

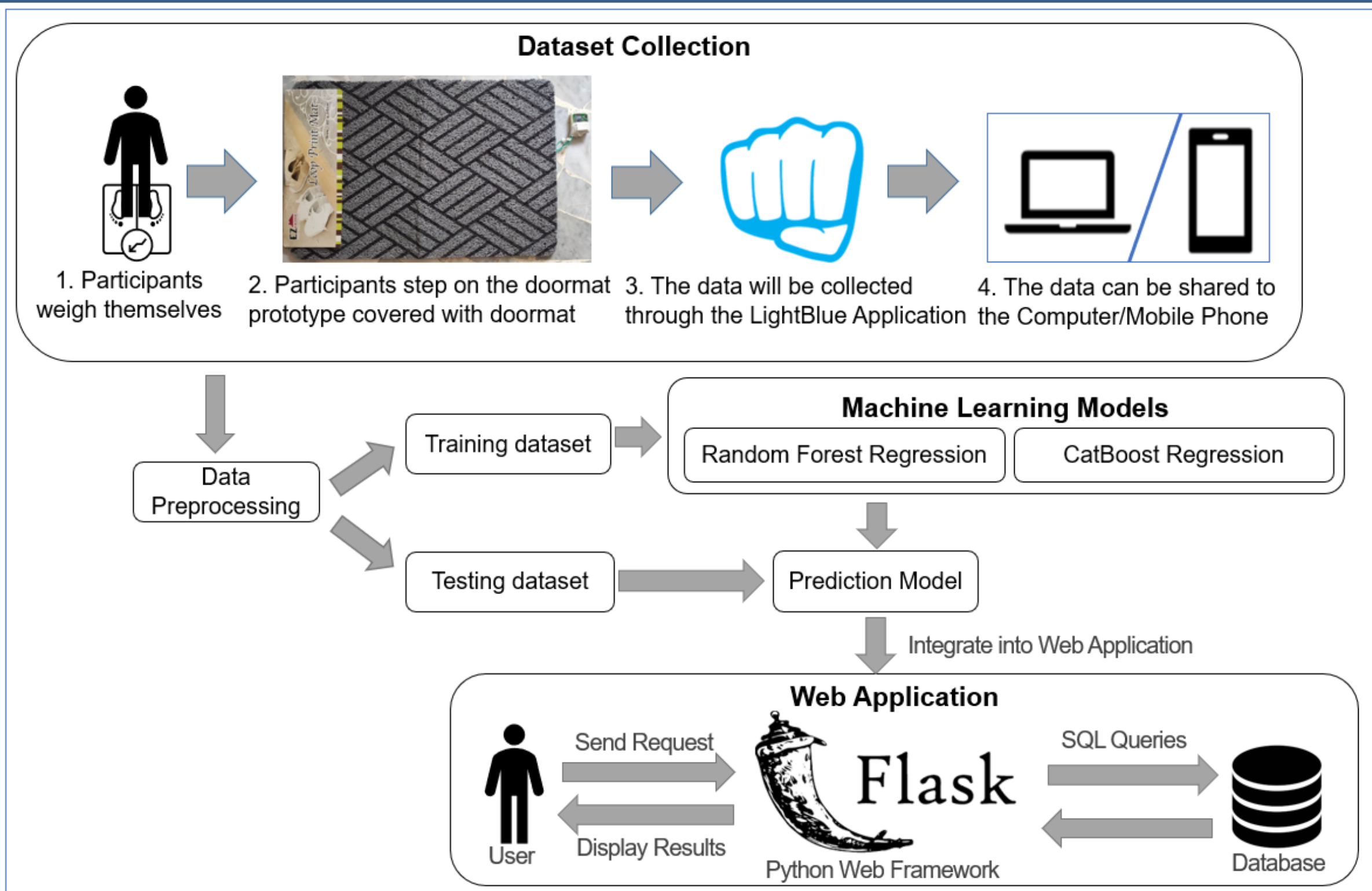
# Data Analysis and Visualization

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## Project Objectives

This project aims to develop a web application that uses a prediction model using machine learning models to determine a person's weight when they step over the doormat prototype. The web application can send a warning notification to alert the user whenever unintentional weight loss is detected.

## System Architecture Overview



## Experimental Results

Dataset	Model	R-Squared	MAE	RMSE	MAPE
<b>Sum</b>	<b>RandomForestRegressor</b>	<b>0.9936</b>	<b>0.5121</b>	<b>0.7501</b>	<b>0.7034</b>
<b>Sum</b>	<b>CatBoostRegressor</b>	<b>0.9907</b>	<b>0.6700</b>	<b>0.9048</b>	<b>0.9325</b>
AB	RandomForestRegressor	0.9415	1.6203	2.2735	2.2164
AB	CatBoostRegressor	0.9643	1.4133	1.7764	1.9575
BA	RandomForestRegressor	0.9401	1.6130	2.3015	2.1980
BA	CatBoostRegressor	0.9639	1.3535	1.7850	1.8714

Using GridsearchCV method on the sum dataset:

Dataset	Model	R-Squared	MAE	RMSE	MAPE
Sum	RandomForestRegressor	0.9936	0.5121	0.7501	0.7034
<b>Sum</b>	<b>RandomForestRegressor_GridSearchCV</b>	<b>0.9938</b>	<b>0.5030</b>	<b>0.7420</b>	<b>0.6910</b>
Sum	CatBoostRegressor	0.9907	0.6700	0.9048	0.9325
Sum	CatBoostRegressor_GridSearchCV	0.9919	0.6279	0.8459	0.8709

## User Interface

### Dashboard

