

## **Assignment 3 (50 marks total)**

The data for this assignment is available at this [link](#).

### **Question 1**

**10 marks**

Question text goes here

### **Question 2**


**20 marks**

Another question

### **Question 3**

**20 marks**

A question with an image:

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Go

# scikit-learn

Machine Learning in Python

[Getting Started](#) [Release Highlights for 1.2](#)

[GitHub](#)

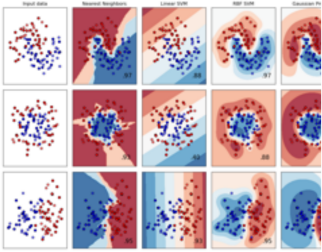
- Simple and efficient tools for predictive data analysis
- Accessible to everybody, and reusable in various contexts
- Built on NumPy, SciPy, and matplotlib
- Open source, commercially usable - BSD license

## Classification

Identifying which category an object belongs to.

**Applications:** Spam detection, image recognition.

**Algorithms:** SVM, nearest neighbors, random forest, and more...



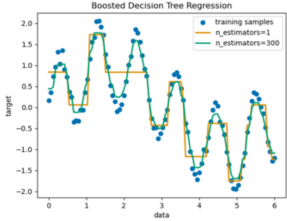
Examples

## Regression

Predicting a continuous-valued attribute associated with an object.

**Applications:** Drug response, Stock prices.

**Algorithms:** SVR, nearest neighbors, random forest, and more...



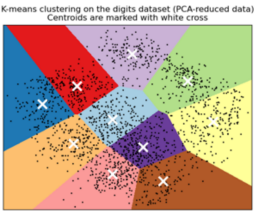
Examples

## Clustering

Automatic grouping of similar objects into sets.

**Applications:** Customer segmentation, Grouping experiment outcomes

**Algorithms:** k-Means, spectral clustering, mean-shift, and more...



Examples

## Dimensionality reduction

Reducing the number of random variables to consider.

**Applications:** Visualization, Increased efficiency

**Algorithms:** PCA, feature selection, non-negative matrix

## Model selection

Comparing, validating and choosing parameters and models.

**Applications:** Improved accuracy via parameter tuning

**Algorithms:** grid search, cross validation, metrics, and more...

## Preprocessing

Feature extraction and normalization.

**Applications:** Transforming input data such as text for use with machine learning algorithms.

**Algorithms:** preprocessing, feature extraction, and more...

Figure 1: An image

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