Activity about Singly Linked List

1. What is a singly linked list, and how does it differ from an array?
   - A linked list is a linear data structure consisting of a sequence of nodes. Unlike arrays, linked lists do not require contiguous memory allocation. Instead, each node is dynamically allocated its own memory space. Nodes are connected through references, forming the linked structure.

2. When would you prefer a linked list over an array, and vice versa?
   - A linked list offers advantages over arrays, such as efficient insertion and deletion in O(1) time (when a pointer to the target is available), while arrays require O(n) time due to element shifting. Linked lists also simplify queue and deque implementation and can be more space-efficient when the number of elements is unknown. Additionally, circular linked lists are ideal for applications like CPU round-robin scheduling. However, arrays excel with random access in O(1) time, are cache-friendly due to contiguous memory storage, and have less overhead since they don't require extra pointers. Arrays are also easier to use and more commonly supported in programming languages.

3. How are linked lists used in real-world applications (e.g., browser history, undo functionality)?
   visited pages, enabling users to navigate forwards and backward easily. They are also used in implementing undo/redo operations in text editors or other applications.

4. Cite your reference/s
   - Olanrewaju, S. (2024, March 18). *What is a Linked list? Types of Linked List with Code Examples*. freeCodeCamp.org. https://www.freecodecamp.org/news/what-is-a-linked-list-types-and-examples/#:~:text=A%20linked%20list%20is%20a%20linear%20data%20structure,are%20connected%20through%20references%2C%20forming%20the%20linked%20structure.

- GeeksforGeeks. (2025, July 23). *Linked List vs Array*. GeeksforGeeks. https://www.geeksforgeeks.org/dsa/linked-list-vs-array/
- FyndAcademy. (2024, December 27). *Linked List in a Data Structure: Types and Applications in 2025*. https://www.fynd.academy/blog/application-of-linked-list-in-data-structure#:~:text=Doubly%20linked%20lists%20are%20used%20in%20web%20browsers,undo%2Fredo%20operations%20in%20text%20editors%20or%20other%20applications.