2 Active User Inclination Classification

Linear SVM - Confusion Matrix



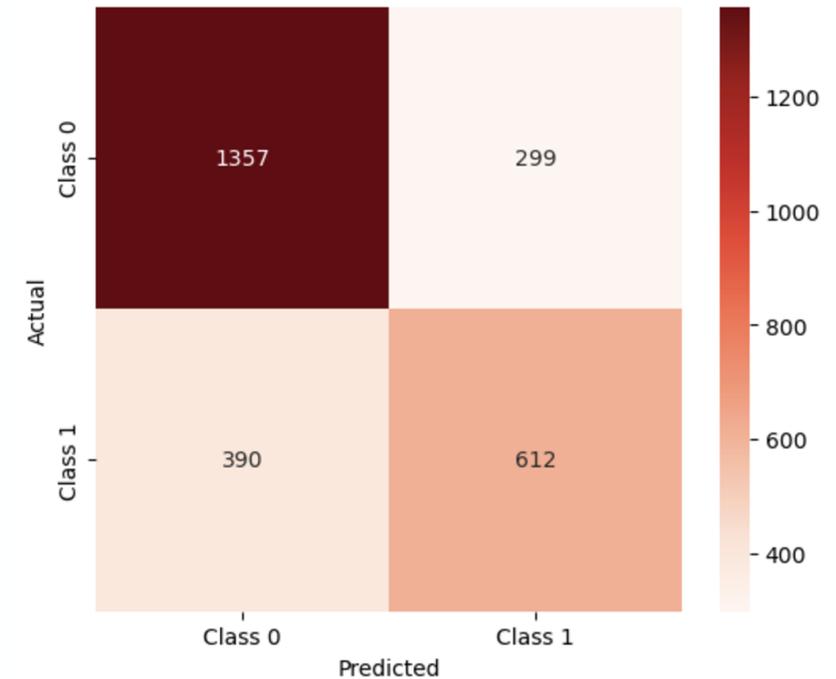
Accuracy: 69.07%
Precision: 78.48%
Recall: 24.75%

Decision Tree - Confusion Matrix



Accuracy: 68.10%
Precision: 57.36%
Recall: 59.88%

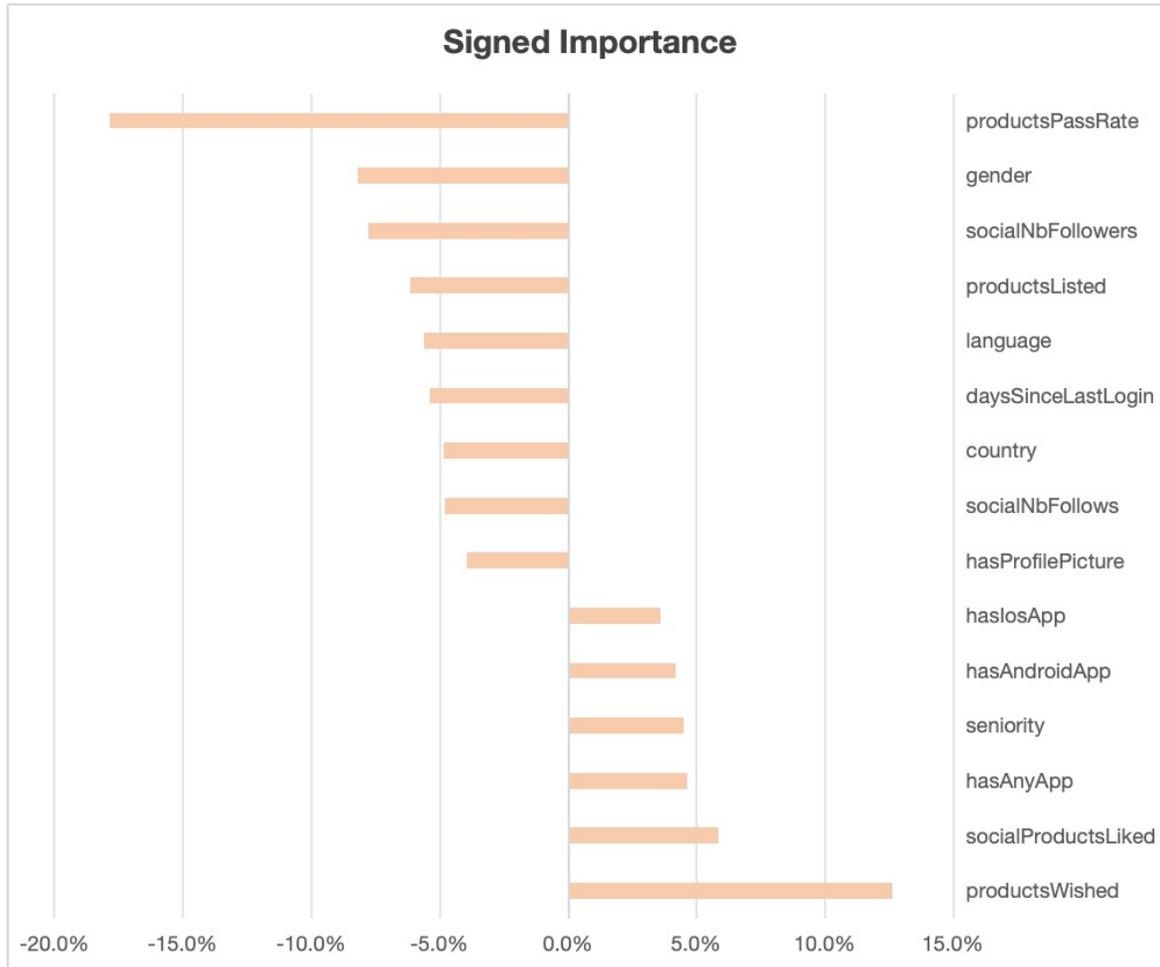
XGBoost - Confusion Matrix



Accuracy: 74.08%
Precision: 67.18%
Recall: 61.08%

User Conversion Strategies

Classification 3 Feature Importance



Feature	Signed Importance
productsPassRate	17.87% (-)
productsWished	12.62% (+)
gender	8.20% (-)
socialNbFollowers	7.80% (-)
productsListed	6.15% (-)
socialProductsLiked	5.85% (+)
language	5.63% (-)
daysSinceLastLogin	5.38% (-)
country	4.85% (-)
socialNbFollows	4.83% (-)
hasAnyApp	4.63% (+)
seniority	4.49% (+)
hasAndroidApp	4.19% (+)
hasProfilePicture	3.95% (-)
haslosApp	3.57% (+)

Strategies for Platform

Acquisition

- Target Active Countries with **Tailored Campaigns**
- **Expand Awareness** in Moderately Active Regions
- Strategically Abandon Inactive Countries

Retention

- Enhance **Social Features** to Boost Engagement
- Encourage **Listings**
- Wishlist **Personalization**

Conversion

- **Buyers:** Promote high-quality products with tailored recommendations.
- **Sellers:** Provide product performance analytics and listing tips.
- **Community:** Encourage follower-building to boost transactions.

General Recommendations

- **Enhance Social Features:** Improve likes, follows, and shares to drive repeat logins and transactions.
- **Regional Focus:** Tailor campaigns to regional preferences for acquisition.
- **Active User Optimization:** Prioritize active users.

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Thank
You

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