# Dry Run / Trace of Operations

Operations Sequence:  
1. insertAtEnd(101)  
2. insertAtEnd(102)  
3. insertAtBeginning(200) // Critical patient  
4. insertAtPosition(150, 2)  
5. deleteFromBeginning()  
6. insertAtEnd(300)  
  
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Start with an empty list  
  
Step 1 – insertAtEnd(101):  
A new node with patient ID 101 is added at the end.  
NULL <- [101] -> NULL  
  
Step 2 – insertAtEnd(102):  
A new node with patient ID 102 is linked after 101.  
NULL <- [101] <-> [102] -> NULL  
Here,  
101.prev = NULL, 101.next = 102  
102.prev = 101, 102.next = NULL  
  
Step 3 – insertAtBeginning(200): (Critical patient)  
A new node with patient ID 200 is inserted at the start.  
NULL <- [200] <-> [101] <-> [102] -> NULL  
Relationships:  
200.prev = NULL, 200.next = 101  
101.prev = 200, 101.next = 102  
  
Step 4 – insertAtPosition(150, 2):  
A new node with patient ID 150 is inserted at the second position, between 200 and 101.  
NULL <- [200] <-> [150] <-> [101] <-> [102] -> NULL  
  
Step 5 – deleteFromBeginning():  
The first node (200) is removed from the list.  
NULL <- [150] <-> [101] <-> [102] -> NULL  
  
Step 6 – insertAtEnd(300):  
A new node with patient ID 300 is added at the end.  
NULL <- [150] <-> [101] <-> [102] <-> [300] -> NULL  
Connections:  
150.prev = NULL, 150.next = 101  
300.prev = 102, 300.next = NULL  
  
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Final Results (After Step 6):  
a) Patient ID at head: 150  
b) Patient ID at tail: 300  
c) Forward traversal (head → tail): 150 → 101 → 102 → 300  
d) Backward traversal (tail → head): 300 → 102 → 101 → 150