SNS COLLEGE OF TECHNOLOGY

Coimbatore-37.

An Autonomous Institution

COURSE NAME : 19CSE311- Data Visualization

Topic: INTRODUCTION TO VISUAL ANALYTICS - TIME SERIES

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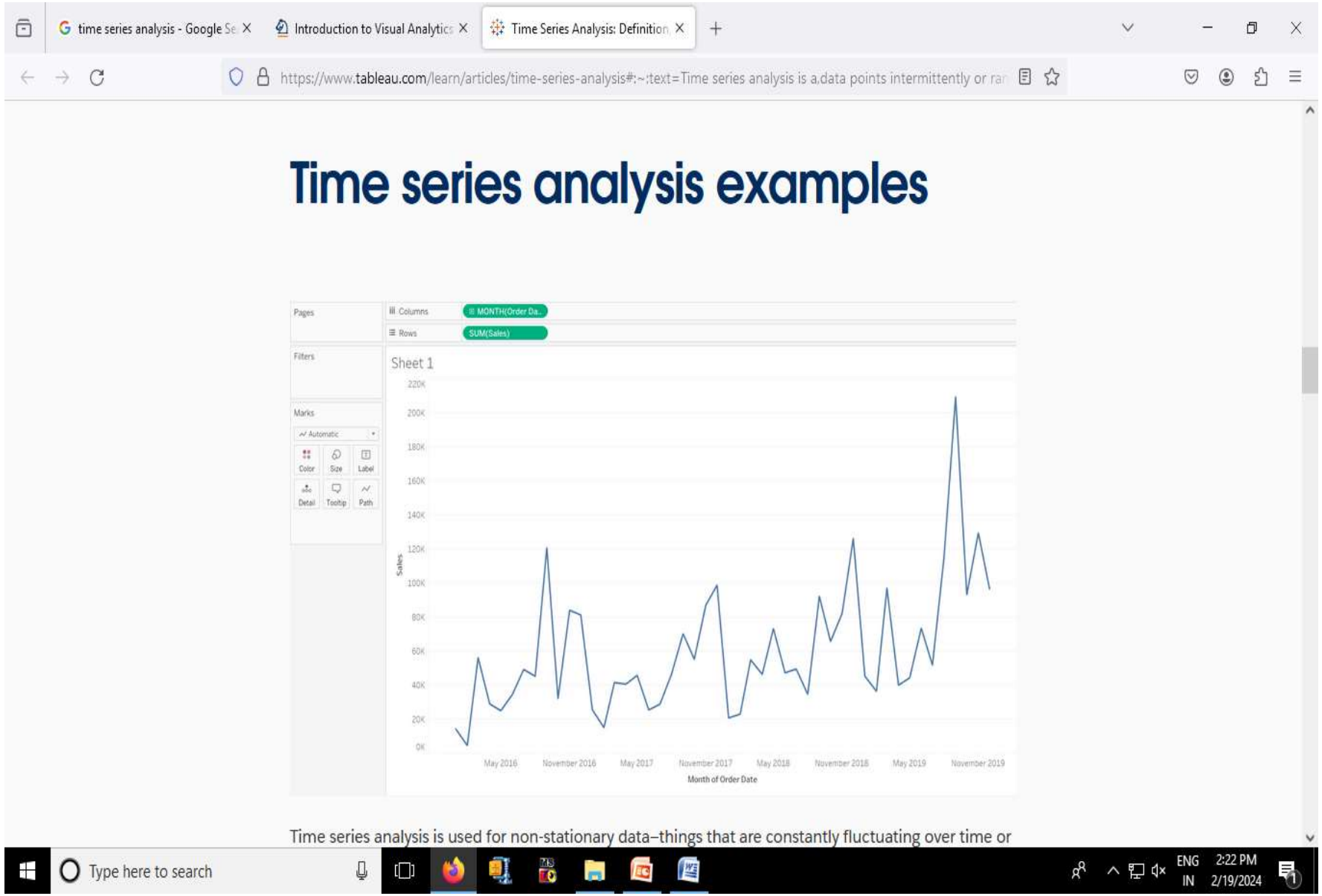
Time series

- For as long as we have been recording data, time has been a crucial factor.
- In time series analysis, time is a significant variable of the data.
- Times series analysis helps us study our world and learn how we progress within it.


time series analysis - Google Se
Introduction to Visual Analytics
Time Series Analysis: Definition
https://www.tableau.com/learn/articles/time-series-analysis#:~:text=Time series analysis is a,data points intermittently or ran
Time series analysis examples
Pages
Columns
MONTH(Order Da..
Rows
SUM(Sales)
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Path
Sheet 1
220K
200K
180K
160K
140K
120K
100K
80K
60K
40K
20K
0K
Sales
May 2016
November 2016
May 2017
November 2017
May 2018
November 2018
May 2019
November 2019
Month of Order Date
Time series analysis is used for non-stationary data–things that are constantly fluctuating over time or
Type here to search
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Examples of time series analysis in action include:

- Weather data
- Rainfall measurements
- Temperature readings
- Heart rate monitoring (EKG)
- Brain monitoring (EEG)
- Quarterly sales
- Stock prices
- Automated stock trading
- Industry forecasts
- Interest rates

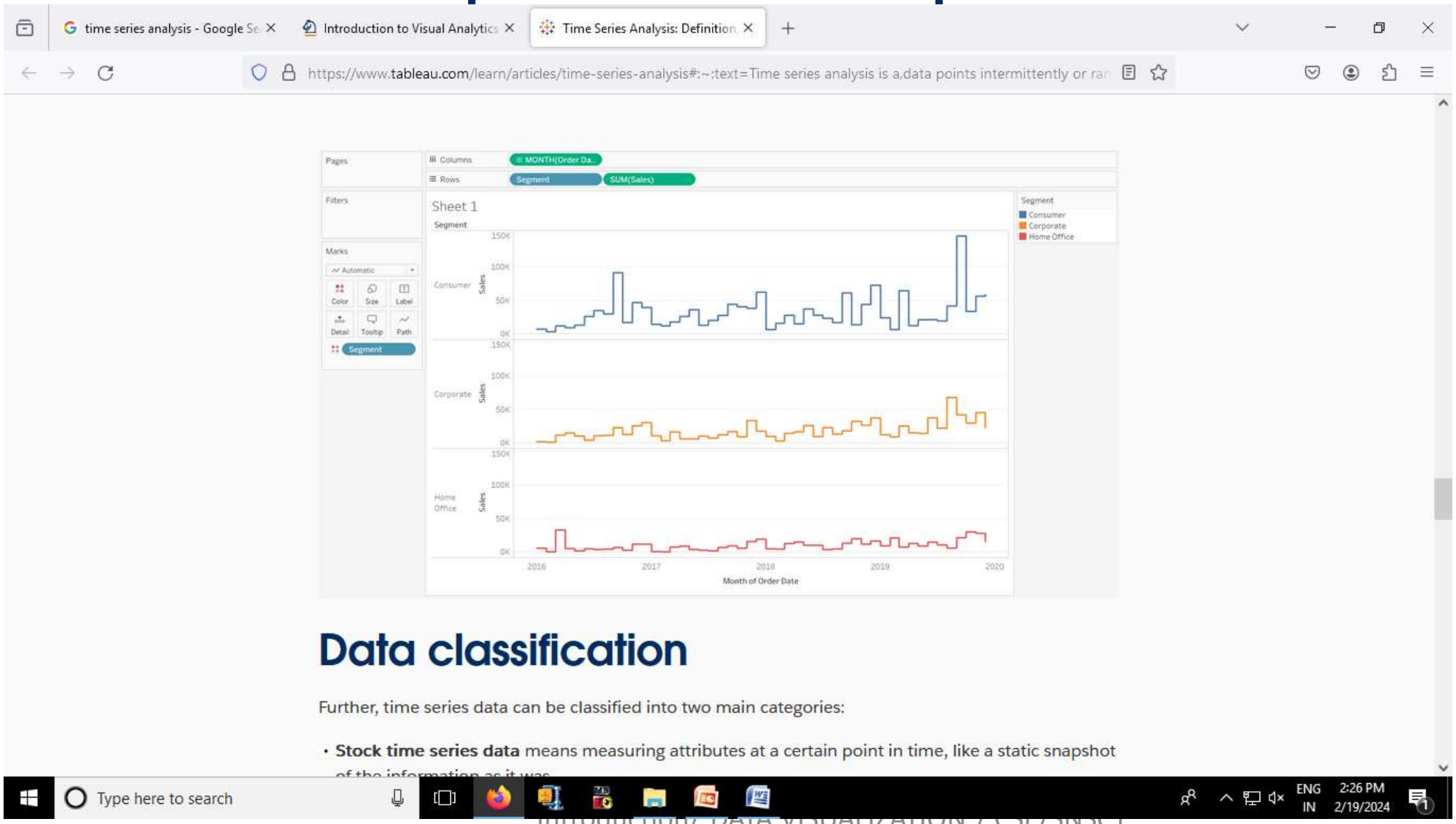
Time Series Analysis Types:

- **Classification:** Identifies and assigns categories to the data.
- **Curve fitting:** Plots the data along a curve to study the relationships of variables within the data.
- **Descriptive analysis:** Identifies patterns in time series data, like trends, cycles, or seasonal variation.
- **Explanative analysis:** Attempts to understand the data and the relationships within it, as well as cause and effect.

Time Series Analysis Types:

- **Forecasting:** Predicts future data. This type is based on historical trends. It uses the historical data as a model for future data, predicting scenarios that could happen along future plot points.
- **Intervention analysis:** Studies how an event can change the data.
- **Segmentation:** Splits the data into segments to show the underlying properties of the source information.

More specific examples



Data classification

- Further, time series data can be classified into two main categories:
- **Stock time series data** means measuring attributes at a certain point in time, like a static snapshot of the information as it was.
- **Flow time series data** means measuring the activity of the attributes over a certain period, which is generally part of the total whole and makes up a portion of the results.

Data variations

In time series data, variations can occur sporadically throughout the data:

- **Functional analysis** can pick out the patterns and relationships within the data to identify notable events.
- **Trend analysis** means determining consistent movement in a certain direction. There are two types of trends: deterministic, where we can find the underlying cause, and stochastic, which is random and unexplainable.
- **Seasonal variation** describes events that occur at specific and regular intervals during the course of a year. Serial dependence occurs when data points close together in time tend to be related.


THANK YOU