



Predicting Art Purchase and User Engagement

Converting users for an Art Startup

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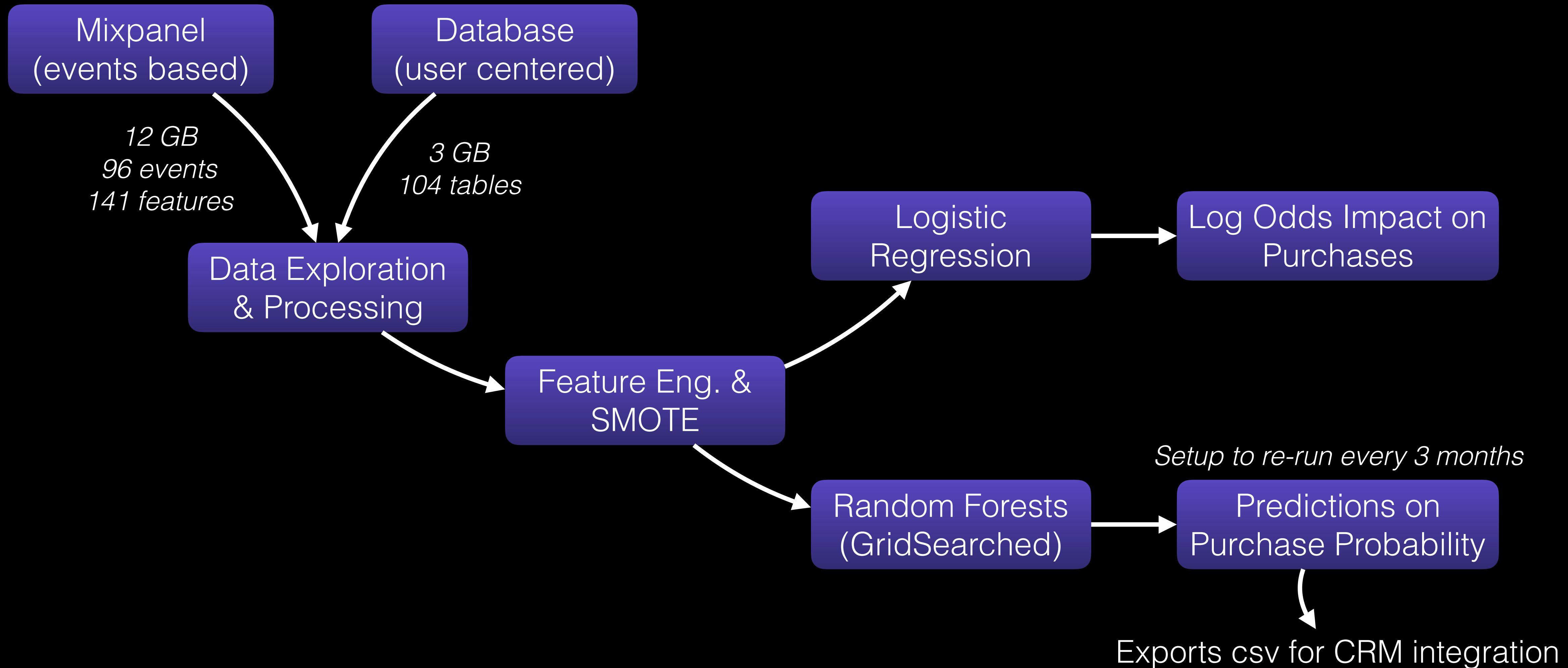
Working with real startup data



Challenges

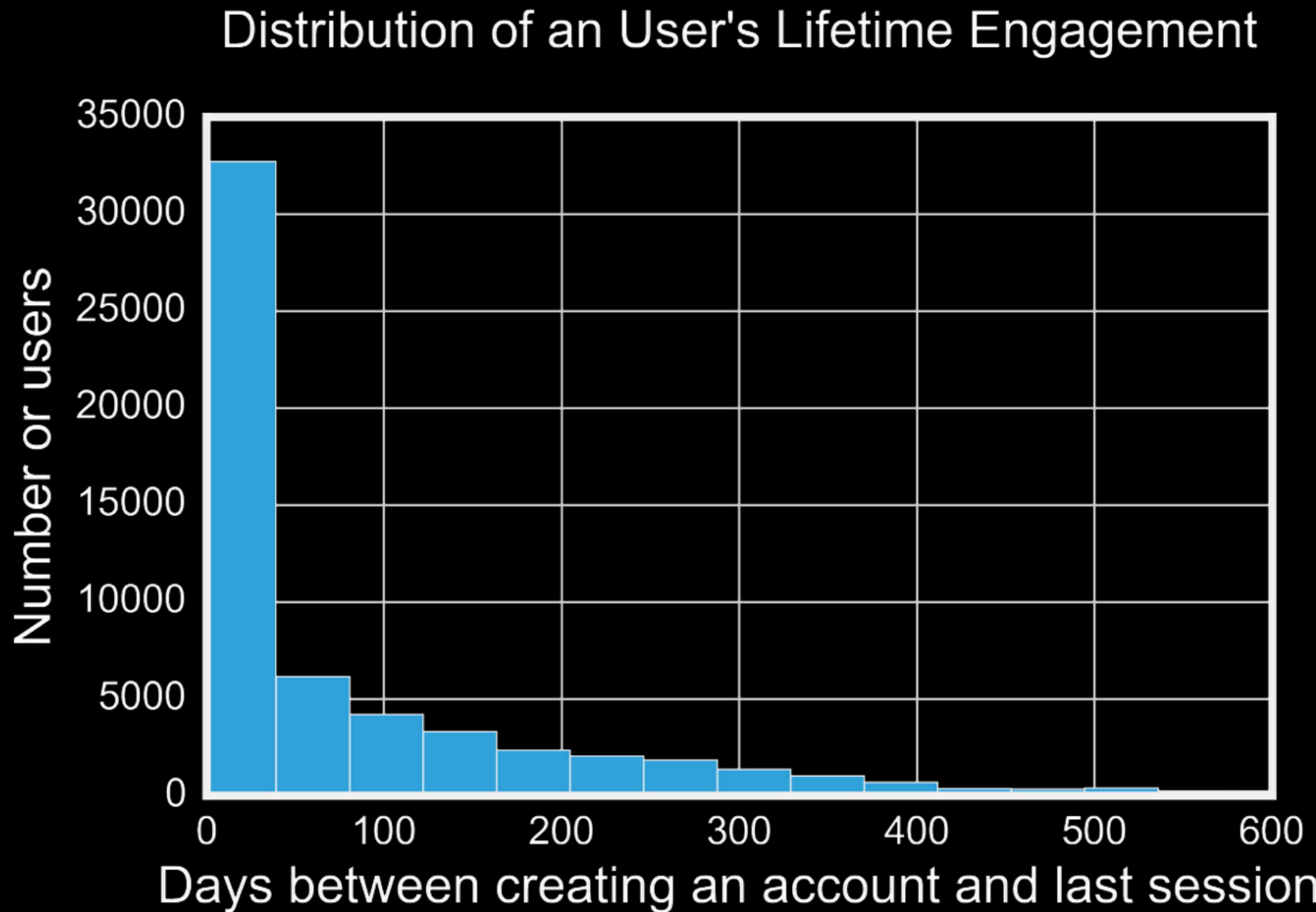
- When's the best timing to engage users?
- Can we predict such an abstract purchase?
- What are purchase habits like?
- How much money can we make?

Pipeline



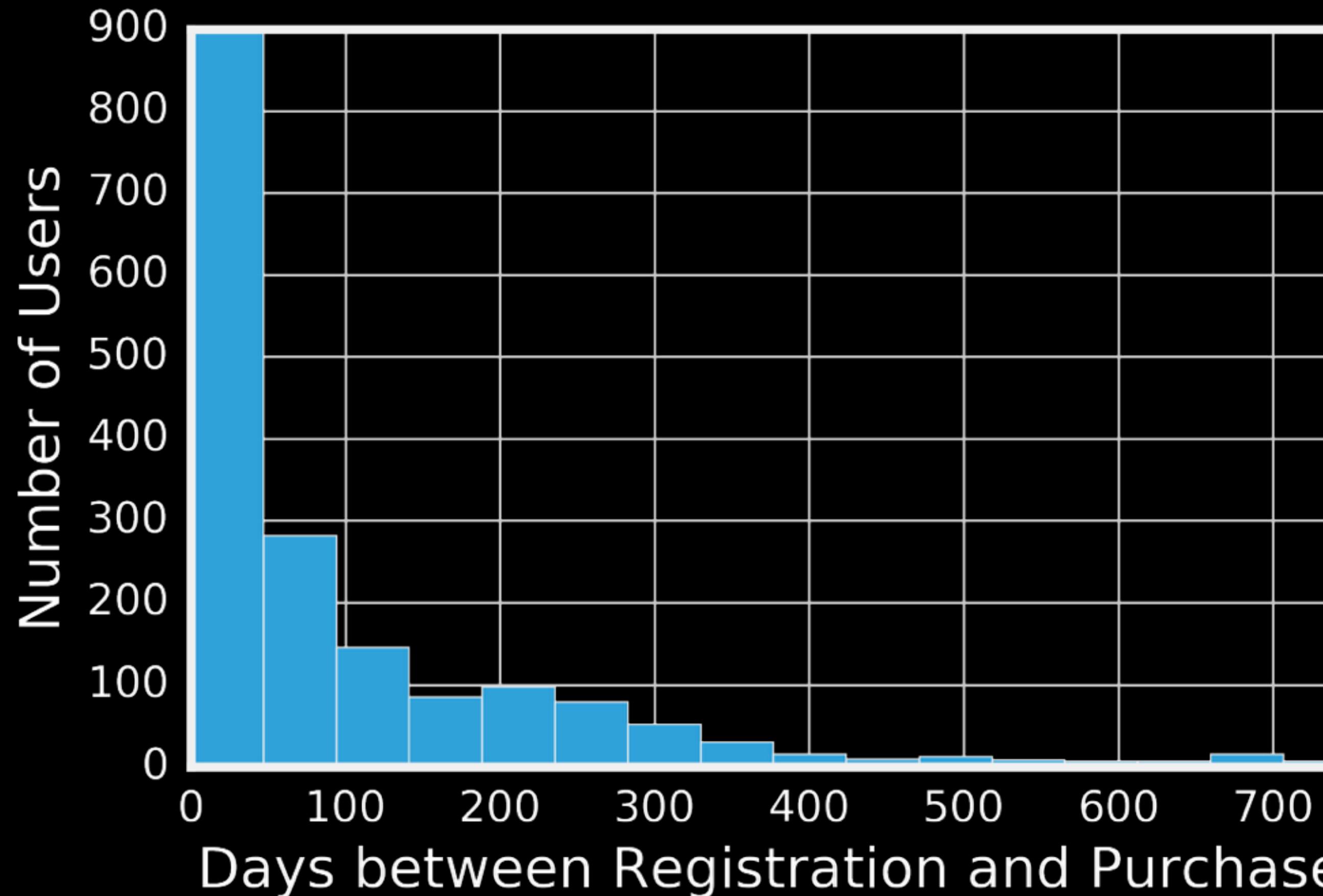
Findings

We have to act fast!



Purchase cycle

Days since Registration to make First Purchase

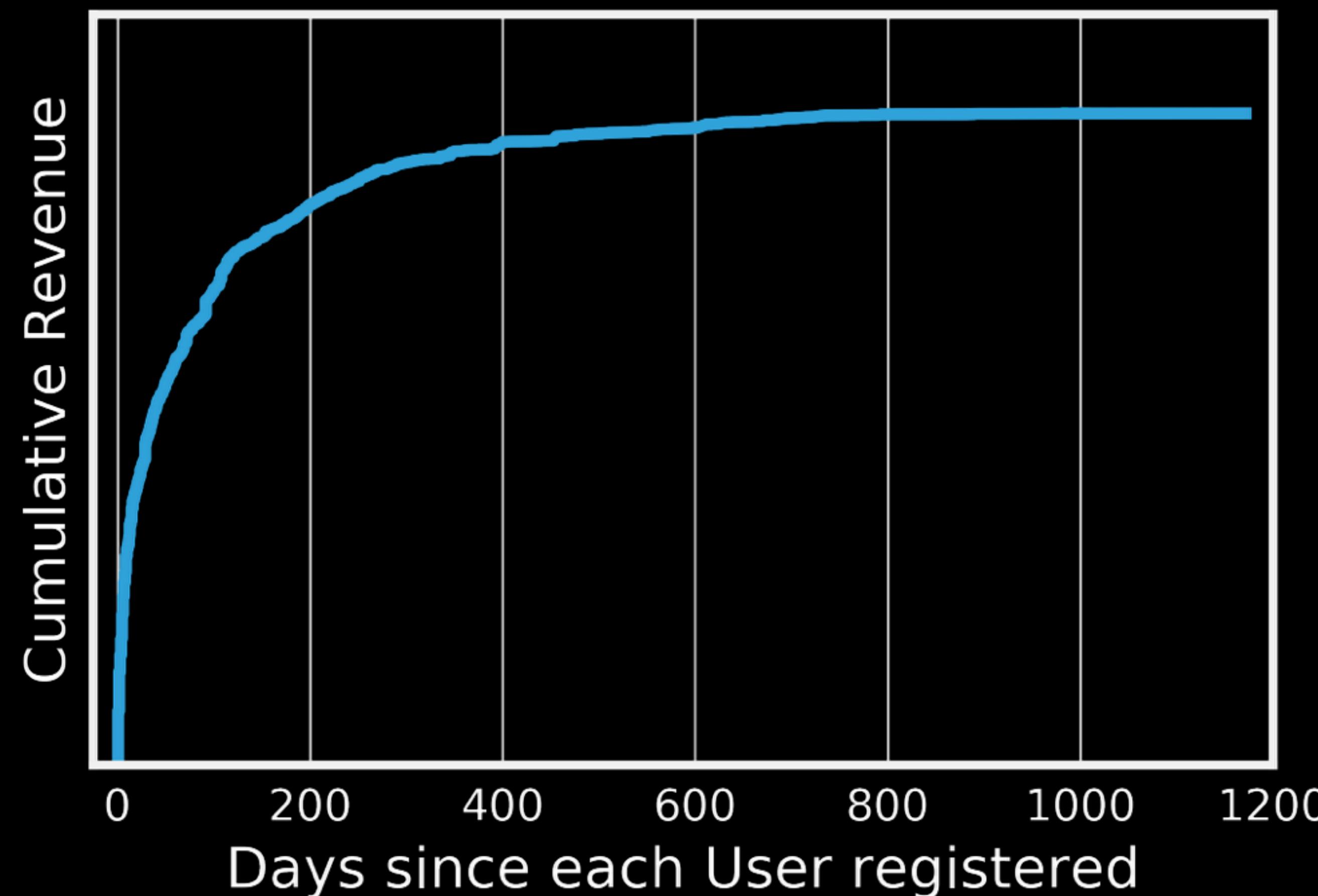


Average time since registration for an user to make the first purchase:
103 days

90% of users only make **one** purchase

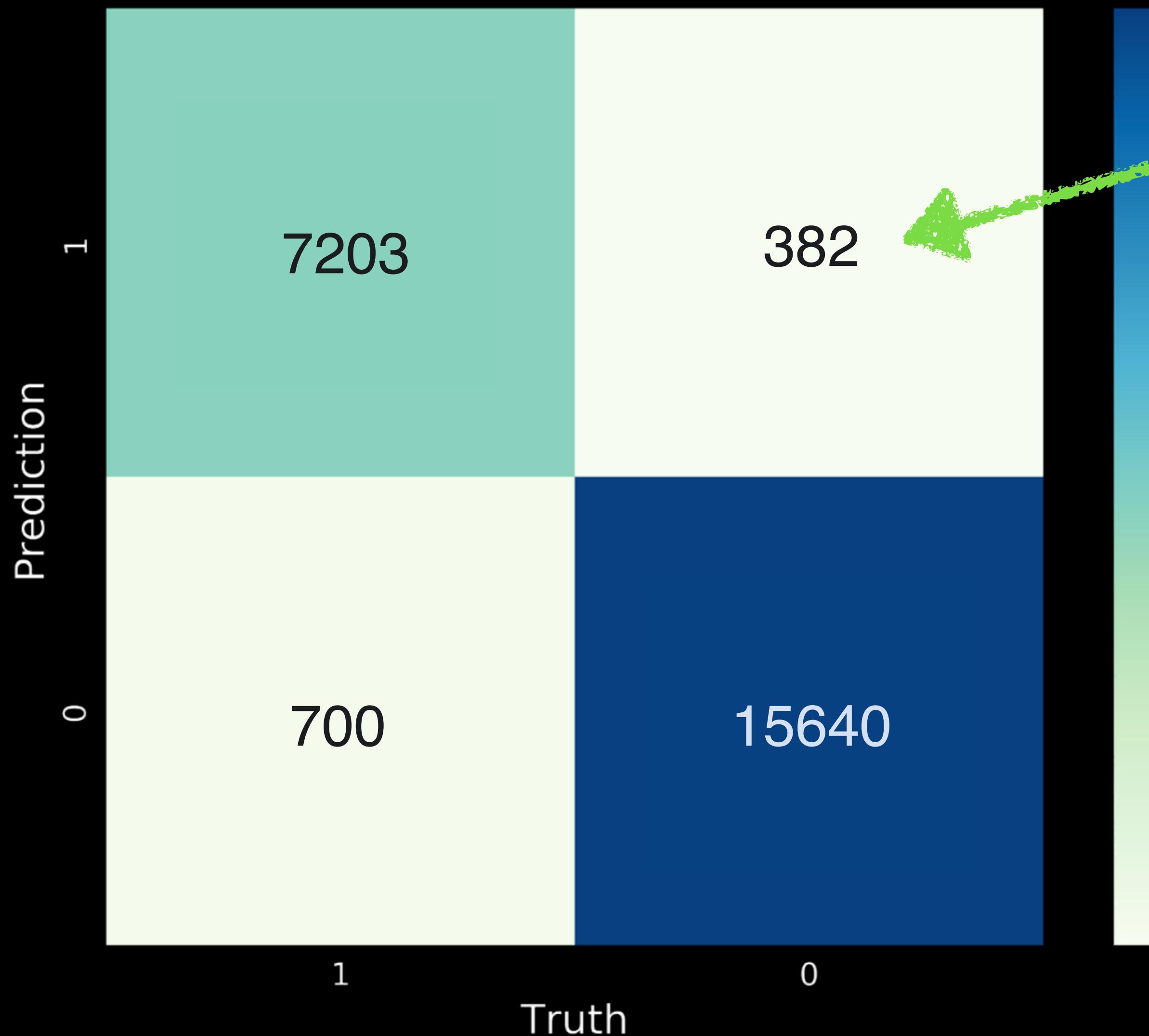
First 120 days = 80% revenue

Cumulative Revenue centering all users on their Registration Day



Model for Predicting Purchase Probability

Confusion Matrix - Random Forests



Minimize False Positives!

It means we predicted purchase, spent money to convert, and they didn't

Cross Validation Scores

accuracy: 0.954

precision: 0.949

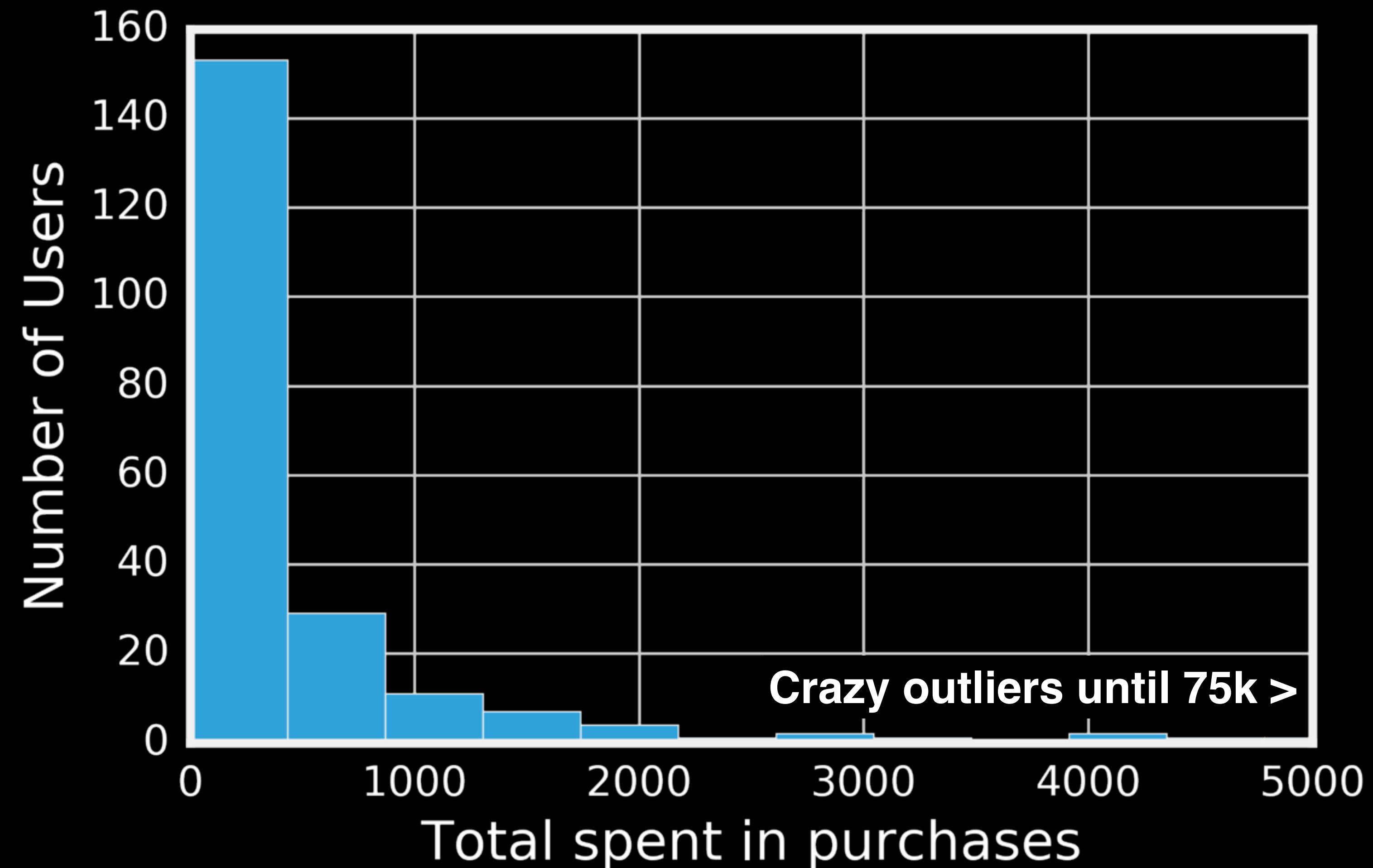
recall: 0.911

How much do they spend?

Purchases values

Mean purchase value:
\$ 515

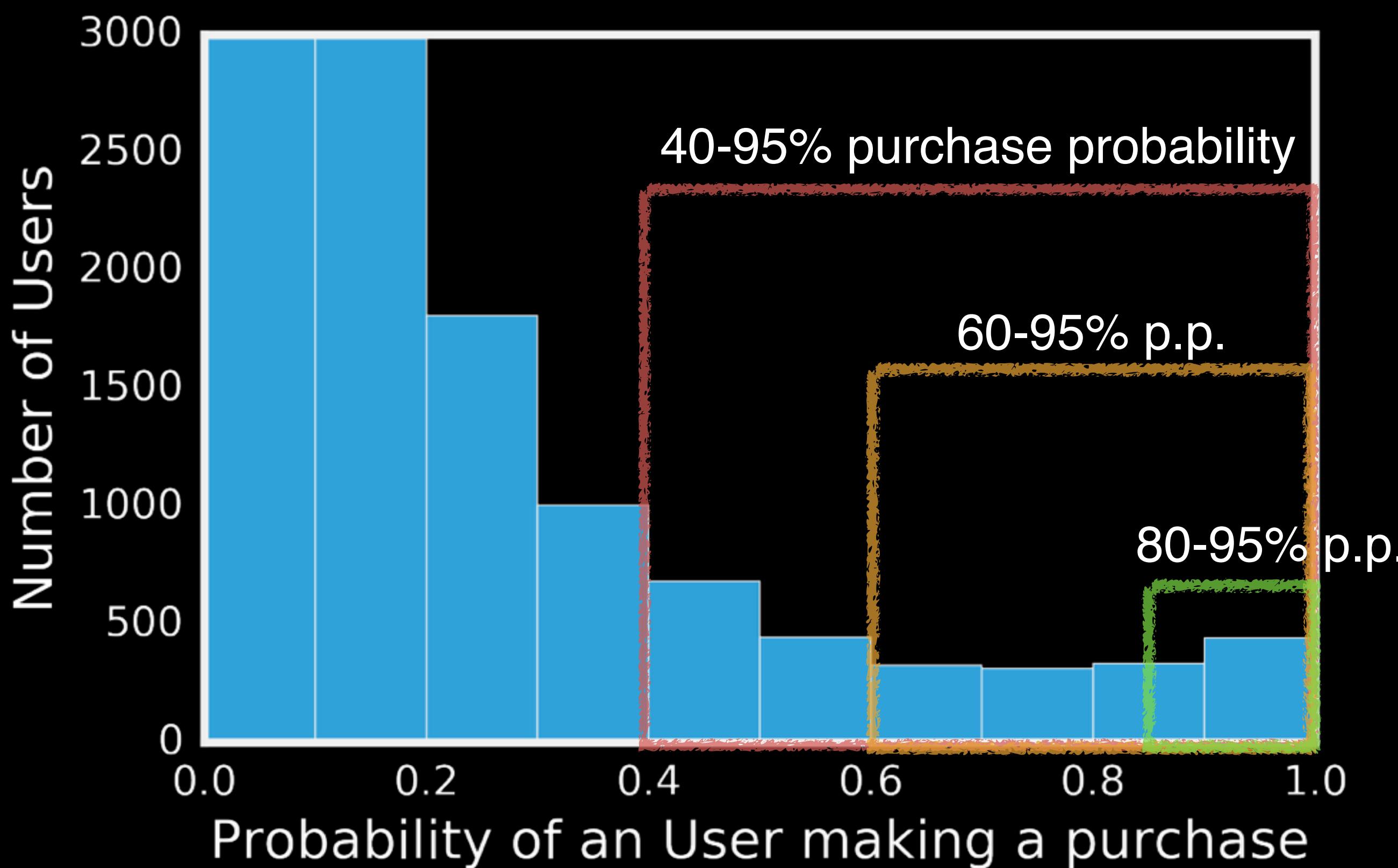
Median purchase value:
\$ 250
(not sensitive to outliers)



Recommendations

Who should we target?

Predictions distribution on original dataset
[close-up]



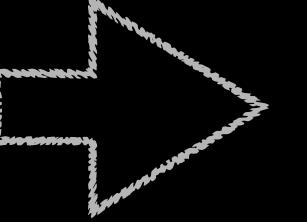
Scenarios:

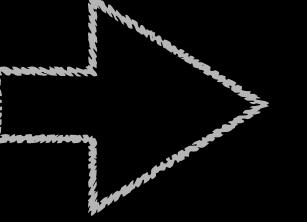
- 4.2% of users
Potential of +61.3% in total revenue
- 2.2% of users
Potential of +31.9% in total revenue
- 1.0% of users
Potential of +14.3% in total revenue

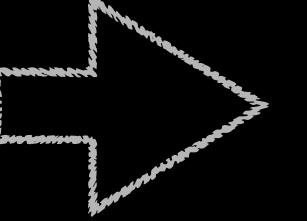
* There will be more costs to convert users with lower probabilities, and the potential considers full conversion

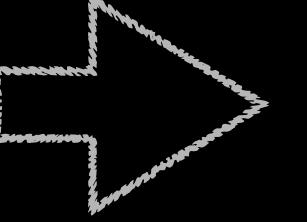
What should we focus on?

Odds Ratio from Logistic Regression

Number of Sessions + 1  + 4.14% Purchase

Artists Followed + 1  + 11.43% Purchase

Artists Favorited + 1  + 0.95% Purchase

Artwork Shared + 1  + 8.65% Purchase

What should we focus on?

To **double** the chance of purchase, an user should:

Have 142 more sessions

Favorites 149 artworks

Share 24 artworks ✓

Follow 17 artists ✓

Final Thoughts

When's the best timing? *Now.*

Can we predict such an abstract purchase? Yes.

What are purchase habits like? *Takes 103 days for first purchase.*

How much do they spend? *About \$250.*

How much money can we make? *Conservatively, +14.3% revenue!*

Thank you!



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