

❖ Cycle Detection in Singly Linked List:

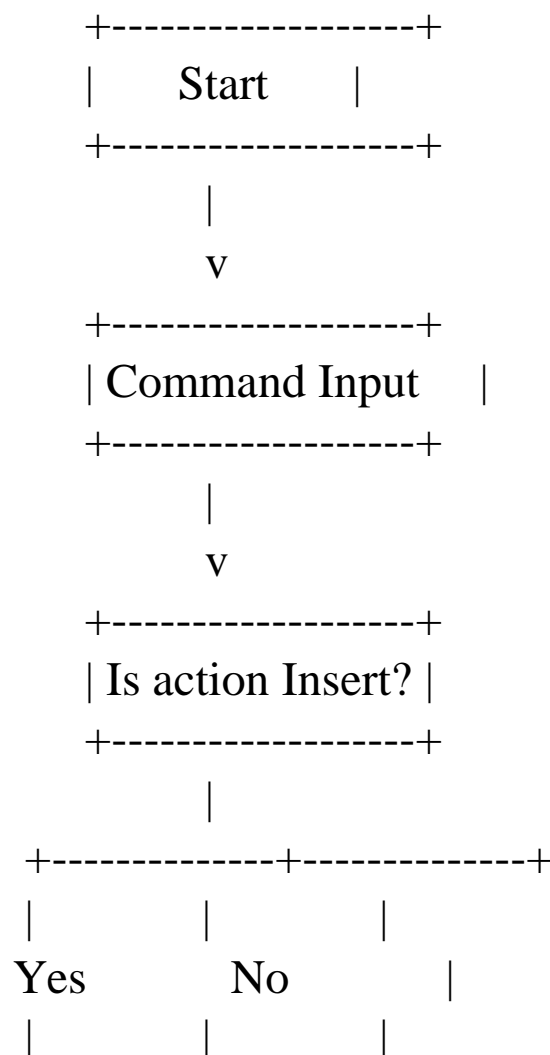
- Explanation:

The program allows users to insert integers into a singly linked list and checks for cycles using Floyd's Cycle Detection Algorithm. When inserting the values [34, 56, 89, 23, 78, 34], no cycle is created, as each node points only to the next. The final output confirms that there is no cycle detected in the linked list.

- Time Complexity and Space Complexity:

- $O(n)$ $O(1)$

- Flowchart:



	v		v		v
+	+	+	+	+	+
	Insert Value		Check for Cycle	End	
+	+	+	+	+	+
	v		v		
+	+	+	+	+	+
	Create New Node		Initialize Slow		
	With Value		and Fast Pointers		
+	+	+	+	+	+
	v		v		
+	+	+	+	+	+
	Is List Empty?		Move Slow by 1		
+	+	+	+	+	+
			+	+	+
	Yes No		Move Fast by 2		
			+	+	+
	v				
+	+	+		v	+
	Set Head		+	+	+
	To New Node		Is Slow == Fast?		
+	+	+	+	+	+
			Yes No		
			v v		
			+	+	
			Cycle Detected		
			+	+	

