**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY, Kattankulathur**





**School of Computing**

**21CSC201J – Data Structures and Algorithms**

**Topic: Singly Linked List – Insertion at the Beginning and End**

**Activity: Fill the Missing Pseudocode**

**Algorithm to insert a new node VAL at the beginning**

* Step 1: IF AVAIL = NULL  
    Write **OVERFLOW**  
    Go to Step 7  
  [END OF IF]
* Step 2: SET NEW\_NODE = AVAIL
* Step 3: SET AVAIL = AVAIL → NEXT
* Step 4: SET NEW\_NODE → DATA = VAL
* Step 5: SET NEW\_NODE → NEXT = START
* Step 6: SET START = NEW\_NODE
* Step 7: EXIT

**Algorithm to insert a new node VAL at the end**

* Step 1: IF AVAIL = NULL  
    Write **OVERFLOW**  
    Go to Step 10  
  [END OF IF]
* Step 2: SET NEW\_NODE = AVAIL
* Step 3: SET AVAIL = AVAIL → NEXT
* Step 4: SET NEW\_NODE → DATA = VAL
* Step 5: SET NEW\_NODE → NEXT = NULL
* Step 6: SET PTR = START
* Step 7: Repeat Step 8 while PTR → NEXT != NULL
* Step 8: SET PTR = PTR → NEXT  
  [END OF LOOP]
* Step 9: SET PTR → NEXT = NEW\_NODE
* Step 10: EXIT