

# Engagement Analysis and Purchase Prediction

Converting users for an Art Startup

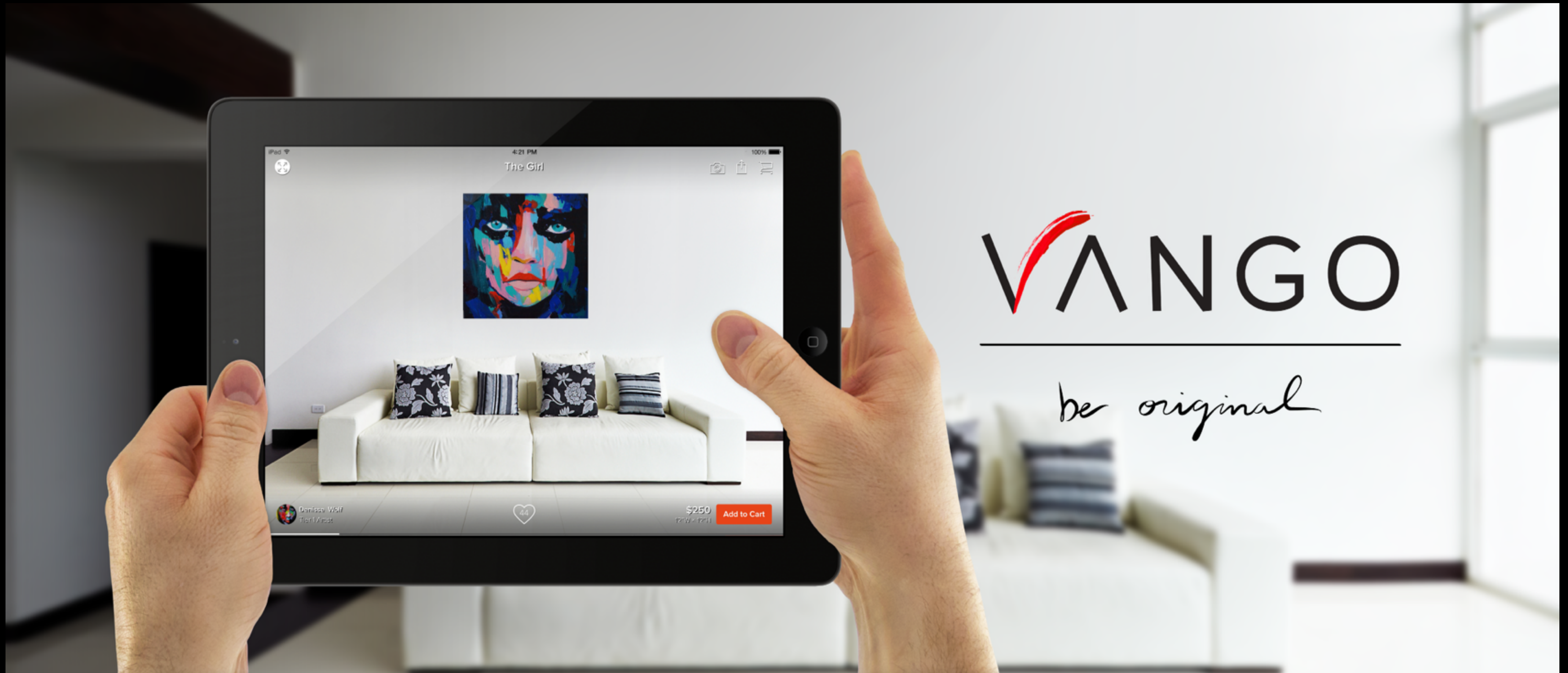
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[github.com/pauloarantes/art-project](https://github.com/pauloarantes/art-project)

# Working with real startup data



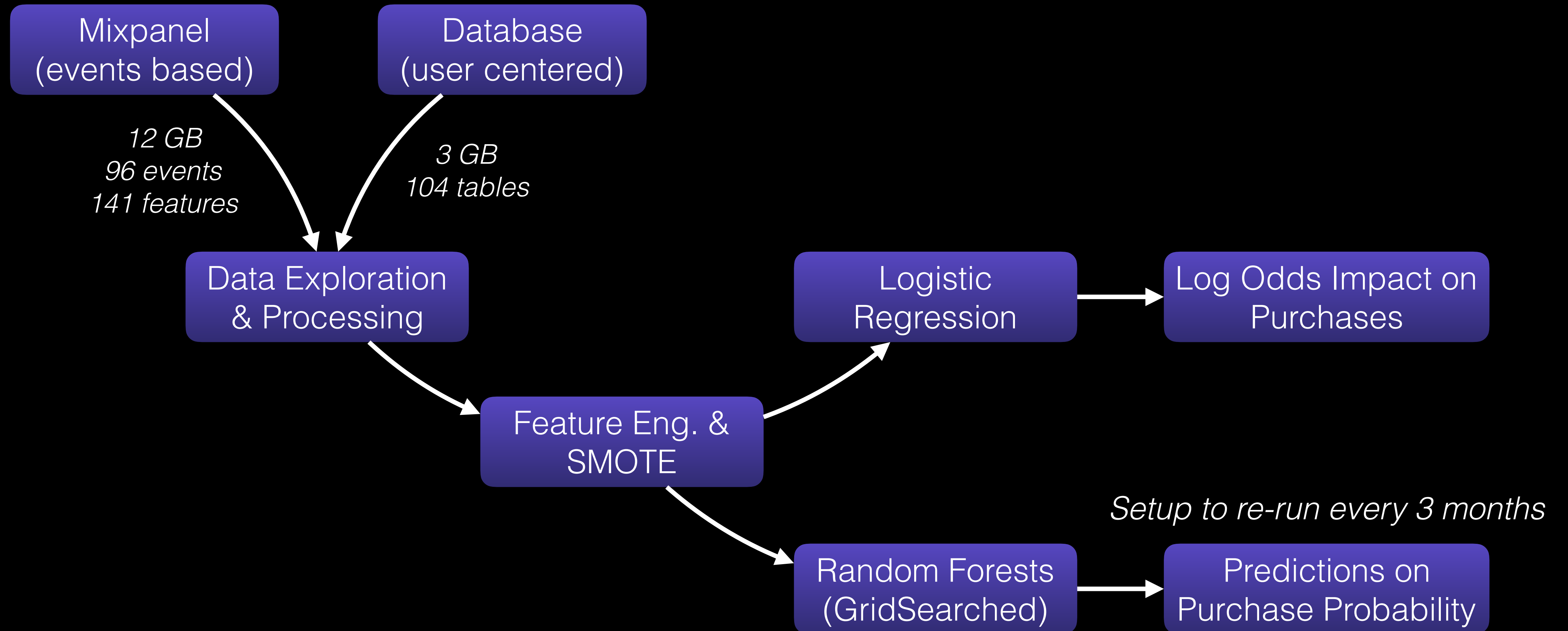
VANGO

*be original*

# Challenges

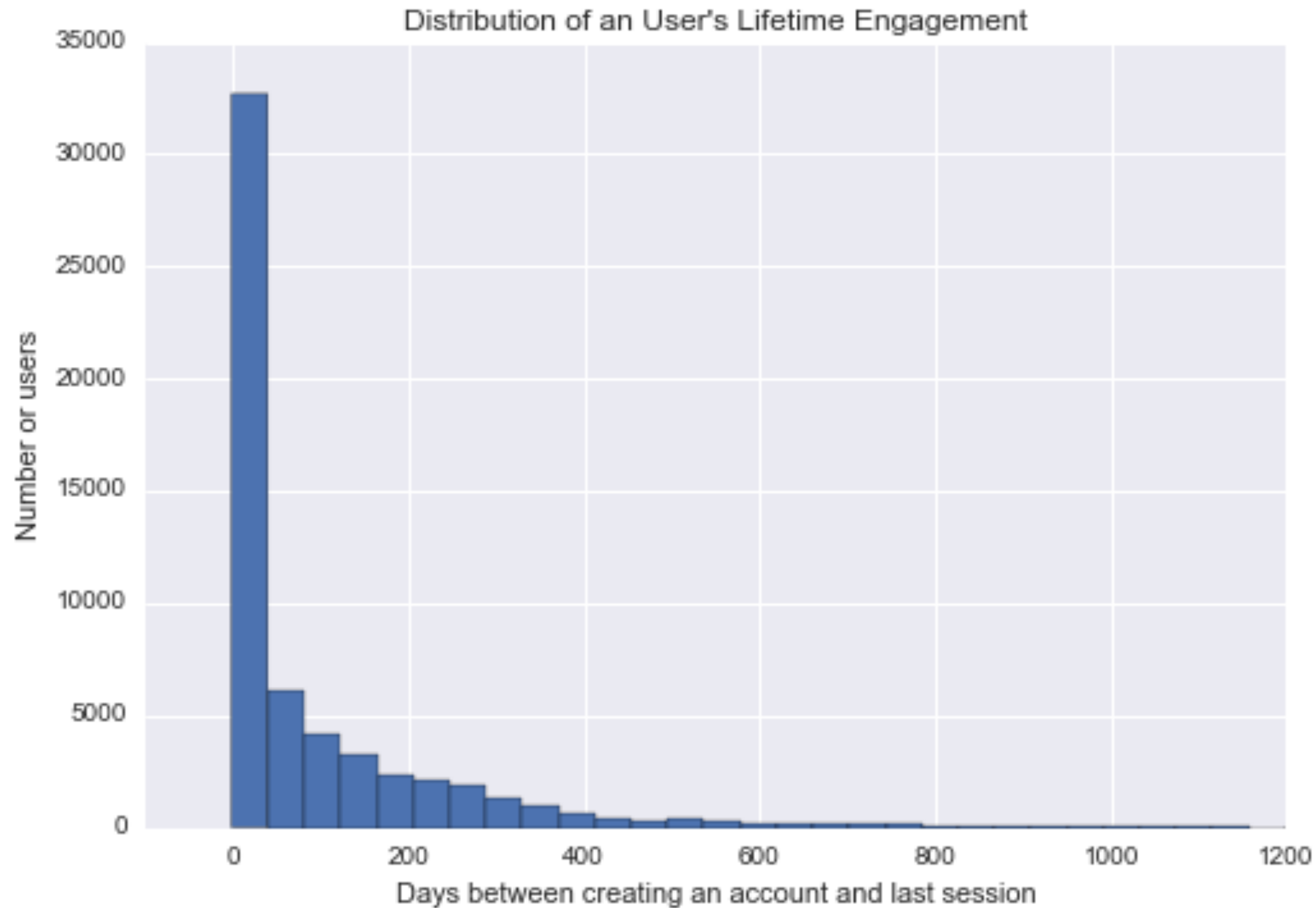
- What's the best timing to engage users?
- Can we predict such an abstract purchase?
- What are purchase habits like?
- How much money can we make?

# Pipeline



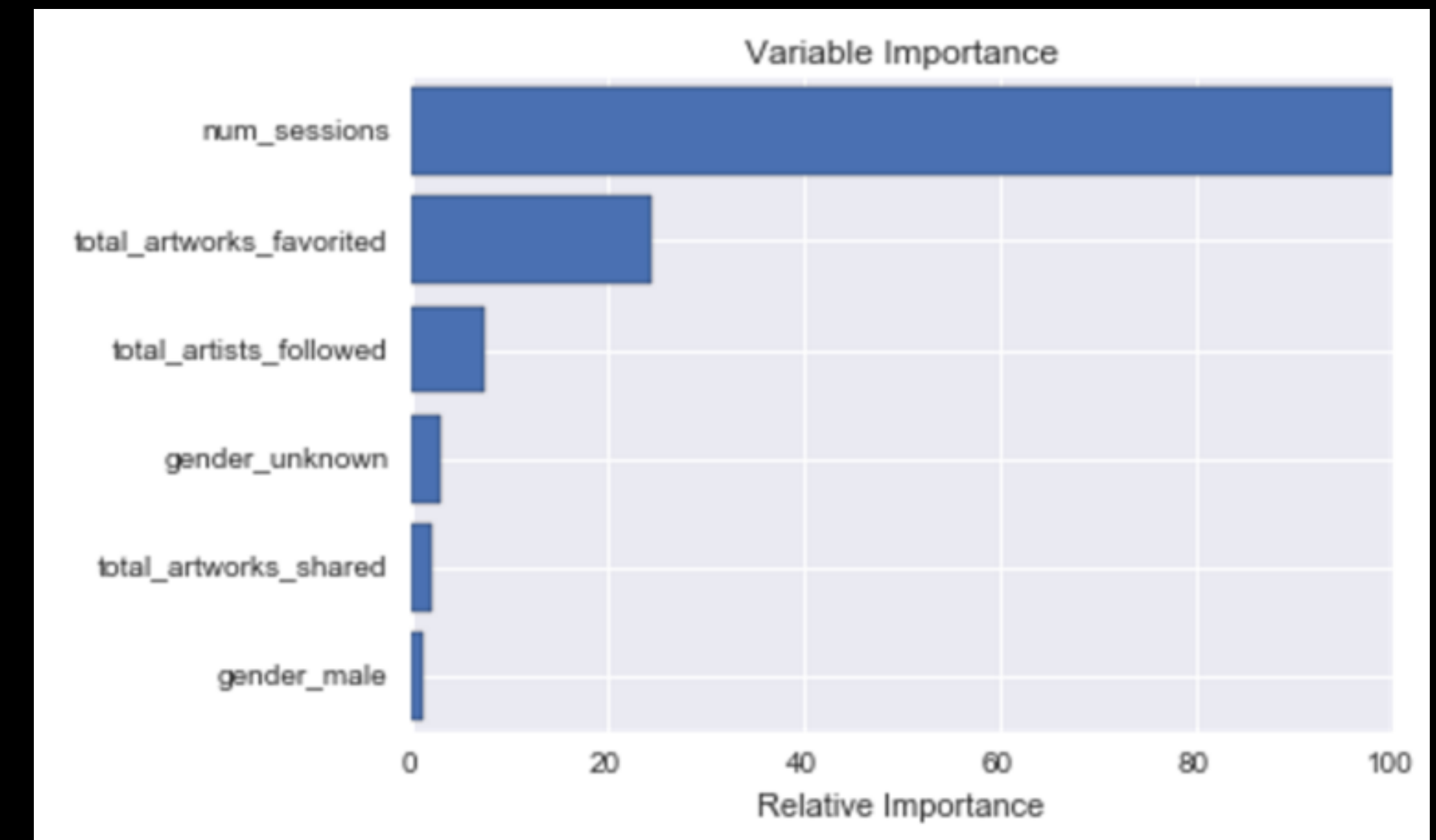
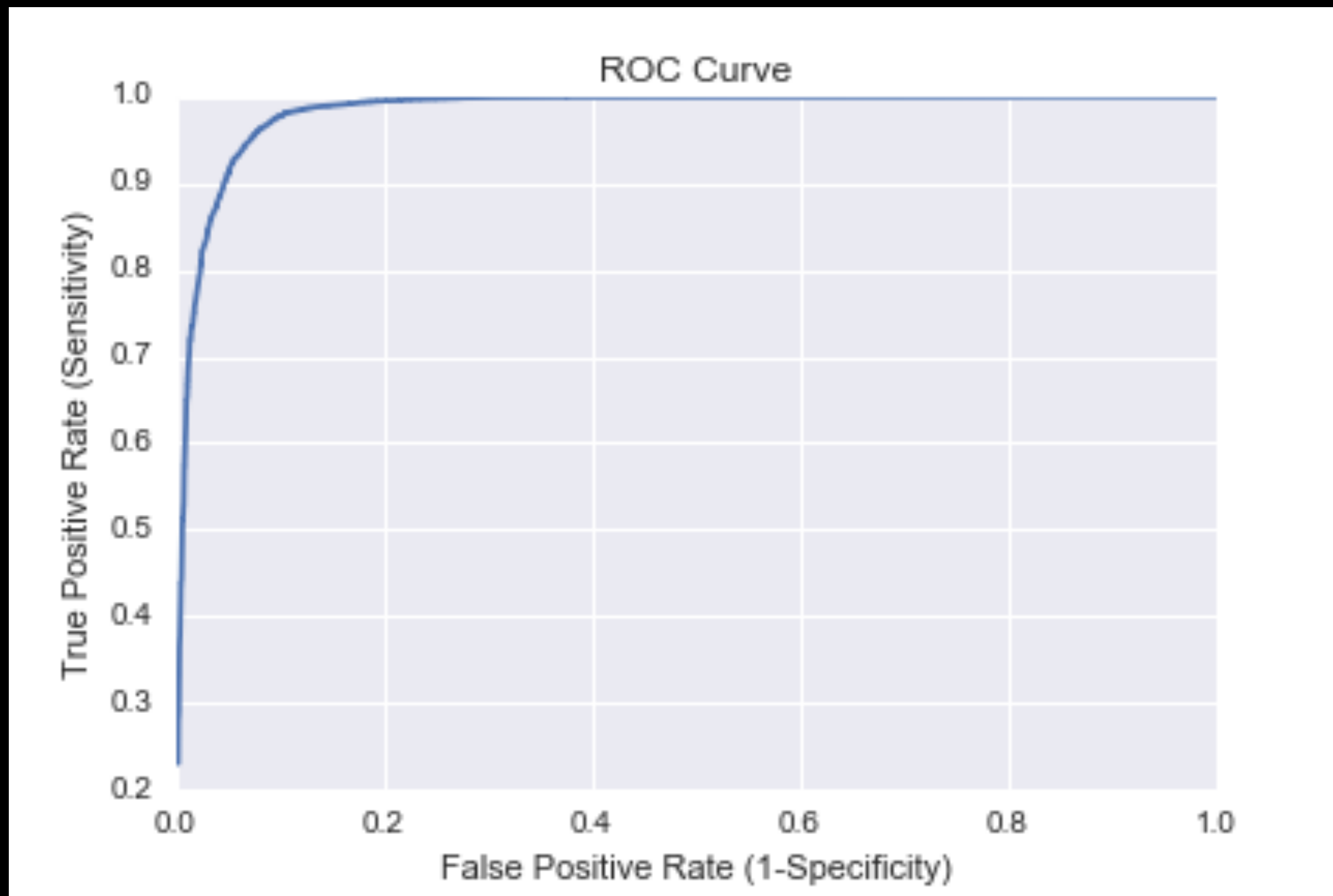
# Findings

# We have to act fast!

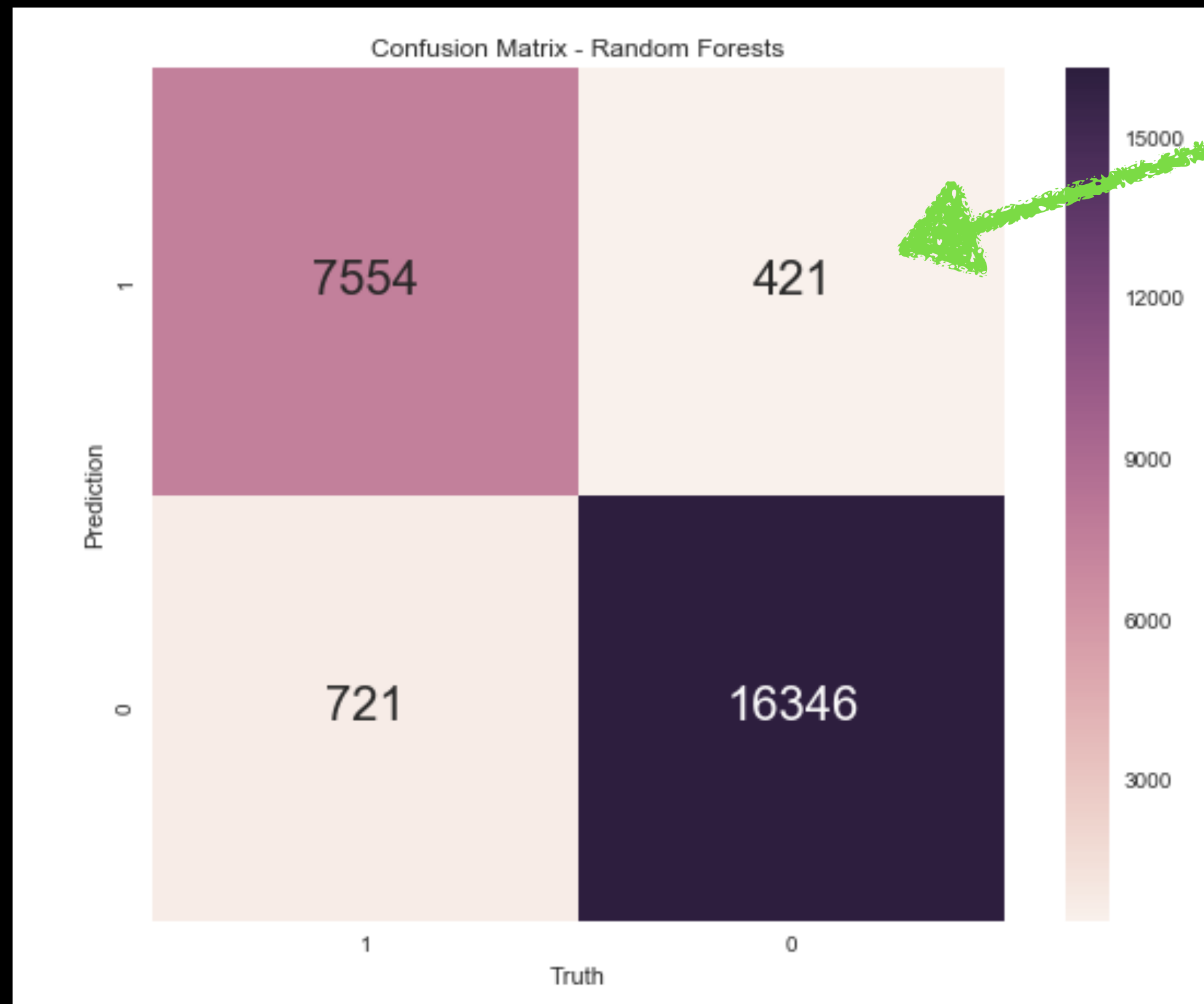




# Random Forest Model for Predictions



# Random Forest Model for Predictions



Minimize this!

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

accuracy: 0.954

precision: 0.947

recall: 0.913



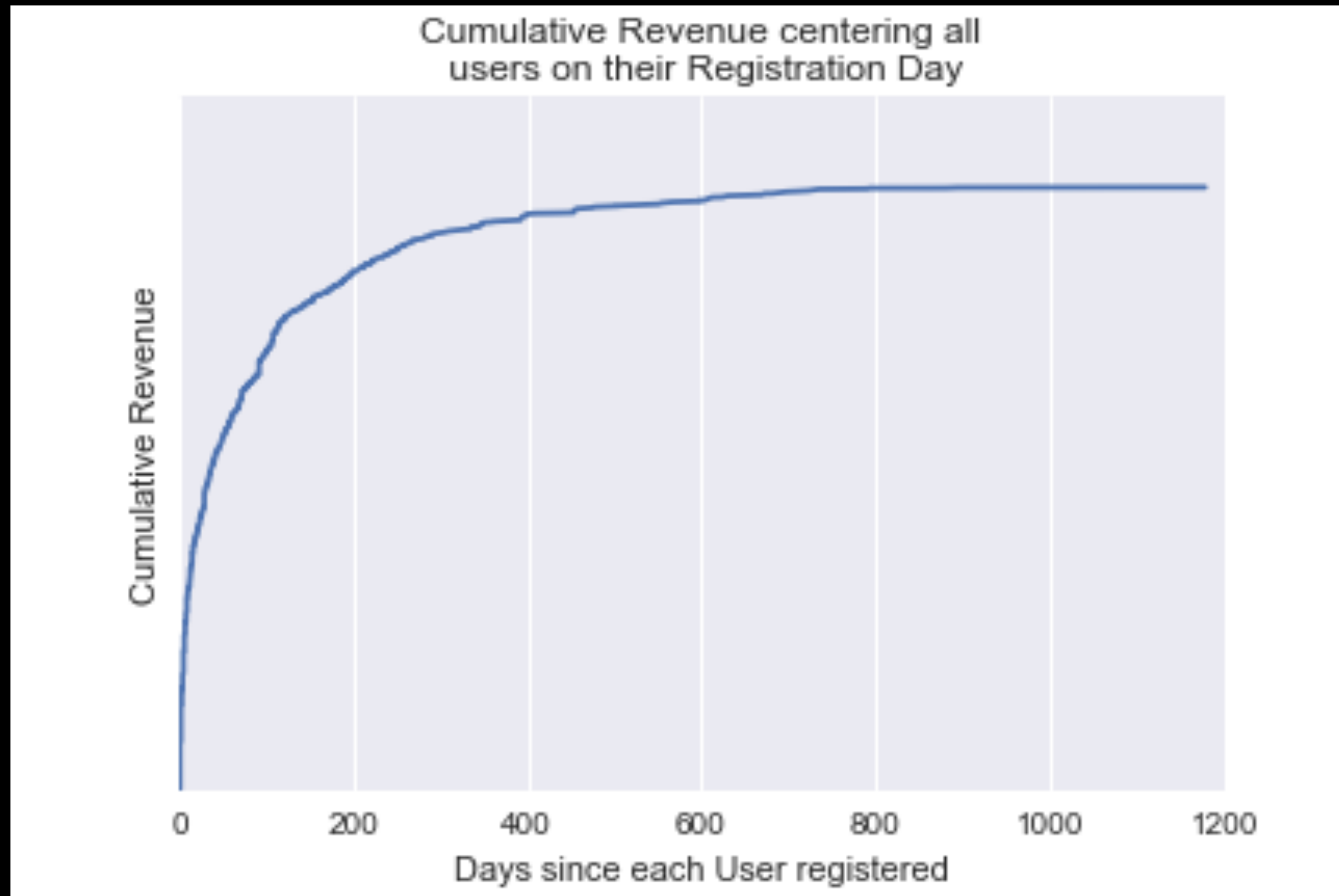
# Purchase cycle



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

After the first purchase, how many days until next purchase?  
**108 days**

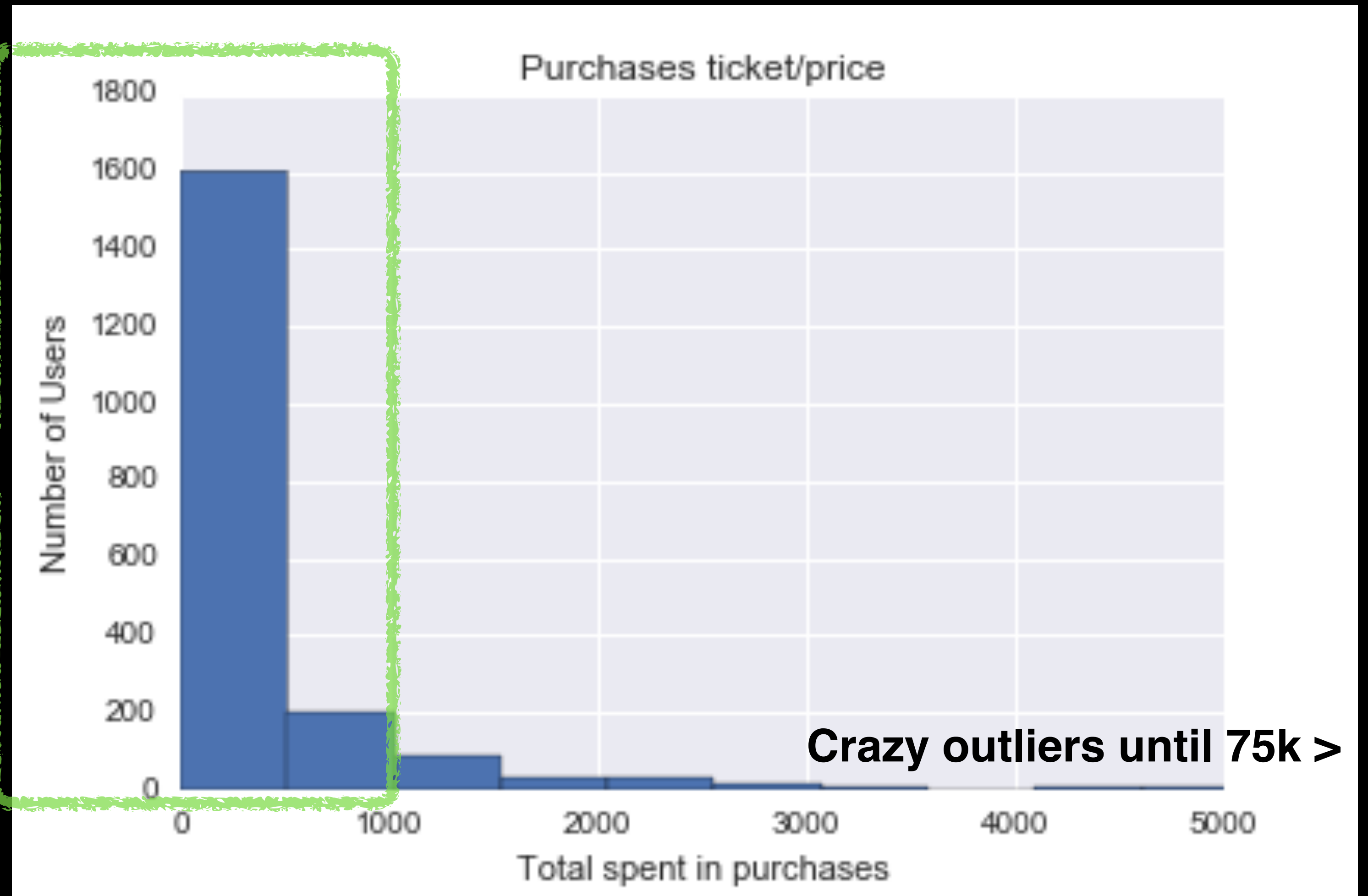
# First 120 days = 80% revenue



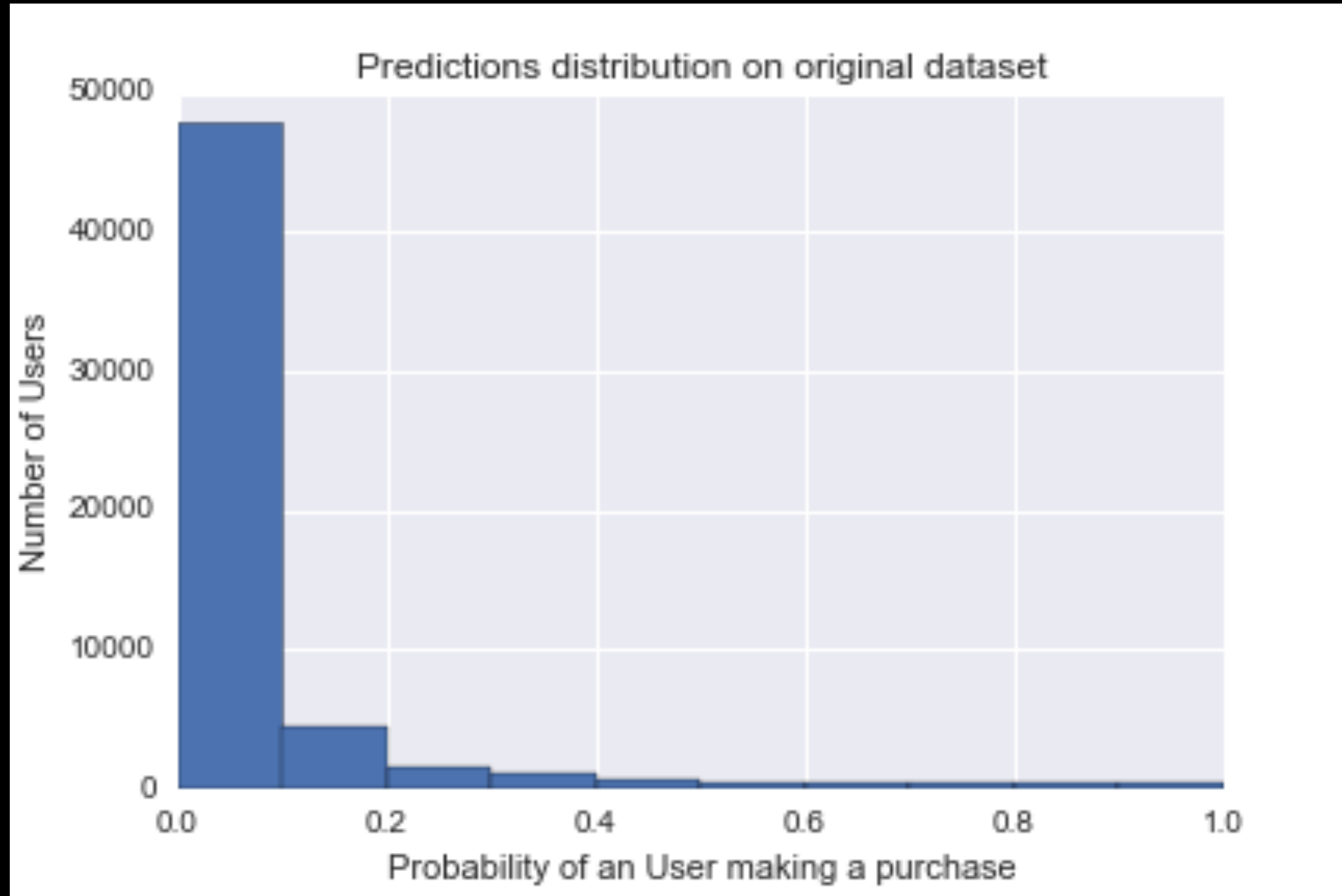
# The mean doesn't tell the best story

Mean purchase ticket:  
\$ 515

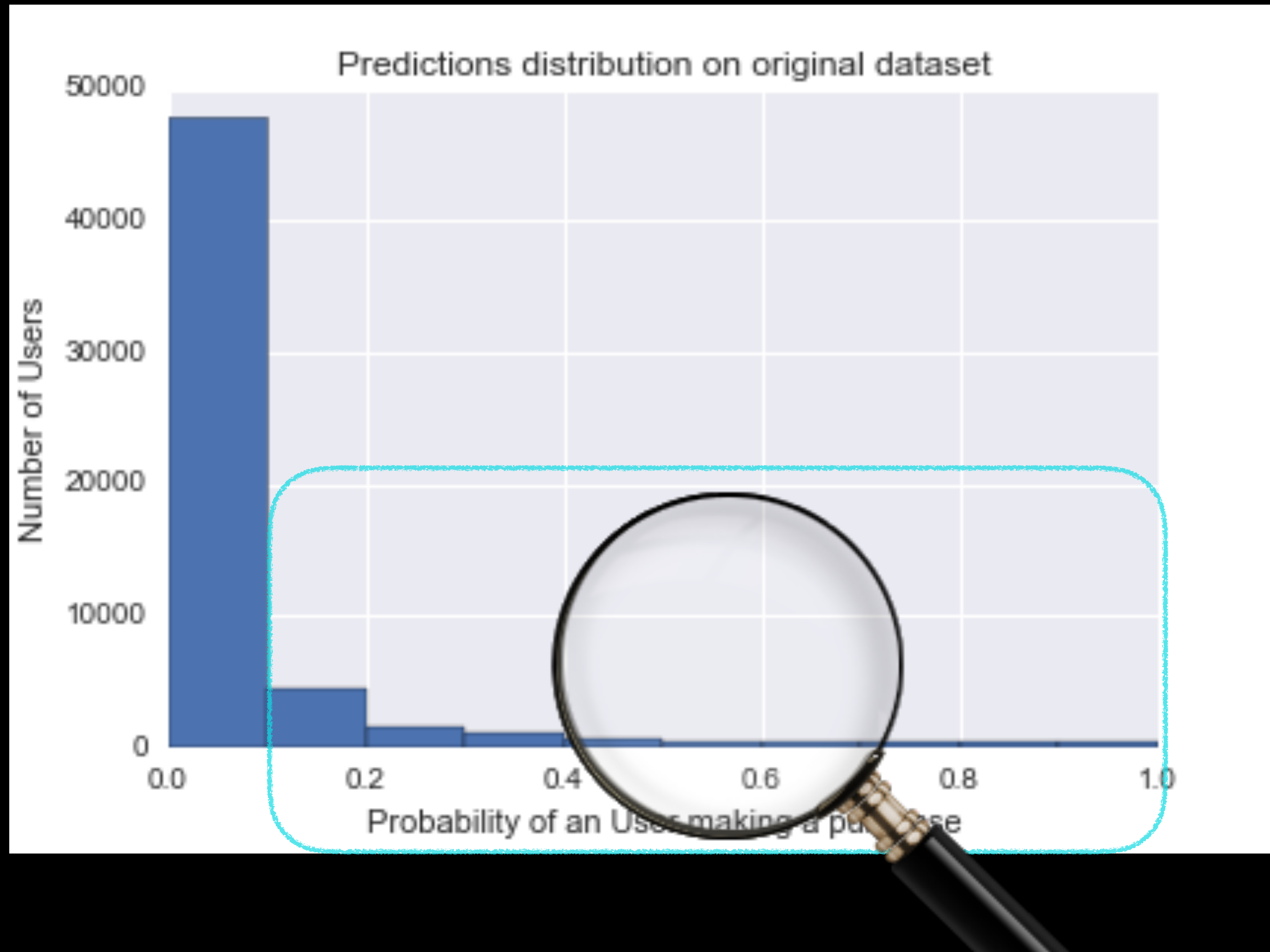
Mean purchase <1k:  
\$ 267



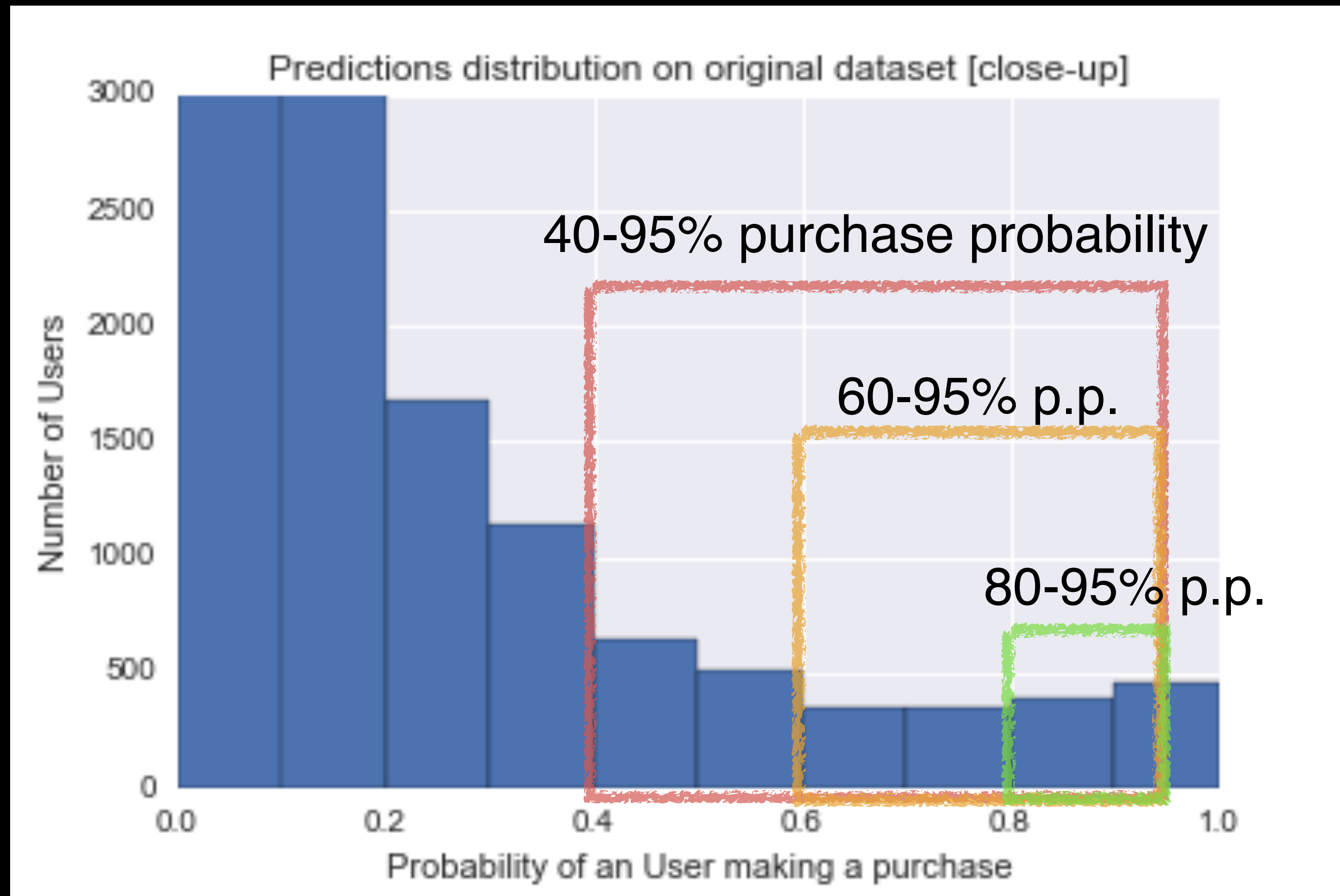
# Time to Predict!



# Time to Predict!



# Recommendations



## *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?

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
Gender is Male	➡	+ 47.52% Purchase



# What should we focus on?

To **double** the chance of purchase, we could make the user:

Have 142 more sessions

Favorites 149 artworks

Share 24 artworks

Follow 17 artists

# Final Thoughts

What's the best timing? *Now.*

Can we predict such an abstract purchase? *Yes.*

What are purchase habits like? *Takes 108 days for first purchase, repeats every 103 days*

How much do they spend? *About \$265*

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

# Questions?

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