Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

TOPIC : SALES FORECASTING

Participants

VTU27924	B.Hema
VTU30344	Y.Lahitha
VTU30034	G.Prathibha
VTU27652	S.Moulya
VTU28016	A.Navyasri

Faculty name:
Dr R Bhavani
(TTS4008)
Slot no:
S8-1L2

Introduction

Sales forecasting is the process of estimating future sales using past data and trends.

It helps businesses make better decisions regarding production, marketing, and budgeting.

Python provides powerful tools and libraries to perform accurate and automated forecasting

Objectives

Understand the concept of sales forecasting

Learn how Python can be used for forecasting

Implement a prediction model using Python

Visualize sales trends and future predictions

Importance of sales forecasting

Helps in strategic planning and decision making

Improves inventory and resource management

Guides marketing and budgeting activities

Supports prediction of business growth

Python libraries used

Pandas – for data collection and manipulation

matplotlib / seaborn – for data visualization

scikit-learn – for building prediction models

statsmodels – for time series forecasting (ARIMA models)

Steps in forecasting using python

1. Collect sales data from CSV, database, or API
2. Clean and preprocess the data (handle missing values, format dates)
3. Visualize data to identify patterns or trends
4. Build and train a forecasting model (e.g., Linear Regression or ARIMA)
5. Predict future sales based on learned patterns
6. Evaluate model accuracy and visualize results

Sample python code

```
import pandas as pd
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt

data = pd.read_csv(‘sales.csv’)
data[‘Month’] = range(len(data))

model = LinearRegression()
model.fit(data[[‘Month’]], data[‘Sales’])
```

Sample python code

```
future = pd.DataFrame({‘Month’:[i for i in range(len(data),
len(data)+6)]})
forecast = model.predict(future)

plt.plot(data[‘Month’], data[‘Sales’], label=‘Actual Sales’)
plt.plot(future[‘Month’], forecast, label=‘Forecasted Sales’,
linestyle=‘—’)
plt.legend()
plt.show()
```

Result

After running the Python program, a line graph is displayed showing two curves:
Actual Sales (from historical data)
Forecasted Sales (for upcoming months)

Example output:

```
Month Actual Sales  Forecasted Sales
1   250
2   270
3   300
4   320
5   350
6   370
7   390
8   410
```

The forecast line continues the trend of the previous data, predicting how sales will increase over time.

Advantages of using python

Easy to learn and use

Handles large datasets efficiently

Supports automation of analysis

Integrates with visualization and machine learning tools

Produces accurate and interpretable results

Conclusion

Sales forecasting using Python helps businesses make data-driven decisions.

By using libraries such as pandas, matplotlib, and scikit-learn, one can easily analyze historical data, build predictive models, and visualize future sales trends.

This approach improves business planning, inventory management, and market strategy.

Thank you