

Project 3 Instructions: Due Saturday October 28

- 1) Submit your USB on time just before the class starts
 - a. USB should be labeled outside by your full name
 - b. The source code is stored in folder **YourLastNameInitialFirstNameP3**
 - c. Each class should begin with comments including
Your name, Date and Description of the class
 - d. Source code must be checked the open and closed curly brackets.
- 2) Instructor will compile and execute your classes via Terminal
(You must be careful to make sure that your classes will be compiled by javac in Terminal) --- If the compilation is failed, the grading process will be stopped.
- 3) Tasks: Extend and modify Project1 to do Quick Sort on a sequence Fractions
 - a. Install Quick Sort into Project 1. Run to test.
 - b. Bring the class Fraction into the same folder for Project3.
 - c. Modify a) and b) to allow to sort on a sequence of fractions.Note: All classes except Test, you need to label all components such as attributes, global variables, constructors, and methods.
- 4) Input/output:
 - a. Input the sequence of fractions can be done via keyboard or a string in the main program (Test). Fractions are separated by one or more spaces. Each fraction can be an integer (e.g. 15) or in 2 integers separated by slash '/' (e.g. 11/2)
 - b. Output is a detailed work of QuickSort. (See a DEMO in Practices.)

Original string = " 5/10 0/9 5/1 3 8/8 7/10 2 "

1. Given: array = **5/10 0/9 5/1 3 8/8 7/10 2**

2. Goal: To sort using the algorithm QuickSort

3. Process:

1. Begin with subArray with Left= 0, right=6::

[1/2], 0, 5, 3, 1, 7/10, **[2]**

2. Do partition to find index of **Cut =5**

1/2, 0, 2, 7/10, 1, **[3]**, 5

1. Begin with subArray with Left= 0, right=4::

[1/2], 0, 2, 7/10, **[1]**, 3, 5

2. Do partition to find index of **Cut =4**

1/2, 0, 1, 7/10, **[2]**, 3, 5

1. Begin with subArray with Left= 0, right=3::

[1/2], 0, 1, **[7/10]**, 2, 3, 5

2. Do partition to find index of **Cut =1**

0, **[1/2]**, 1, 7/10, 2, 3, 5

1. Begin with subArray with Left= 1, right=3::

0, **[1/2]**, 1, **[7/10]**, 2, 3, 5

2. Do partition to find index of **Cut =3**

0, 1/2, 7/10, **[1]**, 2, 3, 5

1. Begin with subArray with Left= 1, right=2::

0, **[1/2]**, **[7/10]**, 1, 2, 3, 5

2. Do partition to find index of **Cut =2**

0, 1/2, **[7/10]**, 1, 2, 3, 5

1. Begin with subArray with Left= 5, right=6::

0, 1/2, 7/10, 1, 2, **[3]**, **[5]**

2. Do partition to find index of **Cut =6**

0, 1/2, 7/10, 1, 2, 3, **[5]**

4. Answer = 0, 1/2, 7/10, 1, 2, 3, 5