Data scientist Intern at Fiserv

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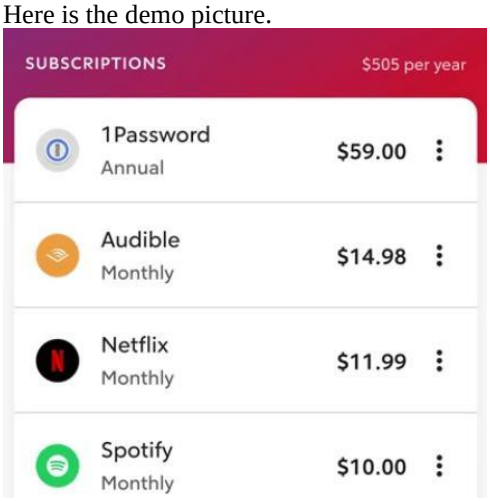
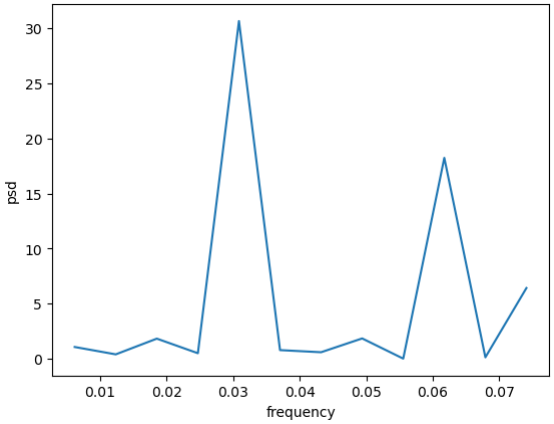
06/2023 – 08/2023
The goal is to detect recurring (subscriptions) using transaction history (21 million) from CardHub (digital wallet App), which serves over 3 million customers across 1,000+ financial institutions.
Here is the demo picture.



Here is an example of recurring transaction series. Each transaction series shares the same card_id, merchant_name and mcc(merchant category code).

AMOUNT	MERCHANT_NAME	TRANSACTION_TIME
-9.99	hbomax	2022-01-02
-9.99	hbomax	2022-02-02
-9.99	hbomax	2022-03-02
-9.99	hbomax	2022-04-02
-9.99	hbomax	2022-05-02
-9.99	hbomax	2022-06-02

Applied Discrete Fourier Transform and hypothesis testing to uncover recurring patterns in transaction series.
Here is the plot from discrete Fourier transform. From hypothesis testing the spike in the plot indicates this series is recurring. And the corresponding frequency indicates the period of this recurring series. Here frequency is 1/30 which means the period is 30 days.



Accurately estimated periods, amounts, and next due dates for predicted recurring.
Improved model performance F1 score by 25% on manually labeled test set.