

Sibyl

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MOTIVATION

Property Managers are overwhelmed by large accounting datasets with valuable insights into their properties' operational health, but lack

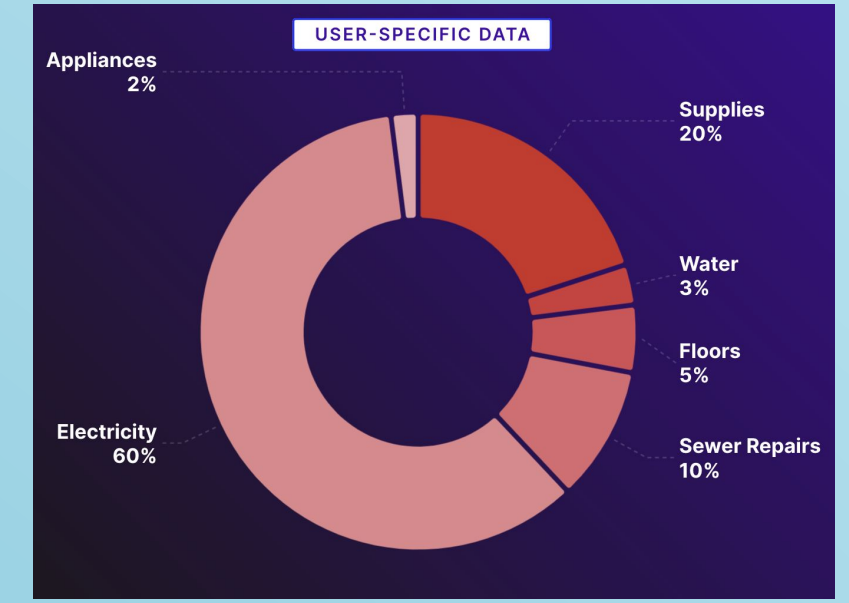
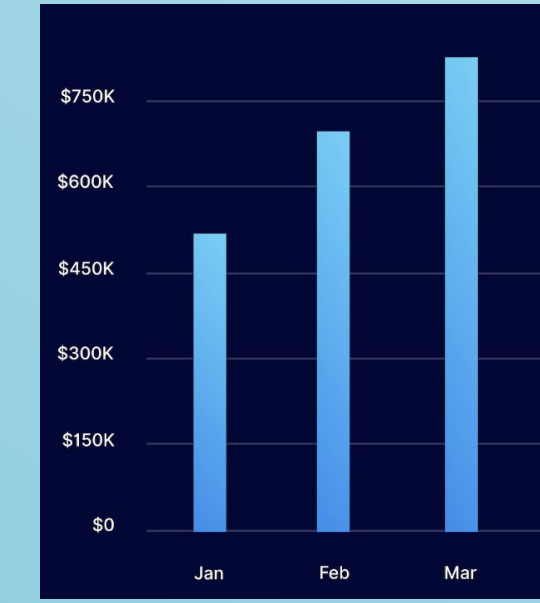
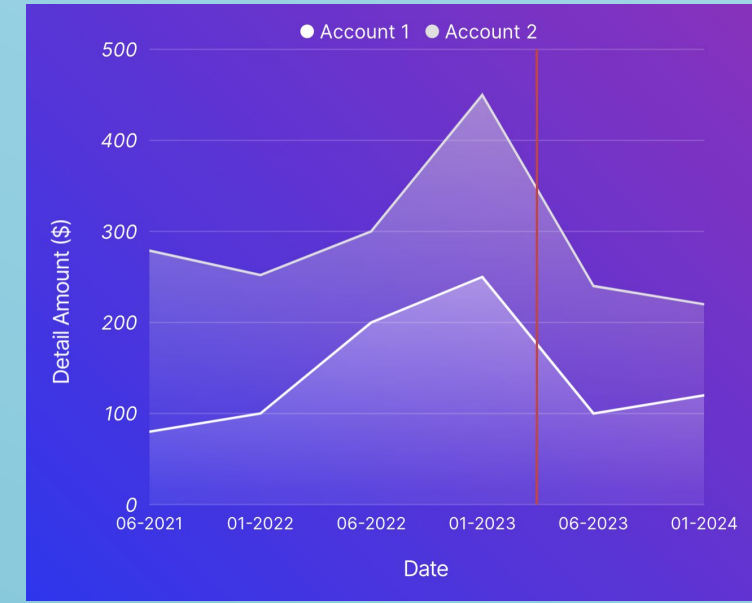
- 1) an intuitive medium to understand trends in their vast accounting datasets
- 2) the technical knowledge needed to predict future expenses from their accounting data

SOLUTION

An ML driven platform for property managers to visualize financial forecasts

Equip property managers with access to real-time ML inference and key metrics on their user-specific data

Property	Date	Type	Reference	Credit	Balance
57200 - Repairs/Maintenance/Cleaning					
Starting Balance					-12,062.64
Padberg Prairie - 823 Glynis Mill Suite 177	02/01/2020	JE	14041	1,035.00	-13,097.64
Jc Valleys - 5822 Filiberto Run Suite 899 P	02/01/2020	JE	14398	550.00	-13,647.64
Kessler Shoal - 39532 Franecki Rapid Apt.	02/01/2020	JE	14651	126.88	-13,774.52
Rogahn Crossing - 48464 Kulas Corners A	02/01/2020	JE	15246	200.00	-13,974.52
Kling Circles - 58252 Tom Valley Apt. 278 C	02/01/2020	JE	15278	600.00	-14,574.52
Beatty Forest - 69352 Maudie Mountain Ap	02/01/2020	JE	15436	125.00	-14,699.52
Greenfelder Ridges - 540 Gerald Shoals Si	02/01/2020	JE	15920	150.00	-14,849.52
Raul Plains - 2603 Gulgowski Burg Apt. 55	02/01/2020	JE	16173	870.00	-15,719.52
Gorczyany Pines - 48314 Metz Ridges Suite	02/01/2020	JE	16249	1,303.00	-17,022.52



Current tabular reports with no predictions

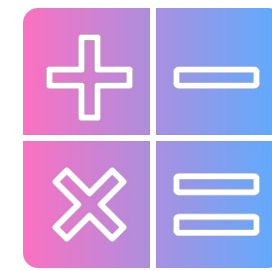
New user-friendly forecasts and financial insights

WORKFLOW



Accounting Database

AppFolio property managers have their property related accounting data stored in PostgreSQL



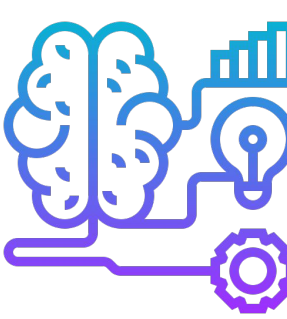
Metrics Computation

A multitude of metrics concerning properties' operational health are calculated in Django



Insights Visualized on Intuitive Chart Formats

Metrics are then sent to the frontend to be visualized on Sibyl's Dashboard using React



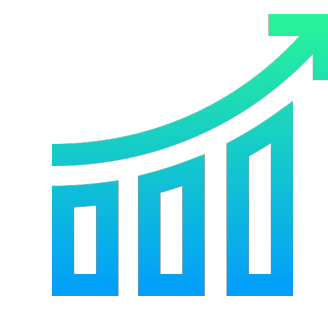
Library of Pretrained Machine Learning Models

A set of category-specific pre-trained Machine Learning models are stored in PostgreSQL



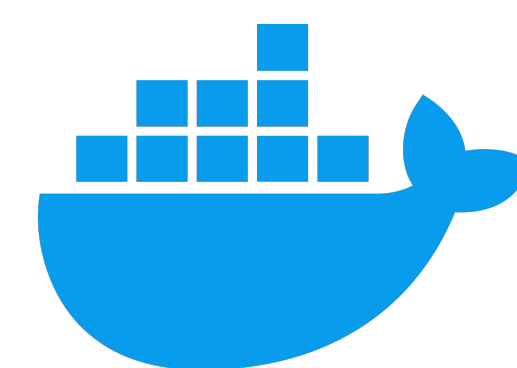
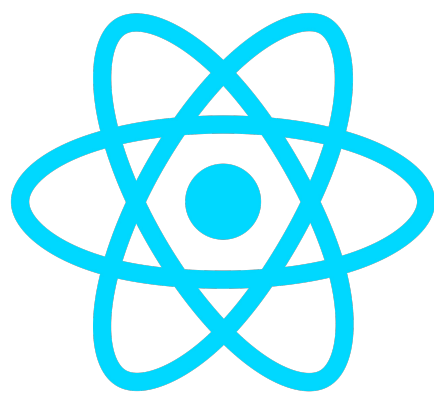
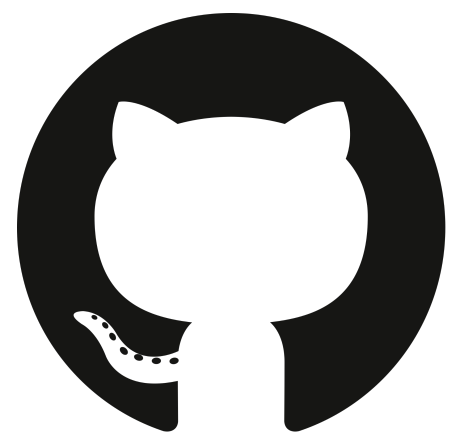
Inference on Future Dates for a Category

A request is sent by the frontend to the Django backend to create inferences with the stored models

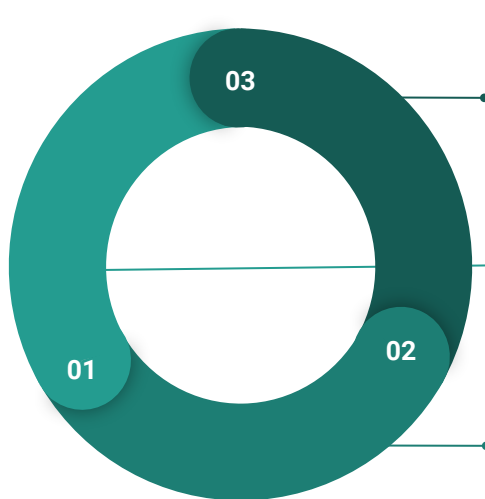


Predictions Visualized on Graph Formats

The predictions are then sent to the frontend to be visualized by React in a user-friendly way



MACHINE LEARNING



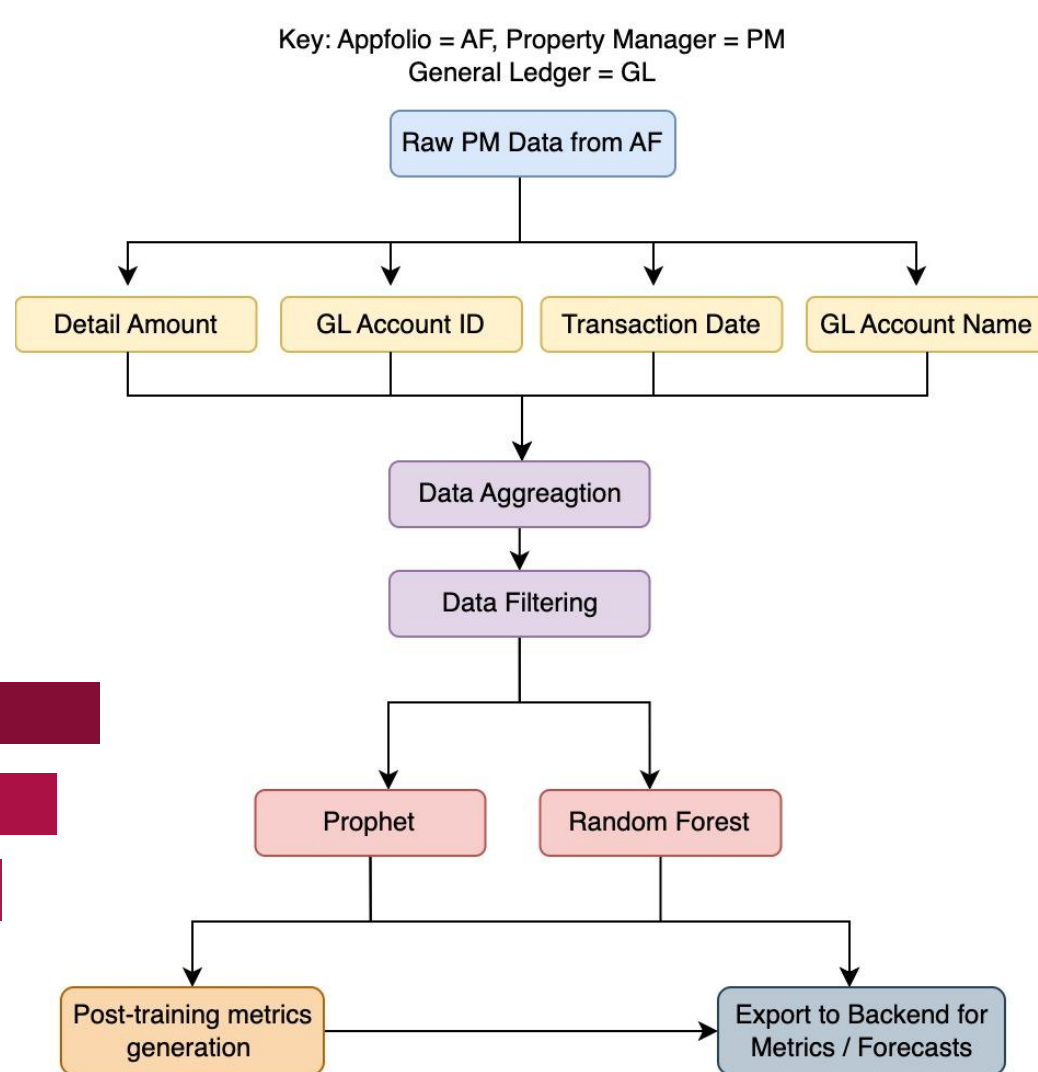
Evaluate Performance
Utilize metrics to evaluate efficacy of current model

Preprocess Data
Employ various filtering and aggregation techniques to improve data quality

Generate Models
Create forecasts using a test train split

High Level Machine Learning Workflow

- Retrieve Data Input: Retrieve Data from Appfolio
- Feature Extraction: Extract Important Features
- Preprocessing: Clean and Filter Data
- Model Generation: Create and Train Models
- Metrics and Export: Export Models



IMPACT

With Sibyl's real time Machine Learning inference, property managers can get accurate predictions on their category-specific future expenses

Key metrics allow property managers to clearly see their properties' operational health, allowing them to allocate their financial resources accordingly

