

Description

This course is focused on teaching student the java basics, so they're able to handle all sorts of situation regarding data analysis using java. UML is used for the modeling part, as it gives a good analysis medium to achieve data description

Learning Objectives and Outcomes

- How to represent data using UML?
- What are the different Java APIs helping in handling data (Files and data format / transformations)?
- How to perform a data analysis of a dataset using Java.

Course Schedule and Contents

Session 1

JUPAI1: modeling with UML

How to use UML to describe data (focus on Classes and Class diagrams).
First contact with Java

Skills

Modeling and translation in java.

Session 2

JUPAI2 : Using Java to model Data

First implementation of a CRUD program against a person DataSet.
First execution (main class), modeling and reusable Serialization service design against a CSV File.

Skills

File Handling, Reading&Writing CSV data from Java.

Session 3 - 4

JUPAI 3 & 4 : Use Java Functional APIs

Usage of Java common logic operators to calculate several statistical characteristics over the dataset.
Use Java data structures to extract information from dataset.

Skills

Java Stream APIs, Map & Reduce operations.



Session 5 - 6

JUPAI 5 & 6: Dataset preparation

The goal of this lecture is to prepare dataset to convert all non-numerical values so that a machine learning algorithm can use this dataset.

Skills

String indexer, Unit testing

Session 7

JUPAI 7: Integrate a machine learning library with maven

Convert the project to a maven project, then include some libraries like Spark using maven.

Skills

Maven, Using external APIs.

Grading

Project **100%**

Policies

- I expect you to turn-in your reports on time to receive proper credit/grade.
- Any work submitted must be your own.
- I expect everyone to contribute equally to group assignments
- Attendance in every class is expected and class participation and discussion are strongly encouraged.
- Late work will not be accepted unless prior arrangements have been made directly with me.
- Cases will be decided on an individual basis.

Good Luck!