

LAB 02: SEARCHING AND SORTING ALGORITHM

1 In-class

Implementation

- Implement the following algorithm (ascending) on a given integer array:
 - Sequential Search
 - Sequential Search (with flag)
 - Binary Search
 - Bubble Sort
 - Selection Sort
 - Insertion Sort
 - Exchange Sort

2 Homework

1. Everyday, Mr.Rogers buys k lottery tickets, which contain 10 digits. The Lottery Prize is given as follow:

- Special prize: 10,000,000/ each. When all 10 digits of a ticket match the result.
- First prize: 5,000,000/ each. When last 9 digits of a ticket match the result.
- Second prize: 2,000,000/ each. When last 8 digits of a ticket match the result.
- Third prize: 1,000,000/ each. When last 7 digits of a ticket match the result.
- Consolation prize: 500,000/ each. When last 6 digits of a ticket match the result.

Given the *Tickets.txt* file:

- 1st line: integer k , demonstrate the number of tickets Mr.Rogers has bought.
- Next k lines: each line is a 10-digit code, demonstrate 1 ticket Mr.Rogers has bought.

Fulfill the following requirements:

- (a) Read the *Tickets.txt* file, display the Lottery codes Mr.Rogers has bought, ascendingly. (use one of your learned Sorting Algorithm)
- (b) Allow user to input the Lottery result. Demonstrate how many prizes and how much money Mr.Rogers has won.

3 PREPARING YOUR SUBMISSION

Create a new folder and name it with your **Student ID**, e.g. 19127001. This folder includes

- **Code**: a sub-folder that contains your source code (*.cpp, *.h, etc.). Do not forget to delete all intermediate files.
- **Report** (if required): a sub-folder that contains your written report (*.pdf).

Zip the the folder (*.zip, *.rar) and submit it to Moodle.

For any kind of cheating and plagiarism, students will be graded 0 for the course. The incident is then submitted to the school and university for further review.