

❖ Add List:

- Explanation:

The problem involves adding two non-negative integers represented as linked lists, where each node contains a single digit, stored in reverse order (the least significant digit first). For example, the linked list  $[2 \rightarrow 4 \rightarrow 3]$  represents the number 342. The goal is to compute the sum of these two numbers and return the result as a new linked list in the same reverse order format. The solution requires handling carries appropriately during the addition of corresponding digits.

- Time Complexity and Space Complexity:

$$\circ \quad O(m+n) \qquad O(m+n)$$

- Flowchart:

[Start]

1

V

[Input Linked Lists (11, 12)]

1

V

[Initialize carry = 0, dummyHead, current]

1

V

```
[While (l1 != null OR l2 != null OR carry != 0)]
```

1

V

1

1

1

V

```

|           [Get val1 and val2]
|           |
|           v
|           [Calculate total]
|           |
|           v
|           [Update carry]
|           |
|           v
|           [Create new node with total % 10]
|           |
|           v
|           [Move current to current.next]
|           |
|           v
|           [Move l1 to l1.next if not null]
|           |
|           v
|           [Move l2 to l2.next if not null]
|           |
+-----+
|
v
[Return dummyHead.next]
|
v
[End]

```