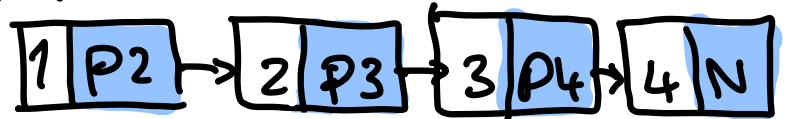# CSCI 104

- HW1
- Problem 4 - Linked List Recursion Tracing
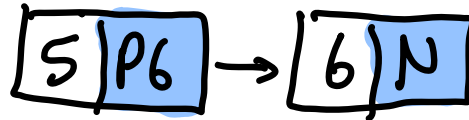 - Question a

```cpp
struct Node {
    int val;
    Node*  next;
};

Node* llrec(Node* in1, Node* in2)
{
    if(in1 == nullptr) {
        return in2;
    }
    else if(in2 == nullptr) {
        return in1;
    }
    else {
        in1->next = llrec(in2, in1->next);
        return in1;
    }
}
```

in 1

| 1 | P2 | → | 2 | P3 | → | 3 | P4 | → | 4 | N |

in 2

| 5 | P6 | → | 6 | N |

llrec (in1, in2)

else

in1 → next = P2 = llrec (in2, P2)

$\qquad$ in1 → next = in2

$\qquad$ return in1

llrec (in2, P2)

else

in2 → next = P6 = llrec (P2, P6)

$\qquad$ in2 → next = P2

$\qquad$ return in2

llrec (P2, P6)

else

P2 → next = P3 = llrec (P6, P3)

$\qquad$ P2 → next = P6

llrec (P6, P3)
else
P6 ->next = nullptr = llrec (P3, nullptr)

return P2

P6 ->next = P3

llrec (P3, nullptr)
else if

return P6

return P3

in 1

| 1 | in2 |

| 2 | P6 |

| 3 | P4 | → | 4 | N |

in 2

| 5 | P2 |

| 6 | P3 |
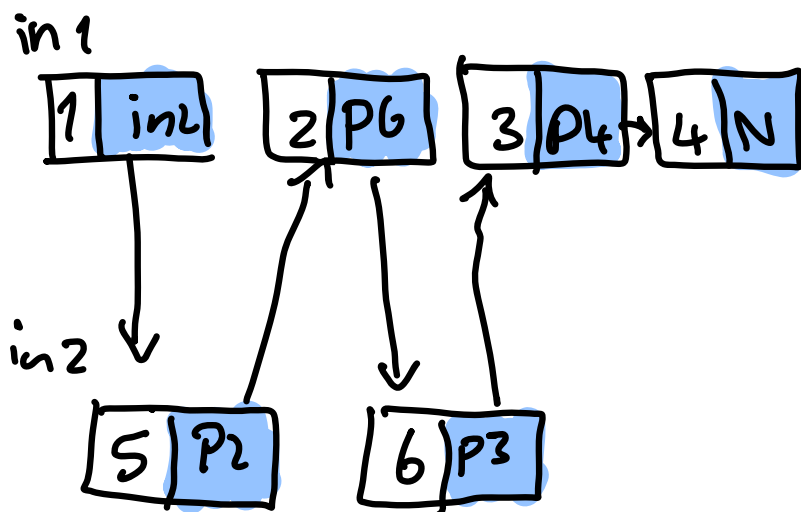
Question a: in1 is returned as : 1, 5, 2, 6, 3, 4

○ Question b

in 1

| nullptr |

in 2

| 2 | N |

llrec (in1, in2)
if

return in2

Question b: in2 is returned as : 2