

SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107

Accredited by NAAC-UGC with 'A' Grade

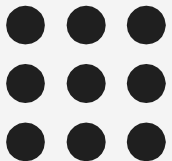
Approved by AICTE, Recognized by UGC & Affiliated to Anna University, Chennai

Department of Information Technology

Course Name – Data Warehouse & Mining

II Year / IV Semester

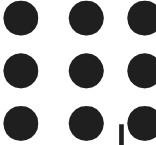
Topic – Spatial Mining





Spatial Mining

- Spatial data mining is a specialized subfield of data mining that deals with extracting knowledge from spatial data.
- Spatial data refers to data that is associated with a particular location or geography.
- Examples of spatial data include maps, satellite images, GPS data, and other geospatial information.
- Spatial data mining involves analyzing and discovering patterns, relationships, and trends in this data to gain insights and make informed decisions.





Types of Spatial Data

- **Point Data** - represents a single location or a set of locations on a map.

Each point is defined by its x and y coordinates, representing its position in the geographic space.

Point data is commonly used to represent geographic features such as cities, landmarks, or specific locations of interest.

Examples of point data in transportation include delivery locations, bus stops, or railway stations.

- **Line Data** - represents a linear feature, such as a road, a river, or a pipeline, on a map.

Each line is defined by a set of vertices, which represent the start and end points of the line.

Line data is commonly used to represent transportation networks, such as roads, highways, or railways.

- **Polygon Data** - represents a closed shape or an area on a map.

Each polygon is defined by a set of vertices that connect to form a closed boundary.

Polygon data is commonly used to represent administrative boundaries, land use, or demographic data.



Difference Between Spatial And Temporal Data Mining

Factors	Spatial Data Mining	Temporal Data Mining
Focus	Location-based	Time-based
Data type	Point, line, polygon, etc.	Time series, events, sequences, etc.
Properties	Location, distance, shape, topology, etc.	Time, duration, frequency, trend, etc.
Applications	Environmental monitoring, urban planning, logistics, transportation, etc.	Finance, healthcare, social media, etc.
Data sources	GPS, remote sensing, GIS, etc.	Sensors, logs, databases, etc.
Techniques	Spatial clustering, spatial association, spatial regression, etc.	Trend analysis, time series analysis, sequence mining, etc.
Challenges	Data sparsity, data heterogeneity, data complexity, spatial autocorrelation, etc.	Data volume, data velocity, data quality, temporal autocorrelation, etc.



THANK YOU