SNS College of Engineering

An Autonomous Institution

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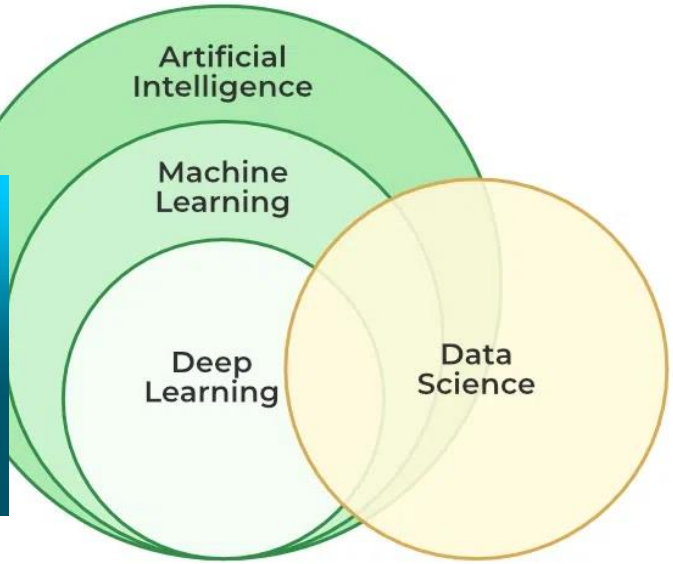
Approved by AICTE, Recognized by UGC and Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

UNIT - 2

SUPERVISED LEARNING



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Types/Categories of SL

Regression and Classification

Regression

- Regression analysis is a statistical method to model the relationship between a dependent (target) and independent (predictor) variables with one or more independent variables.
- It predicts continuous/real values such as **temperature, age, salary, price,** etc.

Examples:

- **House Price Prediction:** Estimate the price of a house based on features such as size, location, and number of bedrooms.
- **Stock Price Forecasting:** Predict the future price of a stock based on historical data and other relevant features.
- **Temperature Prediction:** Forecast the temperature for a given day based on historical weather data.

Types/Categories of SL

Classification

- It is a type of supervised learning that categorizes **input data into predefined labels.**
- It involves training a **model on labeled examples** to learn patterns between input features and output classes.

Examples:

- **Email Spam Detection:** Classify emails as "spam" or "not spam."
- **Image Recognition:** Identify whether an image contains a cat, dog, or bird.
- **Medical Diagnosis:** Predict whether a patient has a particular disease based on symptoms and test results.

Types/Categories of SL

enjoy algorithms

Regression

What will be the temperature tomorrow?

Fahrenheit

Classification

Will it be hot or cold tomorrow?

Fahrenheit

Regression Purpose & Applications

- Regression analysis is used **for prediction and forecasting**.
- **Financial Industry**- Understand the trend in the stock prices, forecast the prices, evaluate risks in the insurance domain
- **Marketing**- Understand the effectiveness of market campaigns, forecast pricing and sales of the product.
- **Manufacturing-** Evaluate the relationship of variables that determine to define a better engine to provide better performance
- **Medicine-** Forecast the different combination of medicines to prepare generic medicines for diseases.

Thank
You