Classification, regression, and clustering are three fundamental types of tasks in machine learning and data analysis. Here's a brief overview of each:

1. **Classification**:
   * **Definition**: Classification is a supervised learning task where the goal is to predict the categorical class labels of new instances based on past observations labeled with known class labels.
   * **Objective**: The primary objective is to learn a mapping from input variables (features) to a discrete output variable (class labels).
   * **Example**: Spam detection in emails (classifying emails as spam or not spam), image classification (recognizing digits in images), sentiment analysis (classifying movie reviews as positive or negative).
2. **Regression**:
   * **Definition**: Regression is also a supervised learning task where the goal is to predict a continuous output variable (dependent variable) based on one or more input variables (independent variables).
   * **Objective**: Unlike classification, regression predicts a quantity rather than a category.
   * **Example**: Predicting house prices based on features like location, size, etc., predicting stock prices, estimating temperature based on time of day and weather conditions.
3. **Clustering**:
   * **Definition**: Clustering is an unsupervised learning task where the goal is to group a set of objects in such a way that objects in the same group (cluster) are more similar to each other than to those in other groups.
   * **Objective**: The objective is to discover inherent groupings in data without prior knowledge of the group labels.
   * **Example**: Customer segmentation in marketing (identifying groups of customers with similar behaviors), grouping documents by topic in natural language processing, identifying clusters of stars in astronomy based on their observable characteristics.

**Key Differences**:

* **Supervised vs Unsupervised**: Classification and regression are supervised learning tasks (with labeled data), while clustering is unsupervised (without labeled data).
* **Output Type**: Classification predicts discrete class labels, regression predicts continuous values, and clustering identifies groupings or clusters in data.
* **Objective**: Classification and regression are predictive tasks, aiming to predict outcomes for new data, while clustering is exploratory, aiming to find hidden structures or patterns in data.