Linked List (II): Singly Linked List

CSCD 300 – Data Structures

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Goal

In the previous lecture, we have demonstrated the foundational mechanism that the programming language provides to directly access a location in the RAM. By using that mechanism, we are able to link different objects together.

In this lecture, we will show the construction and various operations of a collection of sequentially linked objects of the same data type, which collectively is call a linked list.

The version of the link list that we will be discussing today has all its objects (also called linked list nodes) linked together in one direction, which thus is called singly linked list.
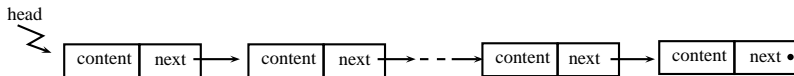
The teaching of today's lecture will be mainly using the attached Java source code to demonstrate the construction and various operations of an example singly linked list, which of course can also be implemented using other programming languages such as C and C++.

The tricks in dealing with linked lists

The very important tricks in dealing with linked lists are:

- You need to be careful with edge conditions, meaning you need to consider all different possible settings in the link list that you are playing with.

- Make sure you do not lose the referece to a node that you still need to visit later; otherwise the node will be lost like a floating object in the outspace where there is no gravity that can help you to grab it back.