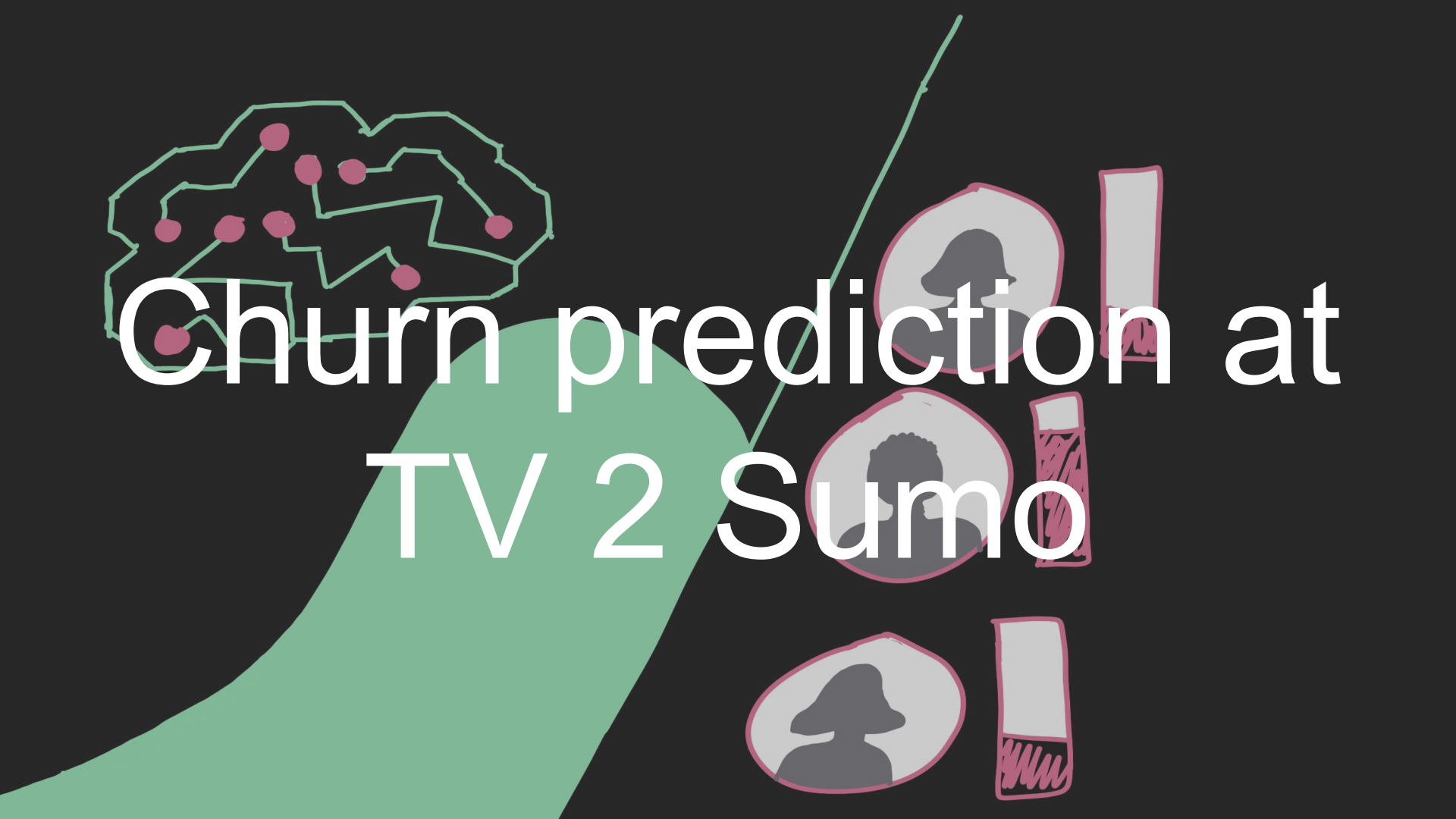

Churn prediction at
TV 2 Sumo

Love Island Norge

De norske deltakerne flytter inn i kjærlighetens villa for å finne den rette, men i kjærlighetens navn er alt lov, og når som helst kan nye single ankomme villaen for å finne sin drømmepartner.

Se mer

Sprekkene i den norske fasaden

Kjærlighet down under

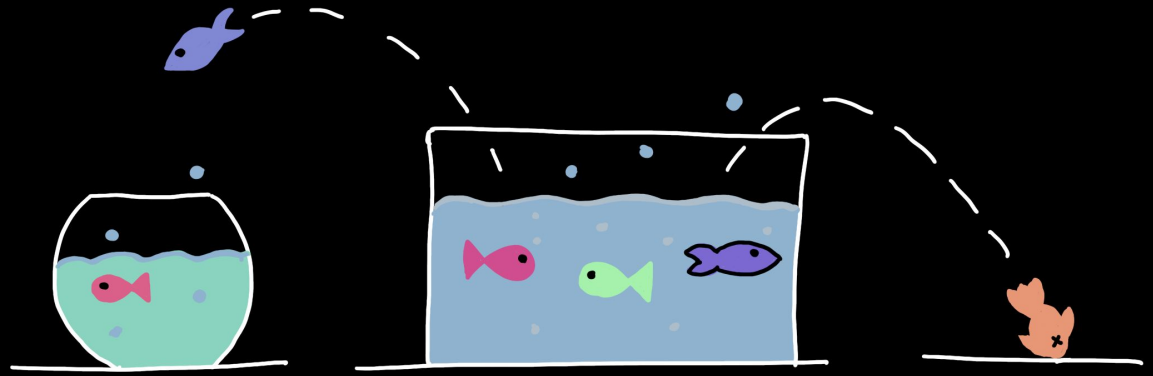
En av norgeshistoriens mest sensasjonelle drapssaker

Sminke slik du aldri har sett det

Vi tror du vil like disse

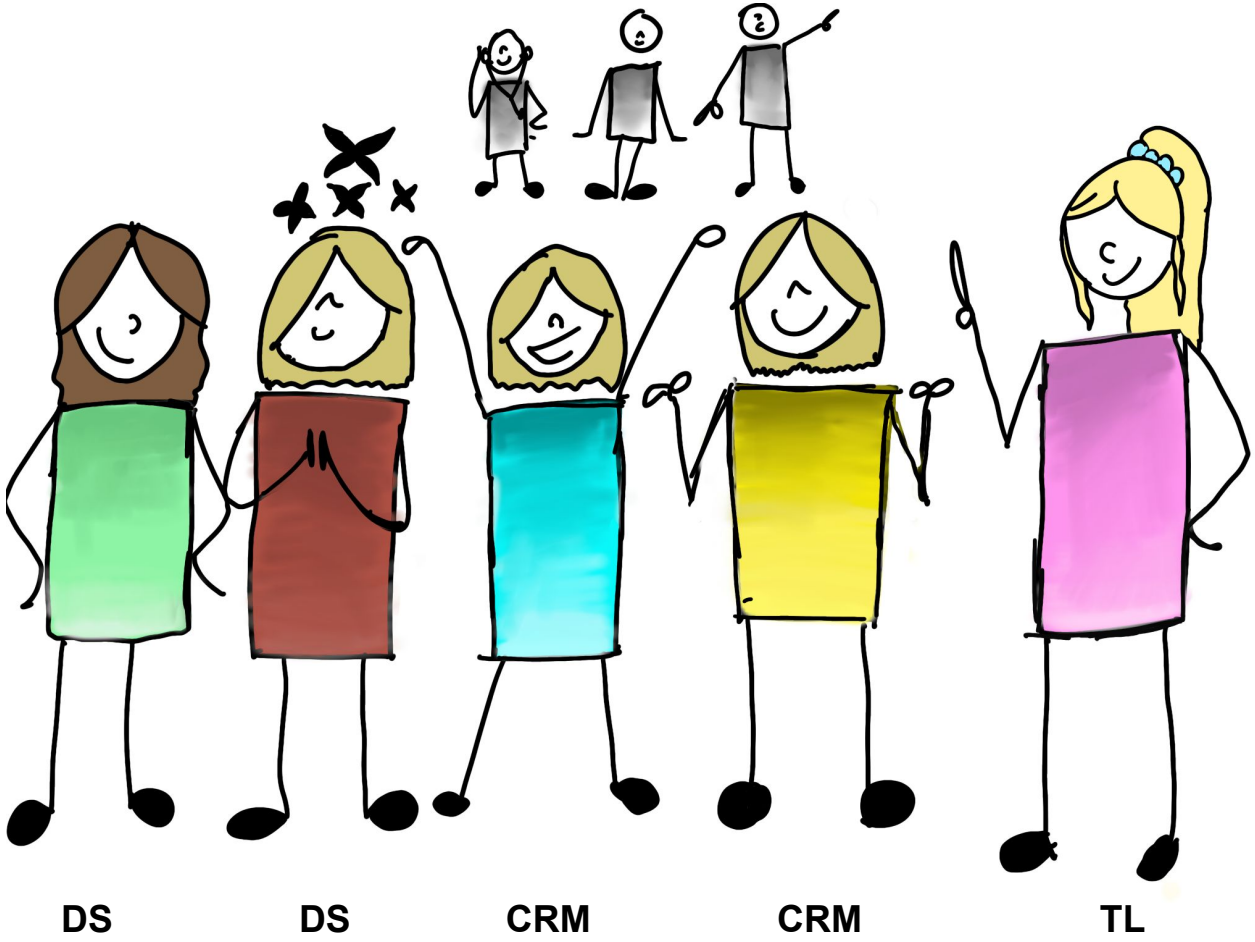
Vis mer

It is cheaper to retain current customers than to acquire new ones.

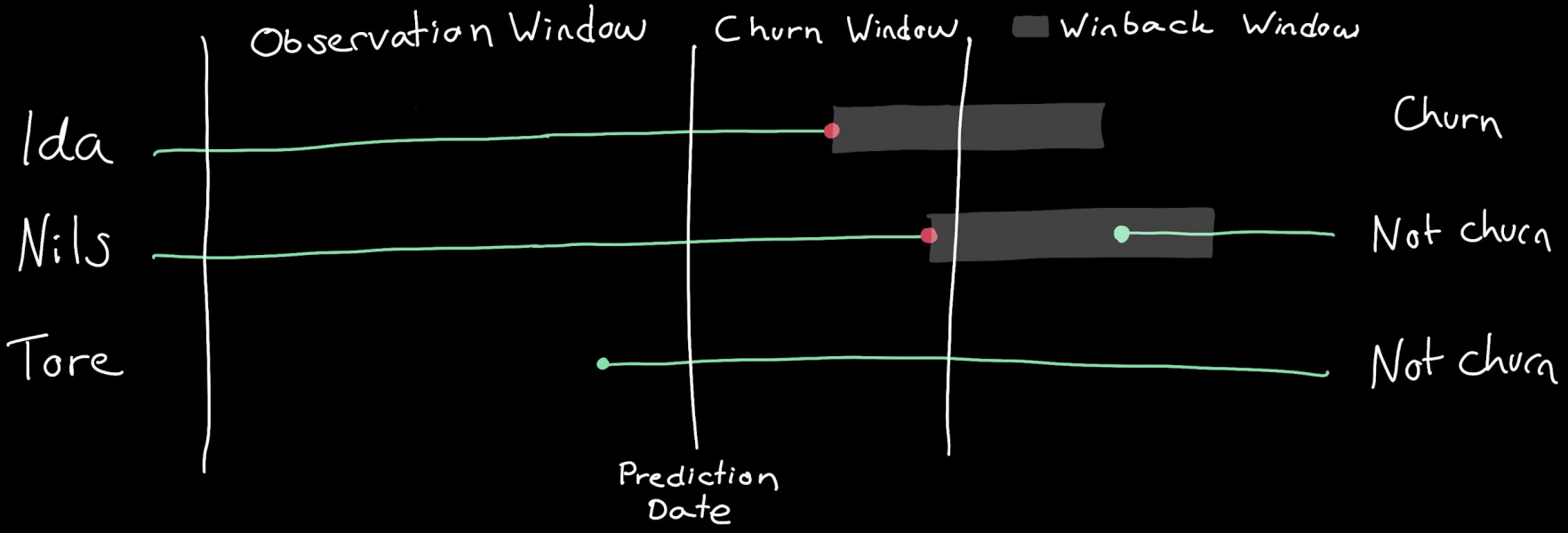


Agenda

- The team
- The problem and how we define churn
- XGboost
- SHAP values
- Future work


DS
DS
CRM
CRM
TL

We want to predict if a customer will end its subscription and stay out for at least 30 days



We are using features that describe the customer’s viewing pattern...

12. Episode 12

42 min

Thammy blir irritert når en av jentene viser interesse for Nate, samtidig vil Mie fortelle Ali hva hun egentlig føler for han. Jentene skal ut i en konkurranse der de må vise sine superwoman (evt. superhelt)-egenskaper for gutta.

Publisert 20. januar 2020

Tilgjengelig til 4. januar 2025

13. Episode 13

43 min

Hvem blir stående igjen som single når det er klart for et nytt parbytte? Det er klart for et nytt parbytte som fører til at to jenter blir stående igjen som sårbare. Iselin liker ikke at nykommer Caroline er interessert i hennes partner Omid

Publisert 21. januar 2020

Tilgjengelig til 4. januar 2025

14. Episode 14

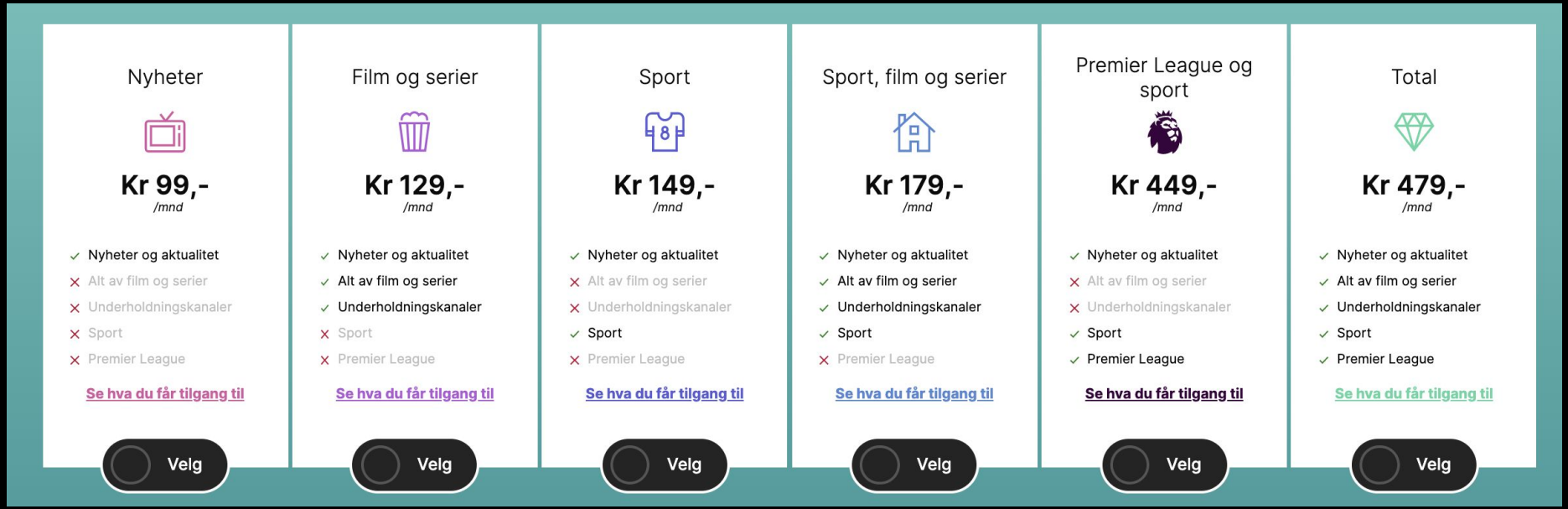
41 min

Ida har hørt rykter, og konfronterer Thammy for å få sannheten. Og kvelden tar en brå vending når øyboerne får en uventet melding.

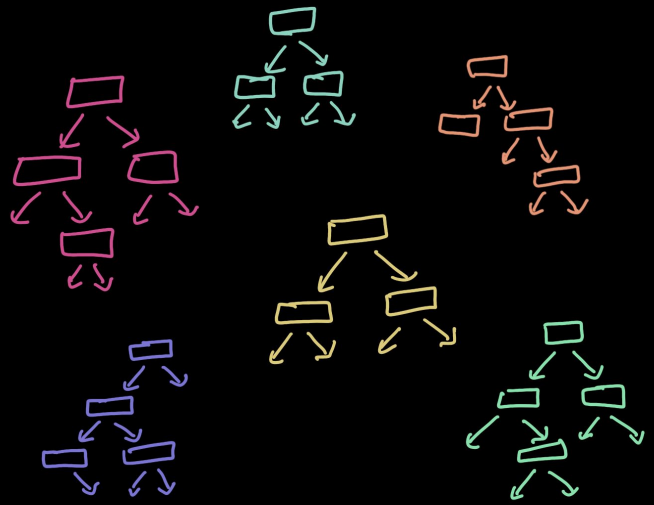
Publisert 22. januar 2020

Tilgjengelig til 4. januar 2025

… and information about the customer's subscription



We use XGBoost, which is an implementation of gradient boosting decision trees.

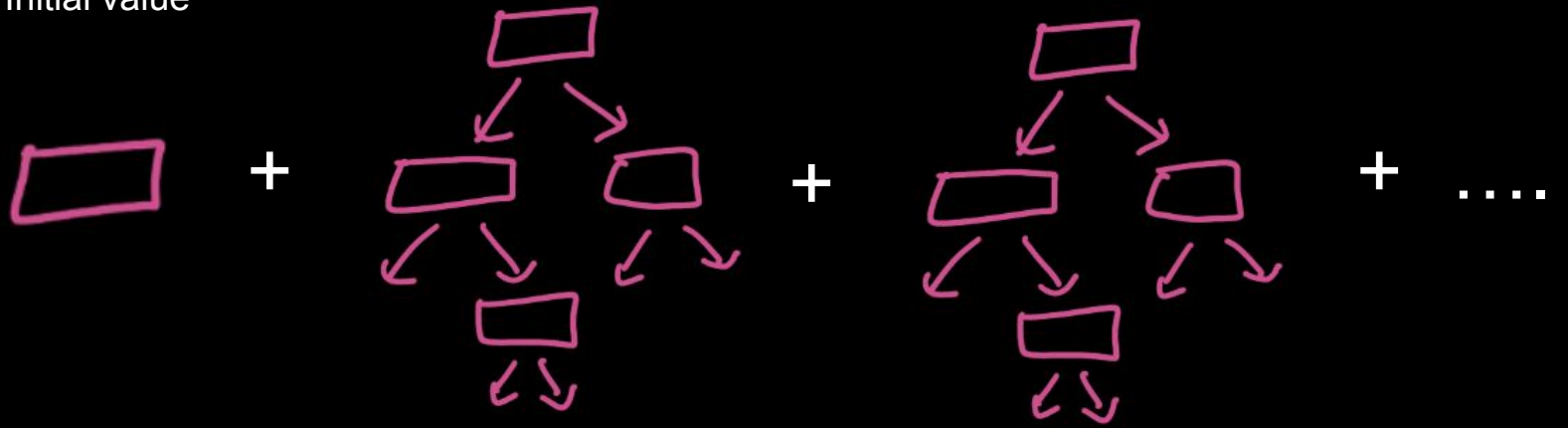


XGBoost create weak learners based on the error the previous learner made.

Initial value

Tree that predicts the error made by the initial value

Tree that predicts the error made by the previous model

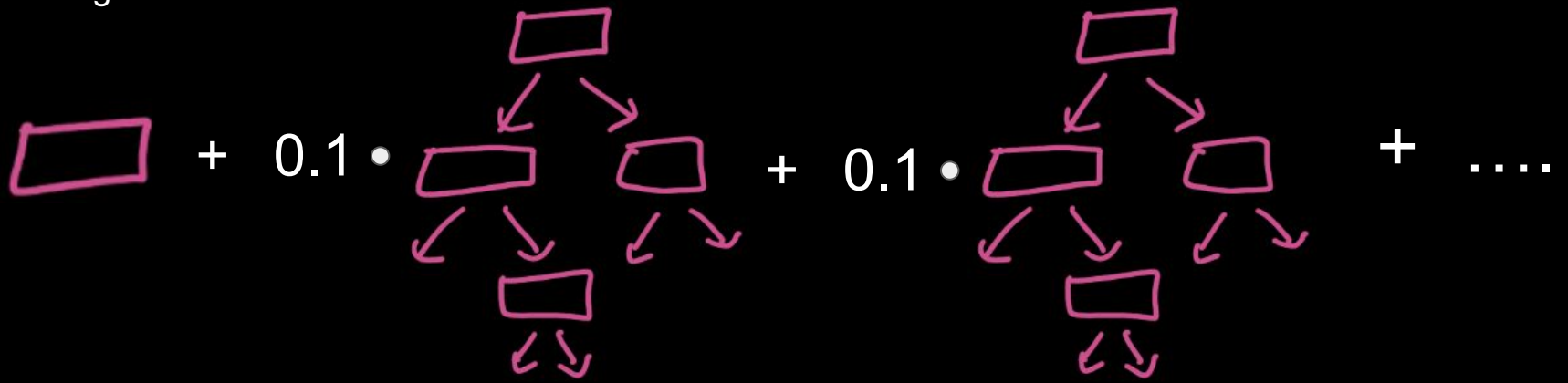


XGBoost create weak learners based on the error the previous learner made.

Initial guess

Tree that predicts the error made by the initial guess

Tree that predicts the error made by the previous model



Why we chose XGBoost

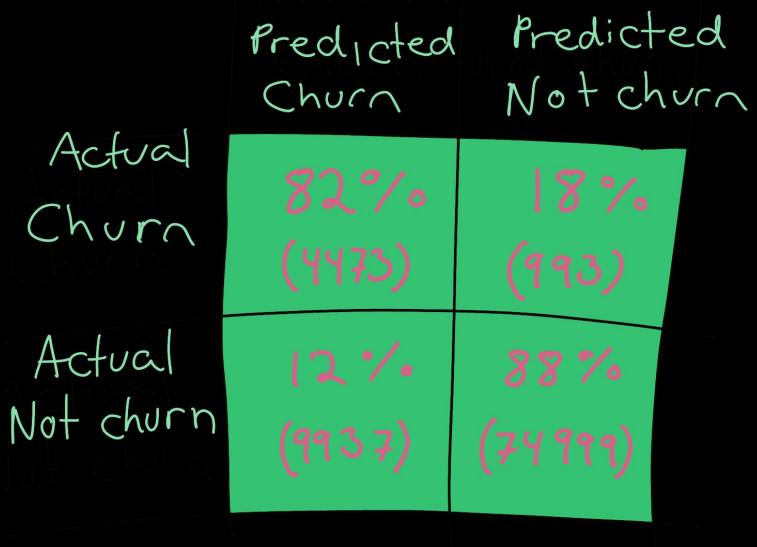
Performance

Popular

Parallel learning

Speed

This is the performance of our model

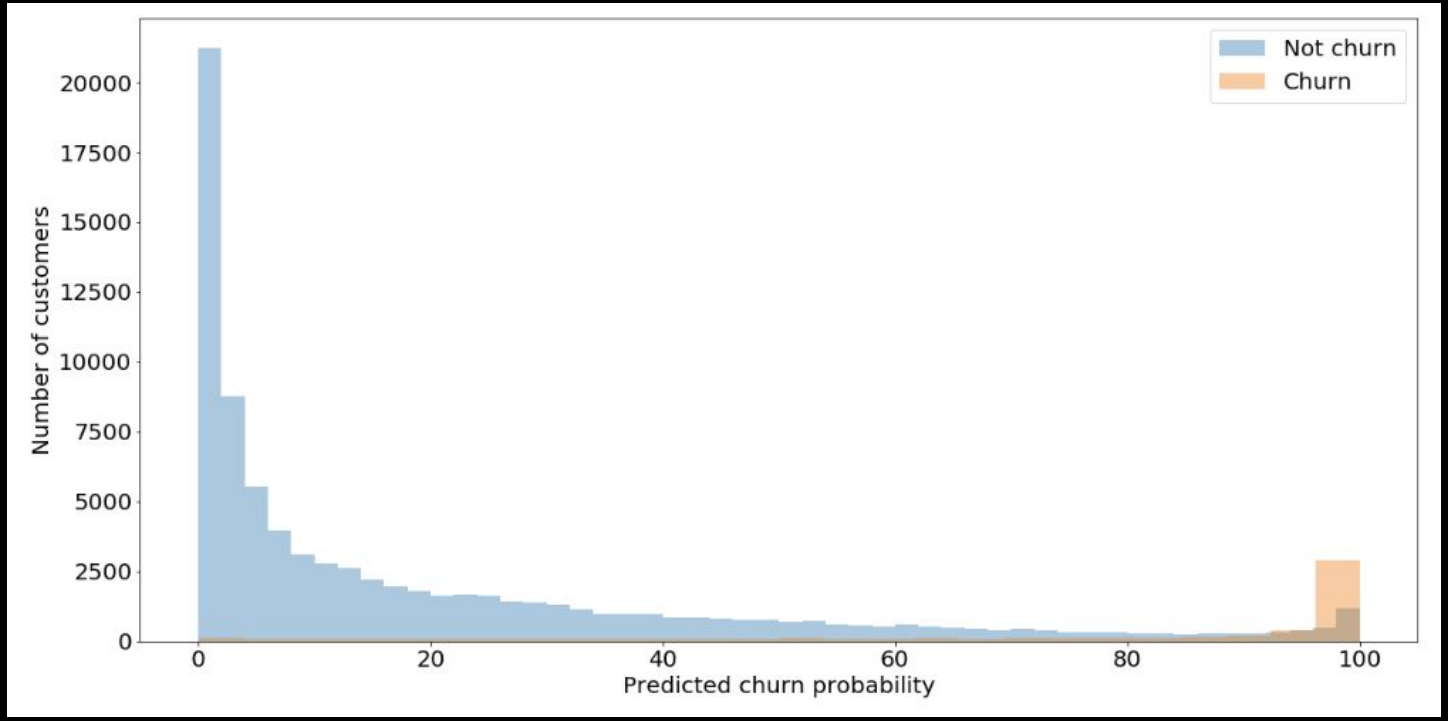


Accuracy: 87,9%

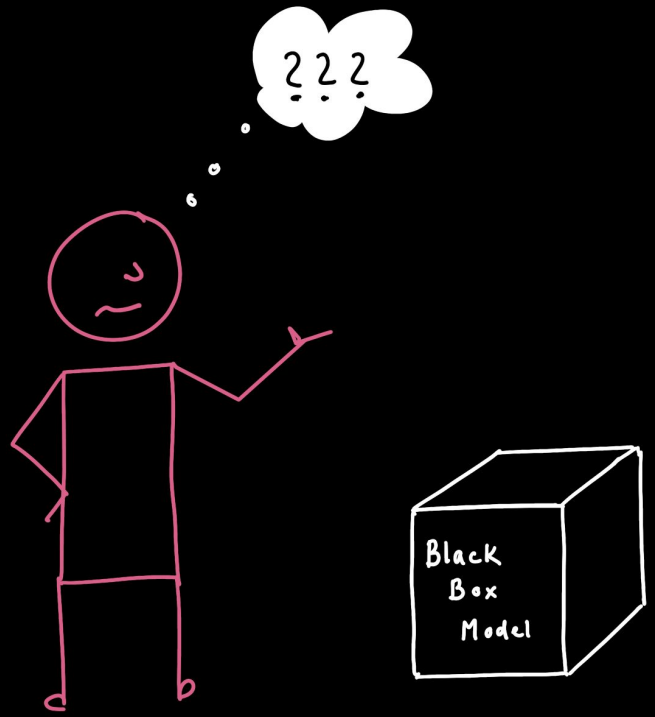
Precision: 31,0%

Recall: 81,8%

Distribution of the customers churn probability



How can we interpret a black box model?



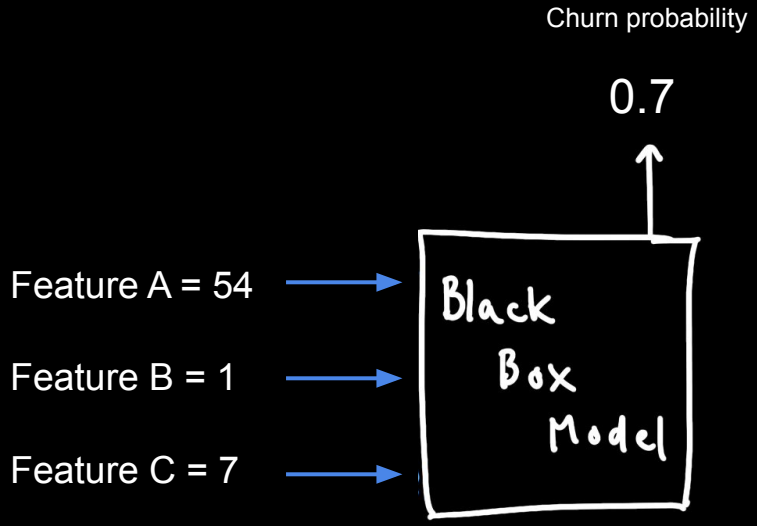
We are using SHAP (Shapley Additive exPlantions) to explain the model predictions

Based on Shapley values from Game Theory

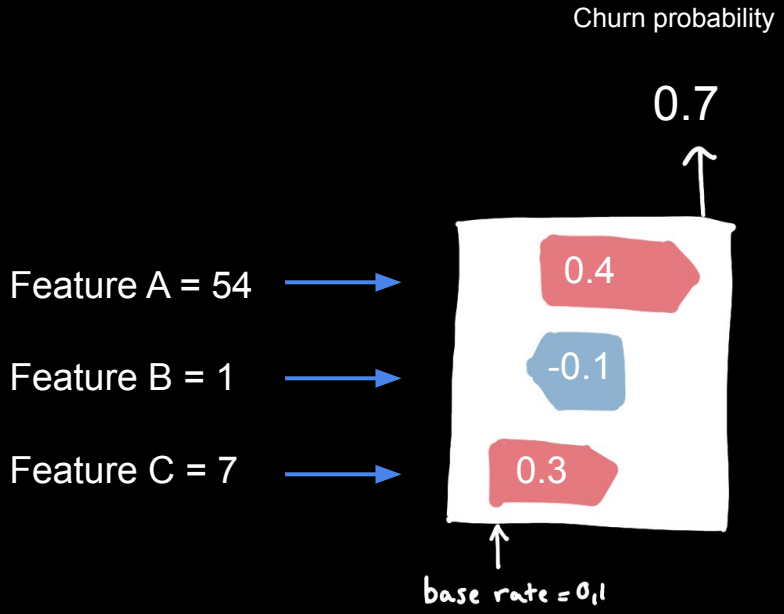
Nice theoretical properties

Computational intensive

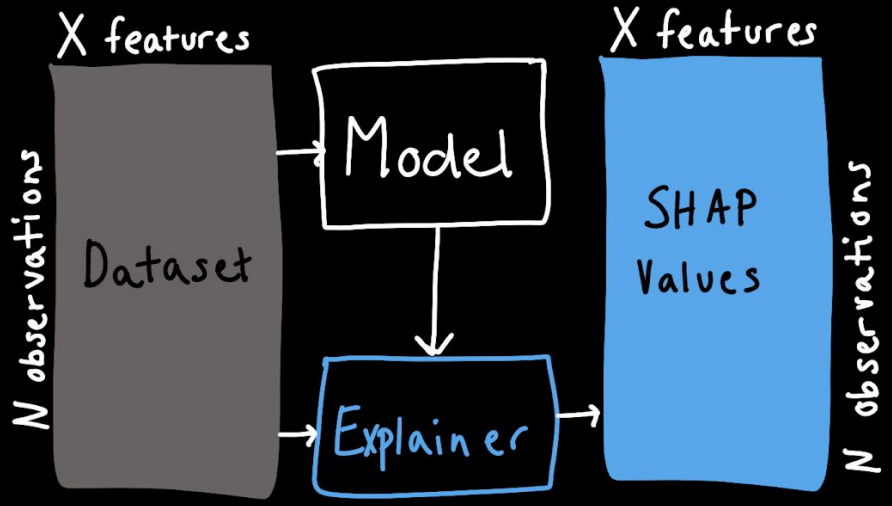
SHAP gives local additive explanations for each customer



SHAP gives local additive explanations for each customer

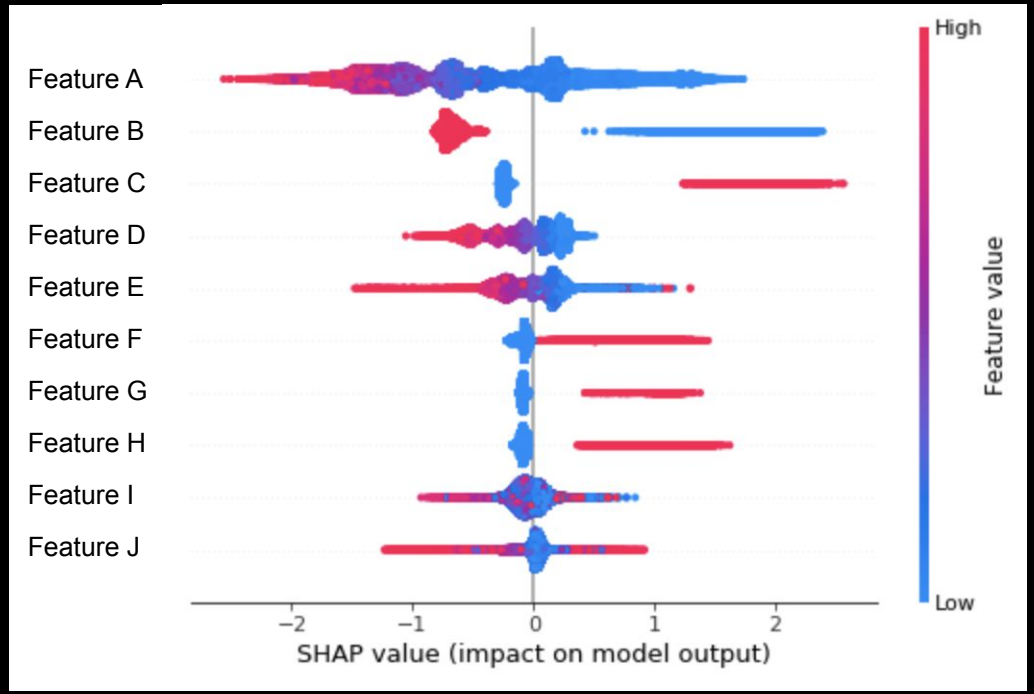


SHAP gives local explanations that can be used for global understanding

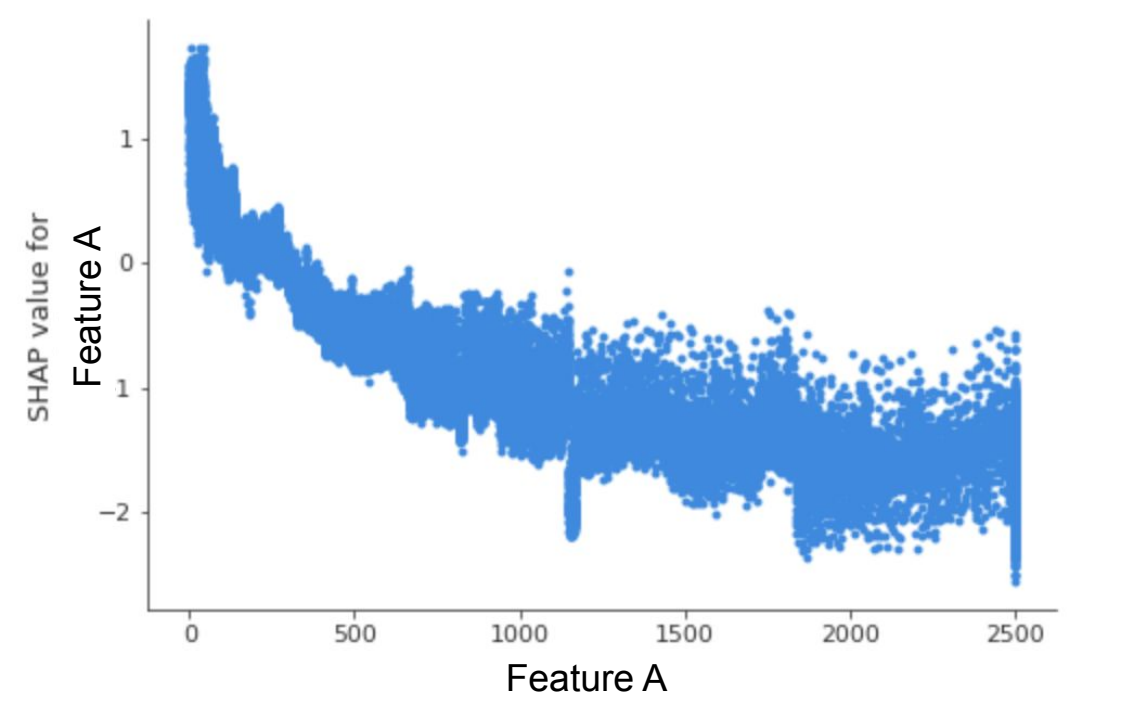


- Model summary
- Feature dependence
- Feature interactions
- . . .

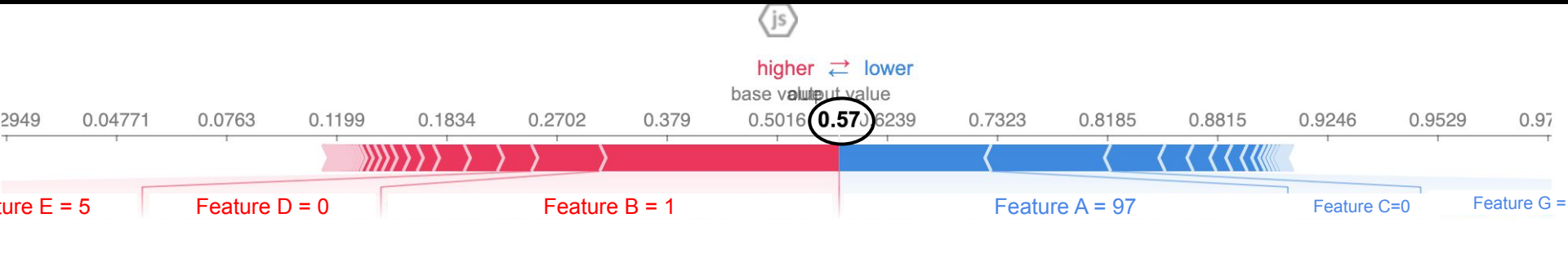
The summary plot shows the SHAP values for all customers



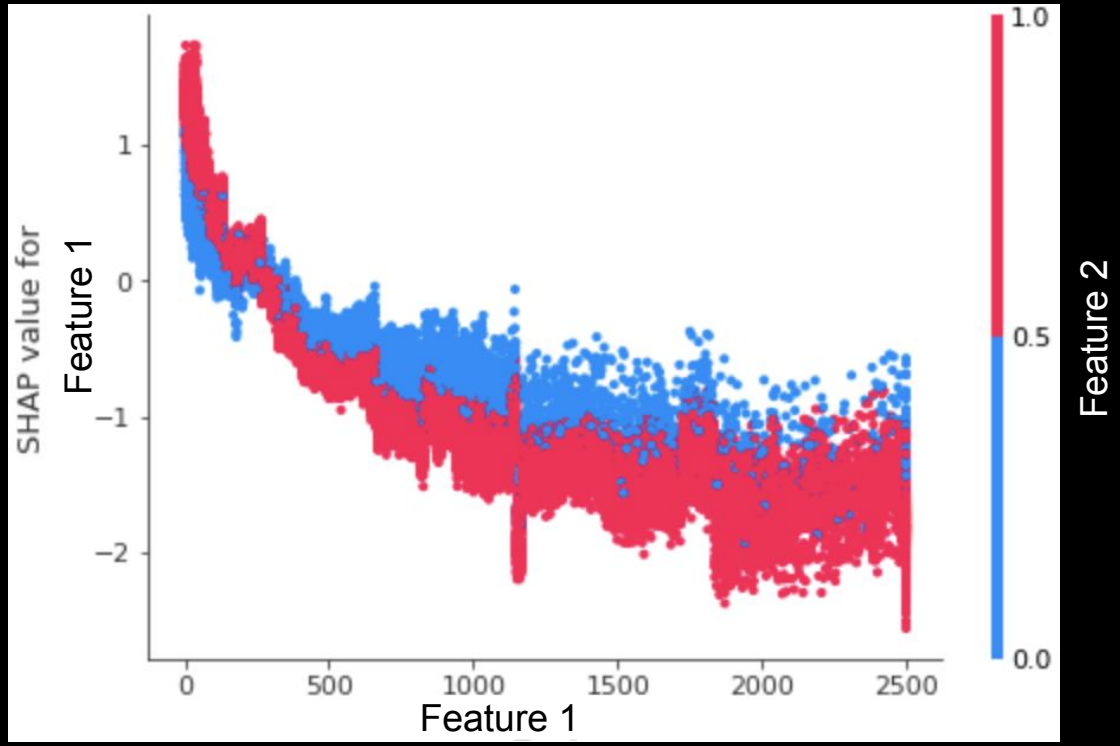
SHAP dependence plots shows how the impact of a feature varies with its feature value



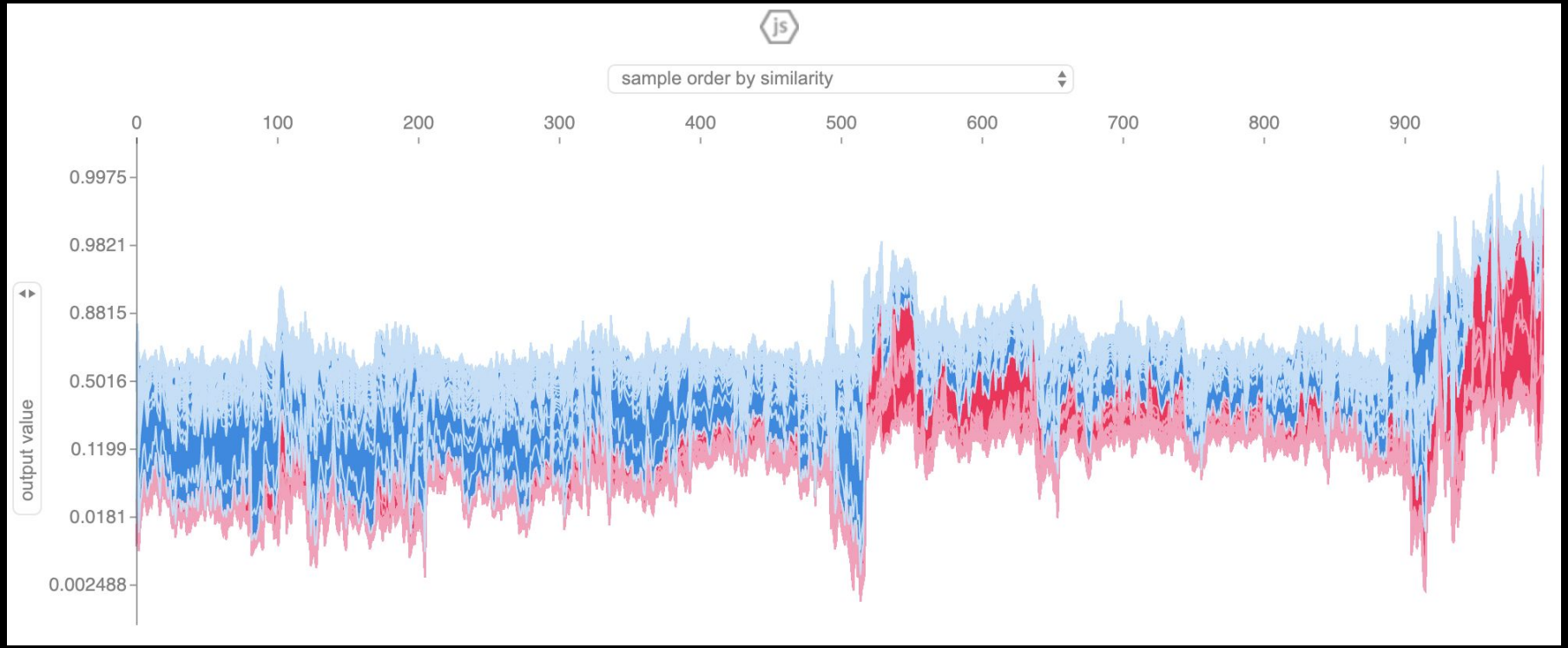
Force plots visualizes the local explanation for a specific customer



SHAP dependence plots shows how the impact of a feature varies with its feature value



We can cluster customers based on SHAP values

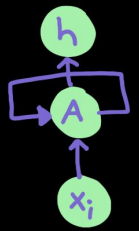


App data

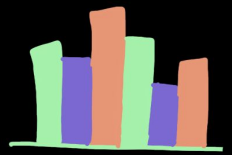
APACHE Spark

Future work

More data



RNN



Features