Assignment 4

Due Date: March 27th, 2019
(No late submissions will be accepted)

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General Instructions

Each assignment has a written part and a programming part. For a written part, please write your answers in a pdf file, and for a programming part, follow the instructions below:

- Write your code in submission.cpp
- TA will test your code with Visual Studio on Windows OS, so please write your code in the same environment.
- Obviously, you must NOT use a library like the Standard Template Library (STL)
- Submit only C ++ files, not the entire project
- You should modify the code in submission.cpp between

  `/* BEGIN_YOUR_CODE */`

  and

  `/* END_YOUR_CODE */`

You can add other helper functions outside this block if you want.

Written Problems

Do the following problems in the textbook and note that you need to show your work (i.e., not just the answer) for exercises.

Problem 1 [2 points]

Do the exercise *R-6.1* in the textbook.

Problem 2 [2 points]

Do the exercise *R-6.3* in the textbook.

Problem 3 [2 points]

Do the exercise C-*6.9* in the textbook.

Problem 4 [3 points]

Do the exercise C-*6.15* in the textbook.

Problem 5 [3 points]

Do the exercise C-*6.18* in the textbook.

Programming Problems

Problem 1. P-*6.1* in the textbook.

Problem 1a [2 points]

Implement the vector ADT by means of the simple array-based implementation in *Vector* class.

Problem 1b [3 points]

Implement the vector ADT by means of an Extendable Array used in a Circular fashion (EAC) in *EAC_vector* class, so that insertions and deletions at the beginning and end of the vector run in constant time.