

Data Structure: Homework for Arrays and Linked Lists

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- Deadline: 2023/10/31(Thu) 23:00
- Format: Submit your source code (you can submit with .h, .cpp files or .ipynb file) to the course e-learning platform. Your source code should include main function.

1 Programming assignment

To demonstrate the correctness of your code, ensure that your source code includes test cases within the main function.

1. (25 points) Add a function `size()` to our C++ implementation of a singly link list. In the main function, use a case to show the size value of an example of a singly link list.
2. (25 points) Give a fully generic implementation of the doubly linked list data structure of Section 3.3.3 (or of our lecture slide) by using a templated class.
3. (25 points) Give a more robust implementation of the circularly linked list data structure of Section 3.4.1 (of our lecture slide), which throws an appropriate exception if an illegal operation is attempted.
4. (25 points) Write a short C++ function to count the number of nodes in a circularly linked list.