**Name: Ahtisham Bin maqsood**

**Roll No: 055**

**Section: 3A**

**DSA LAB Task 7**

**What we are doing:**

* Creates an instance of DoublyLinkedList.
* Demonstrates various insertion methods by adding nodes at different positions.
* Calls the display methods to show the list in both forward and reverse order.

**How doing :**

* **data**: The value stored in the node.
* **next**: Pointer to the next node.
* **prev**: Pointer to the previous node.

These representing this is a doubly link list.

* + insertFirst(int data): Adds a new node with the given data at the beginning of the list. Updates pointers accordingly.
  + insertLast(int data): Adds a new node with the given data at the end of the list. Updates pointers accordingly.
  + insertNth(int data, int position): Inserts a new node with the given data at a specified position. Handles invalid positions and updates pointers.
  + insertCenter(int data): Inserts a new node with the given data in the center of the list using the slow and fast pointer technique. If the list is empty, it adds the node at the front,
* displayForward(): Displays the nodes in the list from head to tail, showing the data in each node.
* displayReverse(): Displays the nodes in the list from tail to head, showing the data in each node.

