# Identifying Shopping Trends Using Data Analysis

## Project Overview

This project utilizes data analysis and Artificial Intelligence (AI) to identify shopping trends and customer behavior patterns. Using Python, we perform various types of analyses such as trend analysis, customer segmentation, sales forecasting, market basket analysis, and sentiment analysis. These insights help businesses optimize marketing strategies, improve inventory management, and predict future shopping trends.

## Key Features

* **Trend Identification**: Discover key shopping trends such as seasonal variations, product demand, and evolving customer preferences.
* **Customer Segmentation**: Segment customers based on purchasing behavior using machine learning techniques.
* **Sales Forecasting**: Predict future sales trends and product demand using AI models.
* **Market Basket Analysis**: Identify associations between products to suggest cross-selling and up-selling opportunities.
* **Sentiment Analysis**: Analyze customer feedback and reviews to gauge sentiment and improve customer satisfaction.

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## Technologies Used

* **Programming Language**: Python
* **Data Analysis**: Pandas, NumPy, Scikit-learn
* **Machine Learning**: Scikit-learn, TensorFlow, Keras
* **Natural Language Processing (NLP)**: NLTK, SpaCy
* **Data Visualization**: Matplotlib, Seaborn, Plotly
* **Data Storage**: SQLite, CSV (for storing intermediate and final datasets)
* **Notebooks**: Jupyter Notebook for data exploration and visualization

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### Steps to Setup

1. **Clone the repository**:

git clone https://github.com/yourusername/shopping-trends-ai-analysis.gitcd shopping-trends-ai-analysis

1. **Install required dependencies**:

pip install -r requirements.txt

If you don't have requirements.txt, you can manually install dependencies:

pip install pandas numpy scikit-learn matplotlib seaborn tensorflow nltk spacy jupyter

**3.Optional**: If you want to use Jupyter Notebooks, install Jupyter:

pip install jupyter

1. **Run Jupyter Notebook**:

jupyter notebook

### 4.Dependencies in requirements.txt

makefile

Copy

pandas==1.3.3

numpy==1.21.2

scikit-learn==0.24.2

matplotlib==3.4.3

seaborn==0.11.2

tensorflow==2.6.0

nltk==3.6.3

spacy==3.1.2

jupyter==1.0.0