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| **Midterm Skill Test** | |
| **Course Code:** CPE201L | **Program:** BSCPE |
| **Course Title:** Data Structures and Algorithms | **Date Performed:** September 06,2025 |
| **Section:** 2A | **Date Submitted:** September 6, 2025 |
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| 1. **Objectives** | |
| Implement a singly-linked list of odd integers from 1 to 30 and do the following operations   1. Display all data 2. Append a node 3. Delete a node | |
| **2. Discussion** | |
| A singly linked list is a linear data structure in which elements, called nodes, are connected using pointers. Each node consists of two parts: the data field, which stores the value, and the next field, which stores the reference to the next node. Unlike arrays, linked lists do not require contiguous memory locations, making insertion and deletion operations more efficient. In this activity, the linked list was used to store odd integers from 1 to 30. | |
| **3. Materials and Equipment** | |
| Google Colab for Python coding | |
| **4. Procedure** | |
| 1. Created a Node class  2. Defined a LinkedList class  3. Manually created and linked nodes containing numbers from 1 to 30.  4. Constructed another linked list using a loop to append only odd numbers from 1 to 30.  5. Displayed the initial linked list to verify correctness.  6. Performed an append operation by adding a new node (value 30, as shown in the code).  7. Performed a delete operation by removing a node containing the value 15.  8. Demonstrated deletion of the head node (value 1).  9. Run the code | |
| **5. Output** | |
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| **6. Conclusion** | |
| In this activity, a singly linked list was successfully implemented to store odd integers from 1 to 30. The operations of displaying, appending, and deleting nodes were carried out effectively, showing how data can be managed dynamically in a linked list. The activity highlighted that linked lists are more flexible than arrays since they allow efficient insertion and deletion without the need for shifting elements. | |
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