



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (po), Coimbatore – 641 107

Accredited by NAAC-UGC with 'A' Grade

Approved by AICTE & Affiliated to Anna University, Chennai

**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

## **19AD504 – DATA VISUALIZATION**

### **UNIT – 5**

#### **5.1 DEPICTING TRENDS**

Data visualization plays a crucial role in various applications across different fields when it comes to depicting trends.

Here are some key applications where data visualization is commonly used to represent trends:

##### **1. Business and Finance:**

- **Stock Market Analysis:** Line charts and candlestick charts are used to display trends in stock prices and trading volumes over time.
- **Financial Reports:** Bar charts and pie charts are used to show revenue trends, expense breakdowns, and profitability over specific periods.

##### **2. Healthcare and Medical Research:**

- **Epidemiology:** Heatmaps and line charts can be used to show the spread of diseases over time and across regions.
- **Clinical Data:** Line charts and scatter plots can display patient data trends, such as the progression of symptoms or the effectiveness of treatments.

### 3.Environmental Science:

- **Climate Change:** Line charts, area charts, and maps are employed to depict trends in temperature, sea levels, and greenhouse gas concentrations.
- **Biodiversity:** Heatmaps and scatter plots can show trends in species distribution and biodiversity.

### 4.Marketing and E-commerce:

- **Website Analytics:** Line charts and bar charts are used to track website traffic, click-through rates, and conversion trends.
- **Customer Behavior:** Scatter plots and funnel charts can display trends in customer behavior, such as the customer journey or purchase patterns.

### 5.Education:

- **Student Performance:** Line charts and box plots can help educators track trends in student performance and identify areas needing improvement.
- **Enrollment Data:** Bar charts and pie charts can show trends in student demographics or enrollment by course.

### 6.Government and Public Policy:

- **Demographics:**Bar charts and population pyramids can illustrate trends in population age distribution.
- **Economic Data:** Line charts and choropleth maps can depict trends in unemployment, GDP, or inflation rates.

### 7.Technology and IT:

- **Network Traffic Analysis:** Time series graphs and heatmaps can display trends in network traffic, helping identify anomalies or congestion.

- **Software Performance:** Line charts and scatter plots are used to track software performance trends and identify bottlenecks.

## **8.Urban Planning and Transportation:**

- **Traffic Analysis:** Line charts, heatmaps, and GIS-based maps can depict traffic trends, congestion, and transportation patterns.
- **Population Density:** Choropleth maps can show trends in population density across urban areas.

## **9.Scientific Research:**

- **Experimental Data:** Scatter plots and box plots can illustrate trends in experimental data and help researchers identify patterns.
- **Genomic Data:**Heatmaps and line charts are used to display trends in gene expression, mutations, and related biological processes.

## **10.Energy and Utilities:**

- **Energy Consumption:** Line charts and bar charts can depict trends in energy usage over time.
- **Renewable Energy Production:** Line charts can display trends in the generation of renewable energy sources like solar and wind.