# Student Experiment Report

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| Student ID |  | School |  |
| Name |  | Major |  |

## Clustering

## Introduction

This experiment uses three clustering methods to cluster iris data set. The purpose is to improve students' practical problem-solving ability using clustering methods.

## Objective

(1) Help students understand the application of clustering method in data science.

(2) Help students understand the principle of clustering method.

## Related theories and knowledge

(1) The principle of clustering method

(2) The application method of clustering method

(3) The evaluation index of clustering method

## Experimental conditions and environment

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| Requirements | Content | Version | Remarks |
| **Programming language** | python | Above 3.6 |  |
| **Development environment** | Jupter | None |  |
| **Third-party toolkits/libraries/plugins** | sklearn | 0.23.1 |  |
| **Third-party toolkits/libraries/plugins** | Pandas | 1.0.5 |  |
| **Third-party toolkits/libraries/plugins** | numpy | 1.16.2 |  |
| **Other tools** | None | None |  |
| **Hardware environment** | Both desktop and laptop | None |  |

## Tasks

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| --- | --- | --- |
| **序号** | **任务名称** | **任务具体要求** |
| **1** | Read in data | Use iris dataset. |
| **2** | Define features | The category label information of iris dataset is not used, and then the clustering experiment will be conducted using the following three methods. |
| **3** | Kernel K-means | You need to cluster the data using Kernel k-means method. |
| **4** | EM clustering | You need to cluster the data using EM clustering. |
| **5** | Spectral clustering | You need to cluster the data using Spectral clustering. |
| **6** | Evaluate the results | You need to select evaluation indexes to evaluate the clustering results. |

## Results and Analysis

## Acquisitions and Thoughts

（1）

（2）

（3）