

## Shop Sight Predict Pro

### Introduction

**Shop Sight Predict Pro** is a specialized data analysis and predictive modeling package developed to address the challenges faced by e-commerce businesses in understanding and predicting customer purchasing behavior. Our tool, **ShopperIntentPredictor**, is designed to process, analyze, and predict online shopping behaviors, providing critical insights to enhance marketing strategies and optimize conversion rates.

### Overall Purpose

The primary aim of the ShopperIntentPredictor package is to predict online shopping purchasing intentions. It analyzes data from e-commerce sites, identifies patterns in customer behavior, and forecasts the likelihood of a visitor making a purchase, enabling businesses to make data-driven decisions to improve their online sales strategies.

### Modules and Functionality

ShopperIntentPredictor comprises several key modules, each focusing on different aspects of data processing and predictive analysis:

#### 1. Data Processing and Analysis Module

- **DataLoader**: Loads data from various formats like CSV, databases, etc.
- **DataPreprocessor**: Handles tasks such as missing value handling, data normalization, and categorical variable encoding.
- Functions like **clean\_data()** and **split\_data()** for standardizing and partitioning the dataset.

#### 2. Exploratory Data Analysis (EDA) Module

- **DataVisualizer**: Offers functions for creating visual representations of data to identify trends and patterns.
- Functions like **plot\_distributions()** and **plot\_correlation\_matrix()**.

#### 3. Feature Engineering Module

- **FeatureEngineer**: Optimizes and refines dataset features.
- Functions like **transform\_features()** and **select\_important\_features()**.

#### 4. Predictive Modeling Module

- **ModelBuilder**: Central to building and training various predictive models.
- Functions like **train\_model()** and **tune\_hyperparameters()**.

#### 5. Model Evaluation and Validation Module

- **ModelEvaluator**: Assesses model performance using metrics like accuracy, precision, and recall.
- Functions like `calculate_accuracy()`, `calculate_precision()`, `calculate_recall()`, and `perform_cross_validation()`.

## Installation and Setup

### Prerequisites

Before using Shop Sight Predict Pro, ensure that you have Python installed on your system. You can download Python from the official website: [Python Downloads](#).

### Installation Steps

1. Clone the repository to your local machine:

git clone [https://github.com/your\\_username/ShopSightPredictPro.git](https://github.com/your_username/ShopSightPredictPro.git)

Replace **your\_username** with your actual GitHub username.

Navigate to the project directory:

```
cd ShopSightPredictPro
```

Create a virtual environment and finally activate the virtual environment

### Usage

Shop Sight Predict Pro provides a wide range of functionalities for analyzing and predicting online shopping behavior. Here are some basic examples of how to use the package

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