Assignment from the session of Nov 28th

# Due date

Saturday, Dec 3rd, 10:00 PM.

# Question 1:

1. Design a Divide-and-Conquer algorithm to solve the problem of [Merge k Sorted Lists](https://leetcode.com/problems/merge-k-sorted-lists). Code the recursive version.
2. Find a bottom-up order of subproblems and code the bottom-up version of the above top-down solution.

# Question 2:

1. Apply the mergesort algorithm to solve the problem [Sort List](https://leetcode.com/problems/sort-list) and code the recursive solution.
2. Find a bottom-up order of subproblems and code the bottom-up version of the above top-down solution.
3. Partition the list into the minimal number of contiguous sequences and apply the solution of Question 1b (bottom-up of merging k sorted lists).

# Question 3:

1. Implement the mergesort algorithm for the problem [Sort an Array](https://leetcode.com/problems/sort-an-array/)
2. Find a bottom-up order of subproblems and code the bottom-up version of the above top-down solution.
3. Partition the array into the minimal number of contiguous sequences (subarrays) and apply the solution of Question 2c.

# Mode of submission

Create a Google Drive folder named “Assignment 2022-11-28”. Add the following files to the folder.

1. One Google doc named “Report” having the non-code part for all the above 8 subquestions.
2. One CPP source code file like 1a.cpp and 3b.cpp for each subquestion to be uploaded in the Drive folder. Make sure the file names follow the format because a script does preliminary work including compiling and sanity checking.

Create a public link for your Assignment 2022-11-28 Drive folder. Fill out the following Google form and use the public link to the Drive folder in a question there.

<https://forms.gle/YFnPqaaiQm5LtVw68>

# Notes

1. Refer to the recording “2022-11-28 Merging K Sorted Lists - Sort List - Sort an Array.mp4” in case you don’t know the context of the questions.
2. Code only in C++. C++ is an essential language we mentioned at the beginning of the semester. You don’t have an excuse to not learn to code in C++.