

# COMP7106 Big Data Management

## Assignment 3 – Top-k queries

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### 1. Project Structure

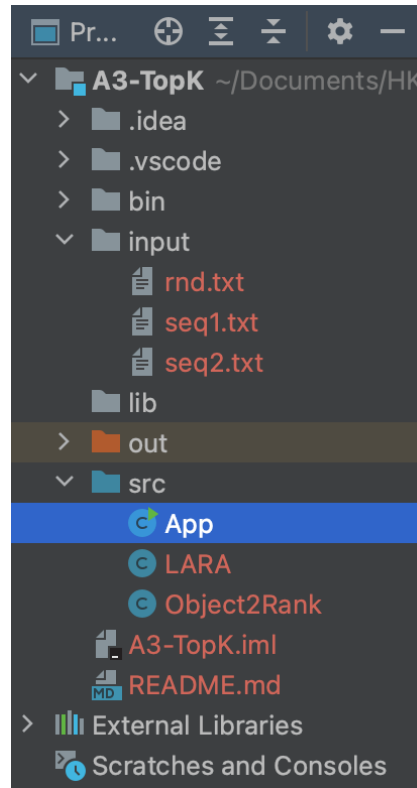


Figure 1.1 project structure

“/src” is the folder that contains the source code files.

“/input” is the folder where you can put the input files: seq1.txt, seq2.txt and rnd.txt.

### 2. Run the Program

To run different k of the program using command-line arguments, I have saved three configurations (Figure 2.1) for the program running in *IntelliJ IDEA*.

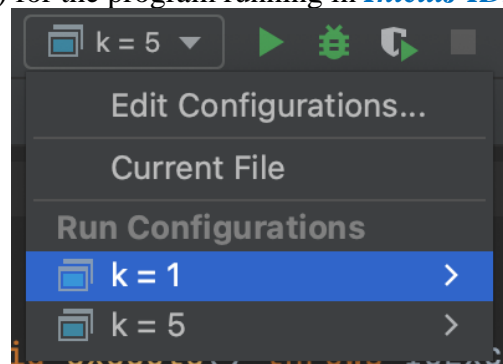


Figure 2.1

a.  $k = 1$

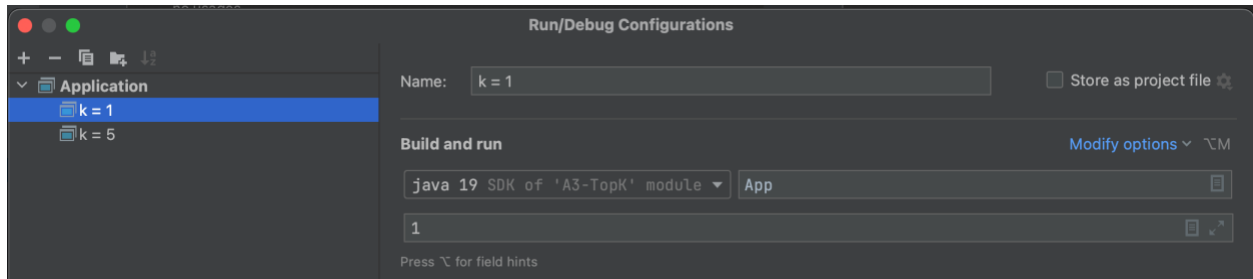


Figure 2.2  $k = 1$

b.  $k = 5$

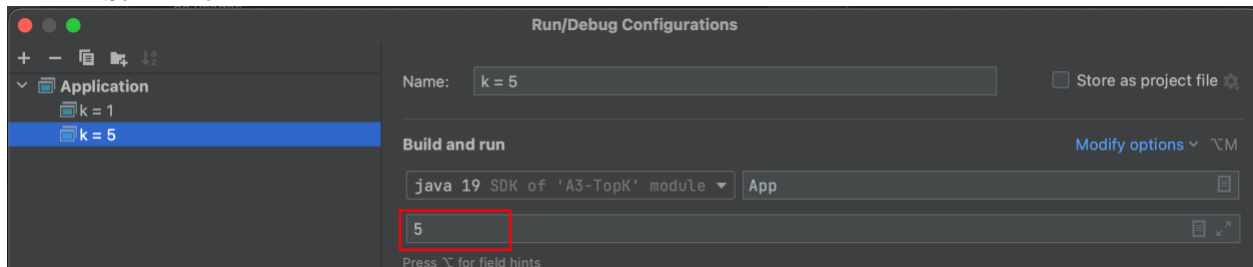


Figure 2.3  $k = 5$

### 3. Core Methods of the Classes

a. **Object2Rank.java**

Used to represent the polygon objects.

Methods	Description
<code>public int compareTo(Object2Rank o)</code>	Override the compareTo method of the Comparable class. Comparing these objects according to the score, if the score is the same, comparing to the last update time.

b. **LARA.java**

A data structures to store all the polygons.

Methods	Description
<code>private Object2Rank putObj2TopK(Object2Rank o)</code>	Put the current object to the priority queue if the size is less than $k$ or $o.score$ larger than the peek score of the priority queue.
<code>public void execute()</code>	Execute the LARA algorithm, and print the top- $k$ query result.