Lab7: Quicksort

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Description

This lab is designed to give you practice working with quicksort. This is an individual assignment; you may not share code with other students.

Specification

Overview

Your task is to implement quicksort with a cutoff to insertion sort for subarrays with less than M elements, and empirically determine the value of M for which quicksort runs fastest in your computing environment to sort random arrays of 10^5 integers. Test and compare running time for M from 0 to 30.

Preliminary

Download the zipped project archive — **Lab 7.zip**, and import it into your IDE as an existing project.

Open the quicksort package and run the `QuicksortTest` class. Note that the `testQuicksort` should fail — you will fix this later.

Your Job

You need to complete the following methods in the `Quicksort` class:

- `sort` method : to sort the unsorted input array with M = 5 and return the sorted result.
- `main` method : to print running time for M from 0 to 30 for each value of M to sort random arrays of 10^5 integers. Before each sort, you should fill the input array with new elements.

Test

The `TestQuicksort` class tests your `sort` method. If you have successfully implemented the `sort` method, this class will run without errors.

Submission

Deadline: In class / 20 Nov, 2019 18:00, any uploads after 22 Nov, 2019 18:00 will get **ZERO** points.

Create a zip file named **YourStudentID.zip** that contains your code project and **upload your zip file to the FTP server**.