

Assignment---Week 6

Time: 2:00-3:50 PM 15/10/2021

Location:505/507

Class: Grade 2020, Computer Science (ANU Joint Program)

Deadline: 23:59 PM 29/10/2021(Temporarily)

Objectives:

1. Define your own class and create some objects
2. Object-Oriented application using a UCI machine learning dataset
3. Develop with Eclipse and try to use third-party libraries
4. How to import and use more Java APIs.
(java.util.ArrayList ,java.lang.String,java.util.Comparator
java.util.Set java.util.HashMap……)
5. A raw Java Application to implement a regression or classification Demo (Optional)
6. leetcode problems to improve your basic skills

Description:

1. Leetcode 349 (Required) and 350(Optional)

2. Implement a Java ML application(part required)

Dataset weblink:

- (1) Open and visit UCI machine learning website

<http://archive.ics.uci.edu/ml/datasets.php>

UCI Machine Learning Repository

Center for Machine Learning and Intelligent Systems

Check out the beta version of the new UCI Machine Learning Repository we are currently testing! [Contact us](#) if you have any issues, questions, or concerns. [Click here to try out the new site.](#)

Browse Through: 396 Data Sets

Name	Data Types	Default Task	Attribute Types	# Instances	# Attributes	Year
UCI 2.4 GHz Indoor Channel Measurements	Multivariate	Classification	Real	7840	5	2018
UCI 3D Road Network (North Jutland, Denmark)	Sequential, Text	Regression, Clustering	Real	434874	4	2013
UCI 3W dataset	Multivariate, Time-Series	Classification, Clustering	Integer, Real	1984	8	2019
UCI A study of Asian Religious and Biblical Texts	Multivariate, Text	Classification, Clustering	Integer	590	8265	2019
UCI Abscisic Acid Signaling Network	Multivariate	Causal-Discovery	Integer	300	43	2008

- (2) Download Algerian Forest Fires Dataset Data Set

<http://archive.ics.uci.edu/ml/datasets/Algerian+Forest+Fires+Dataset++>

Machine Learning Repository

Center for Machine Learning and Intelligent Systems

Algerian Forest Fires Dataset Data Set

Download: [Data Folder](#), [Data Set Description](#)

Abstract: The dataset includes 244 instances that regroup a data of two regions of Algeria.

Data Set Characteristics:	Multivariate	Number of Instances:	244	Area:	Life
Attribute Characteristics:	Real	Number of Attributes:	12	Date Donated	2019-10-22
Associated Tasks:	Classification, Regression	Missing Values?	N/A	Number of Web Hits:	29309

Source:

- (3) Define a class to abstract each record and create different object to describe the records (required)

a. dataset means Belgia Region Dataset

b. attributes containing null values are ok (From day to FFMC)



c. sort all record objects depending on RH or FFMC column

(4) Choose a machine learning algorithm to implement this application (Classification, Regression) (Optional)

a. Try to use a Machine Learning algorithm to implement this classification. (by Java Programming)

Application implementation requirements:

- (1) Show your sorting results in console **or** write in a file
- (2) Read data from dataset (you can change dataset file format from csv to txt, then read data or read csv file based on third-party libraries)

Application coding Requirements:

- (1) Separate your code in different class file
- (2) Encapsulate your class with effective variables and methods in one class.

Java APIs help link:

java.util.Comparator and Comparable interface.

Link: <https://www.cnblogs.com/mrnx2004/p/11794219.html>

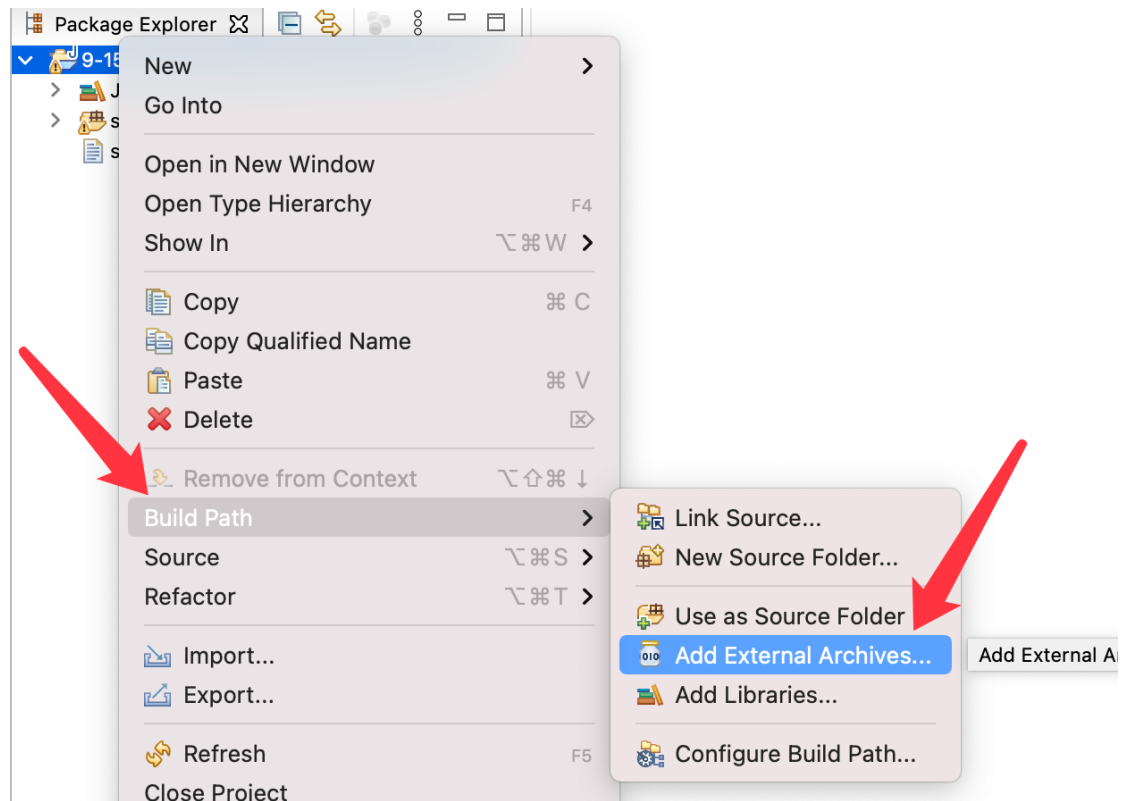
Third-Party libraries:(Strongly Recommended)

How to use them:

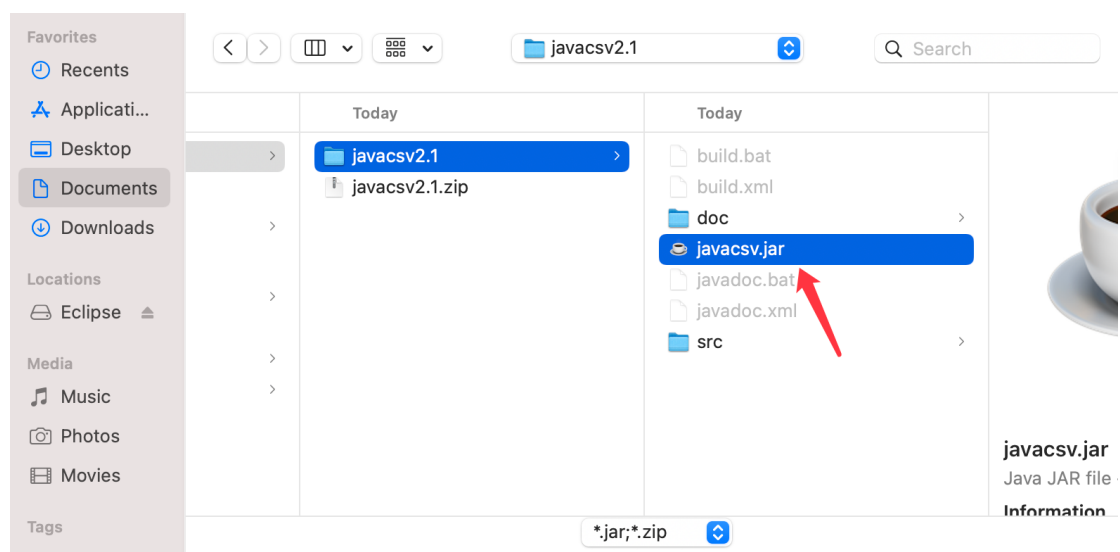
(1) Add *.jar libraries to your project referenced libraries

Step1: unzip javacsv2.1.zip to you local disk

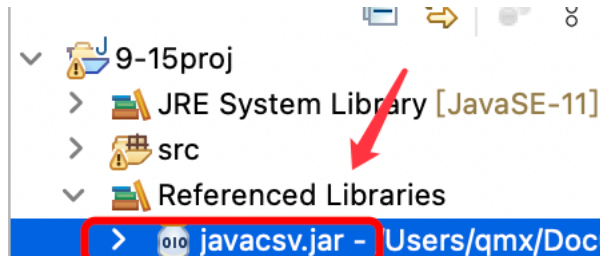
Step2:



Step 3: Add csv.jar into your project



Step4: Project structure is as follows:



Step 5: Use third-party API to read csv file data

API reference is : <http://javacsv.sourceforge.net/>

(2) Maven dependencies

Introduction is probably presented in chapter10

You can visit some help websites or blogs to get all

Weblink:

<https://www.cnblogs.com/bnuvincent/p/6940795.html>

Assignment upload requirements: (Important)

(1) Copy 1' s **accepted**(no syntax errors) java source code to the input box of Chaoxing(**with accepted image**)

(2) Copy 2' s different **.java files code** to the input box of Chaoxing(**with output image**)

Note:

Clear and Clean code is important

Comments are necessary---all in English

Avoid Plagiarism