

Linked Lists

Lecture 06

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Adapted partially from Data Structures and Algorithms in Java, M.T. Goodrich, R. Tamassia and M. H. Goldwasser, Sixth Edition, Wiley; Data Structures and Algorithms in C++, Adam Drozdek, 4th Edition, Cengage Learning



Application of Doubly Linked Lists

- Image viewer
 - Previous and next images are linked and can be accessed by the next and previous buttons
- Previous and next page in a web browser
 - We can access the previous and next URL searched in a web browser by pressing the back and next buttons since they are linked as a linked list
- Music Player
 - Songs in the music player are linked to the previous and next songs.
 - So you can play songs either from starting or ending of the list



Applications of Circular Linked Lists

- Useful for implementation of a queue
 - No need to maintain two pointers for the front and rear if we use a circular linked list.
 - maintain a pointer to the last inserted node and the front can always be obtained as next of last
- Useful for OS running applications
 - When multiple applications are running on a PC, it is common for the operating system to put the running applications on a list and then cycle through them, giving each of them a slice of time to execute, and then making them wait while the CPU is given to another application
 - It is convenient for the operating system to use a circular list so that when it reaches the end of the list it can cycle around to the front of the list