

# *Data Structures*

## SLL Homework 2

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*Teaching, Training and Coaching since more than a decade!*

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# Problem #1: Delete with key

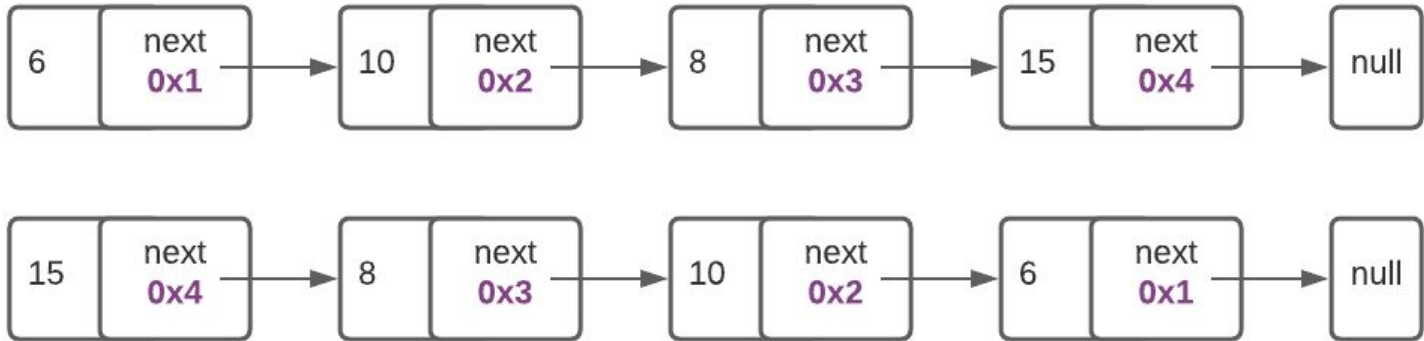
- Given a list, delete the first node with the given key value
- E.g. {1, 2, 3, 4, 2, 6}, key = 2  $\Rightarrow$  {1, 3, 4, 2, 6}
- `void delete_node_with_key(int value)`

## Problem #2: Swap each pair vales

- Given a list, swap each 2 consecutive values
- E.g.  $\{1, 2, 3, 4\} \Rightarrow \{2, 1, 4, 3\}$
- E.g.  $\{1, 2, 3, 4, 5\} \Rightarrow \{2, 1, 4, 3, 5\}$
- `void swap_pairs()`

# Problem #3: Reverse list nodes

- Given a list, reverse all its nodes (addresses)
- E.g. {1, 2, 3, 4, 5}  $\Rightarrow$  {5, 4, 3, 2, 1}
- void reverse()



## Problem #4: Delete even positions

- Given a list, delete all nodes at even positions (2, 4, 6, etc)
- E.g. {1, 2, 3, 4, 10}  $\Rightarrow$  {1, 3, 10}
- E.g. {1, 2, 3, 4, 5, 6}  $\Rightarrow$  {1, 3, 5}
- Note: positions NOT values
- `void delete_even_positions()`

## Problem #5: Insert to be sorted

- Implement: `void insert_sorted(int value)`
- It will always insert the value in position so that list is sorted
- Let's insert values: 10 2 30 4 1
- `insert(10) ⇒ {10}`
- `insert(2) ⇒ {2, 10}`
- `insert(30) ⇒ {2, 10, 30}`
- `insert(4) ⇒ {2, 4, 10, 30}`
- `insert(1) ⇒ {1, 2, 4, 10, 30}`

*“Acquire knowledge and impart it to the people.”*

*“Seek knowledge from the Cradle to the Grave.”*