

An abstract network diagram with nodes and edges, rendered in blue, red, and white, set against a dark blue background with a red curved border at the bottom left.

# COMP SCI 2201-7201

## Algorithm and Data Structure Analysis

### Skip Lists

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School of Computer Science

**make  
history.**

# Skip Lists

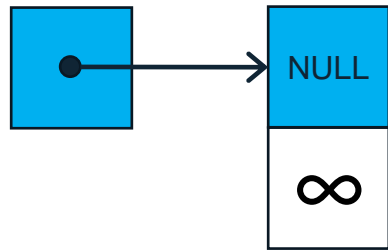
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Store the following 7 objects in a skip list



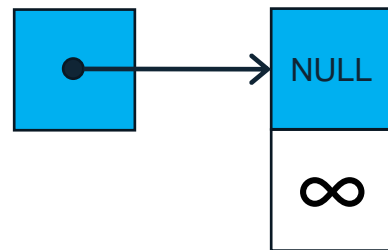
# Initially

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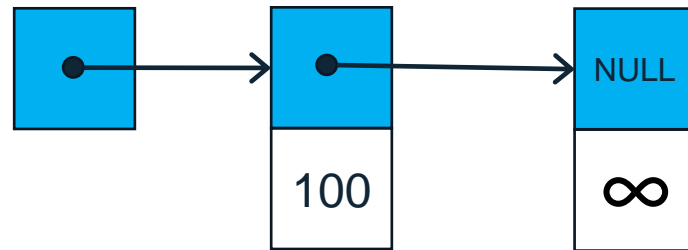
# Insert 100

---



# Insert 100

Insert node 100

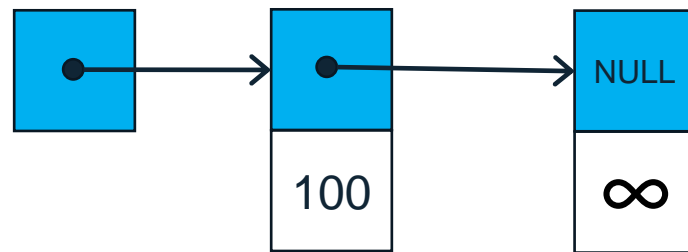


# Insert 100

Insert node 100

Flip a coin:

Head->Add layer and flip the coin again  
Tail -> Don't add layer

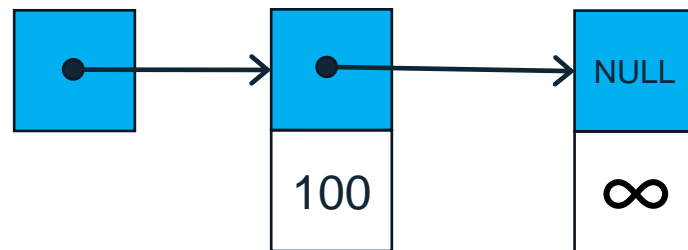


# Insert 100

Insert node 100

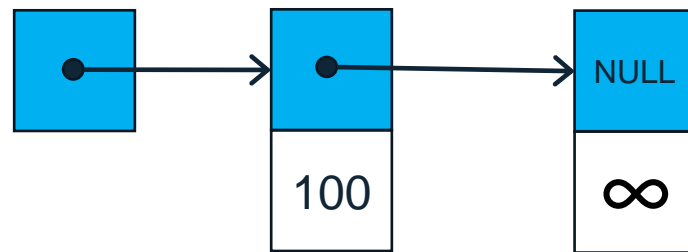
Flip a coin: 

Head->Add layer and flip the coin again  
Tail -> Don't add layer



# Insert 50

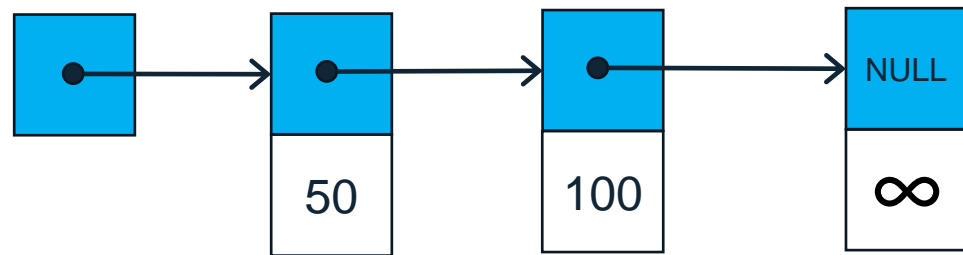
---





# Insert 50

Insert node 50

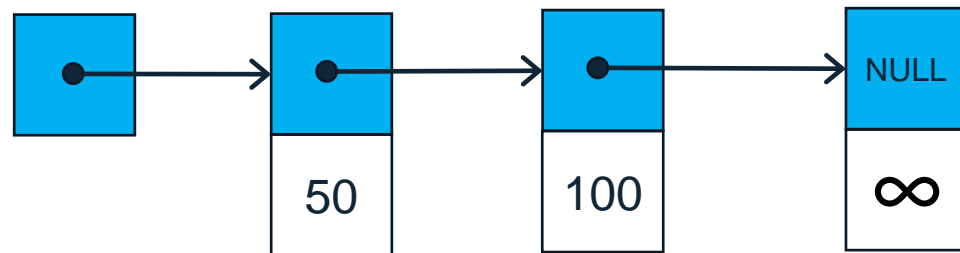


# Insert 50

Insert node 50

Flip a coin:

Head->Add layer and flip the coin again  
Tail -> Don't add layer



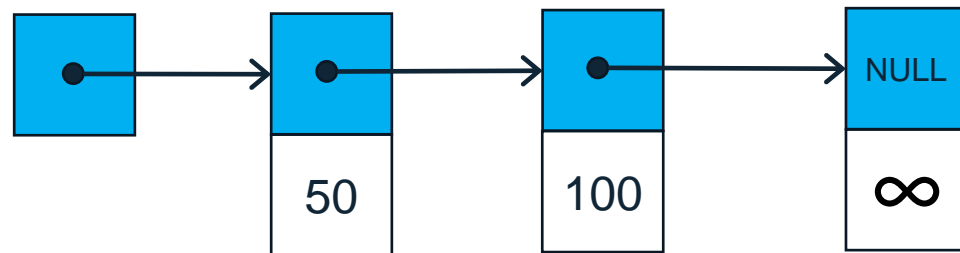
# Insert 50

Insert node 50

Flip a coin:



Head->Add layer and flip the coin again  
Tail -> Don't add layer



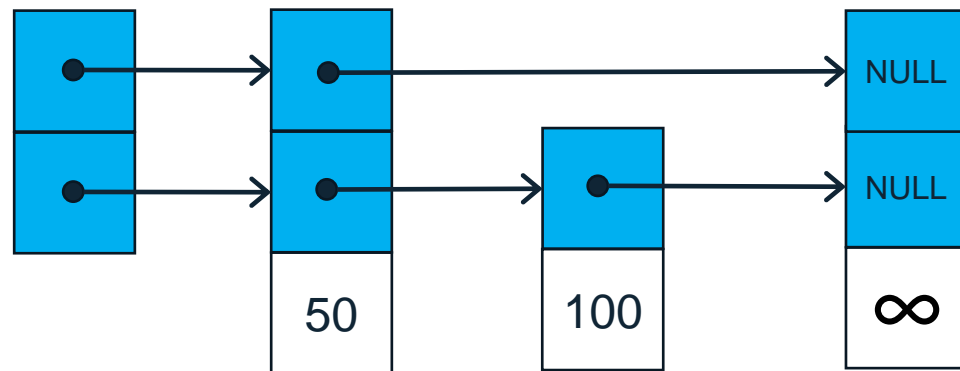
# Insert 50

## Insert node 50

## Flip a coin:



Head->Add layer and flip the coin again  
Tail -> Don't add layer



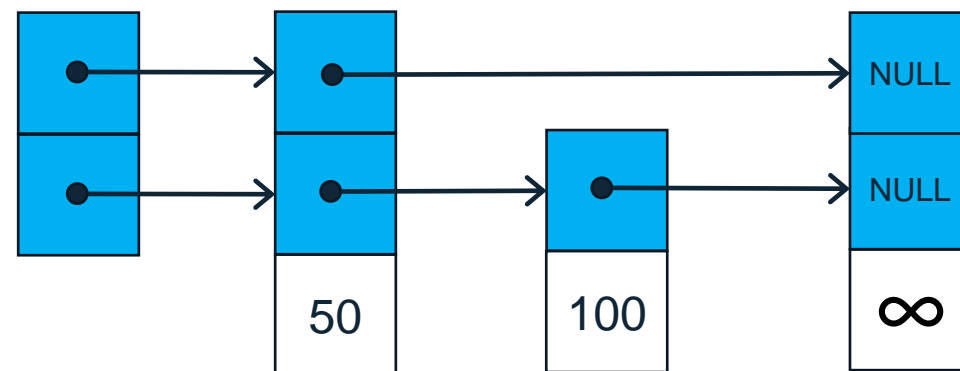
# Insert 50

Insert node 50

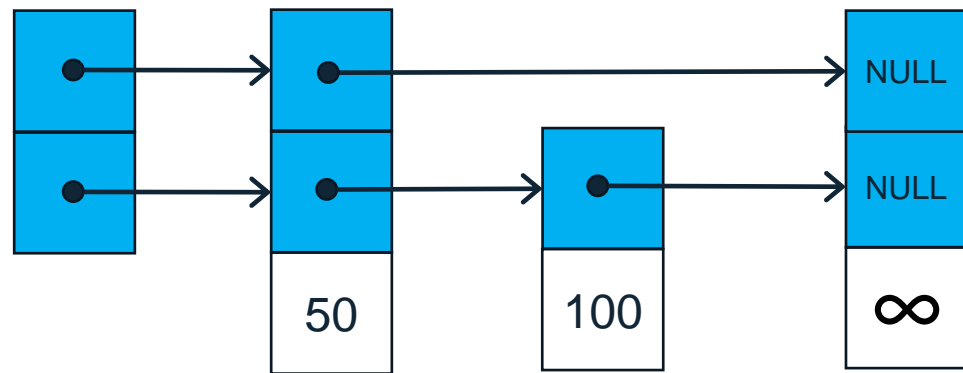
Flip a coin:



Head->Add layer and flip the coin again  
Tail -> Don't add layer

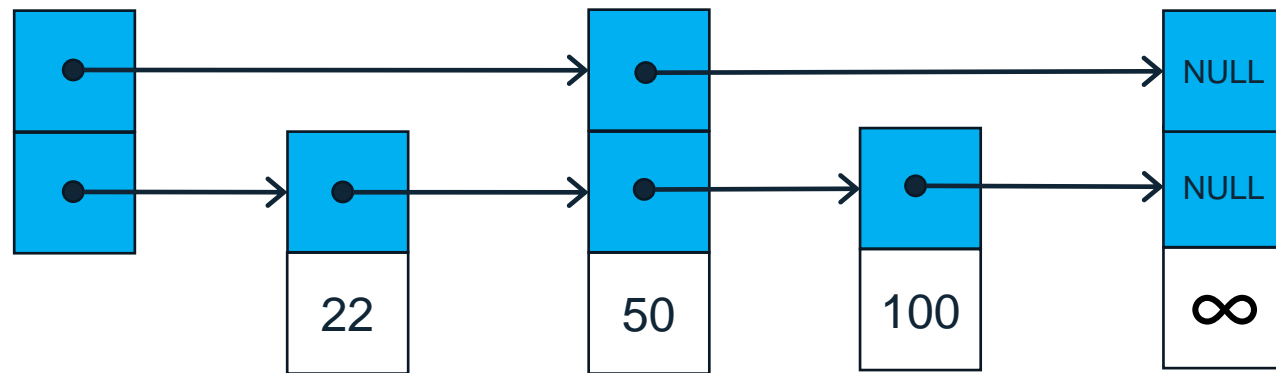


# Insert 22



# Insert 22

Insert node 22

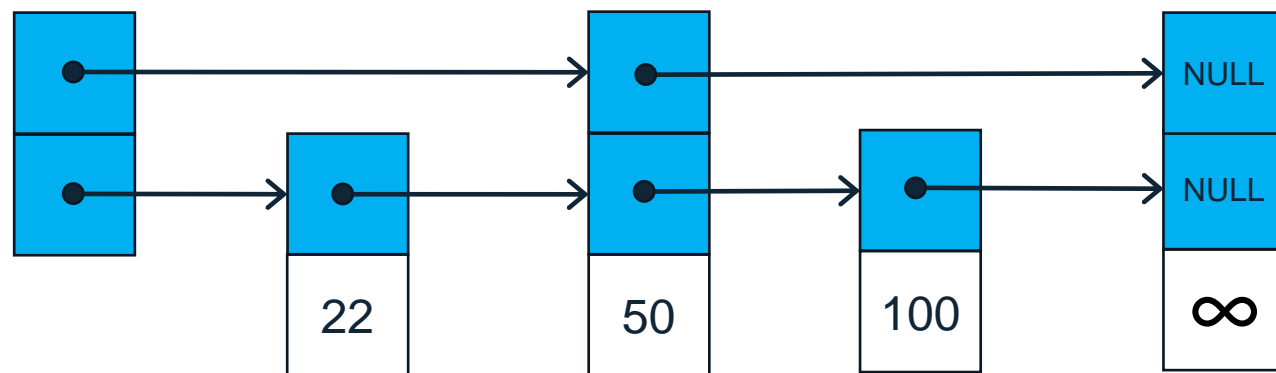


# Insert 22

Insert node 22

Flip a coin:

Head->Add layer and flip the coin again  
Tail -> Don't add layer



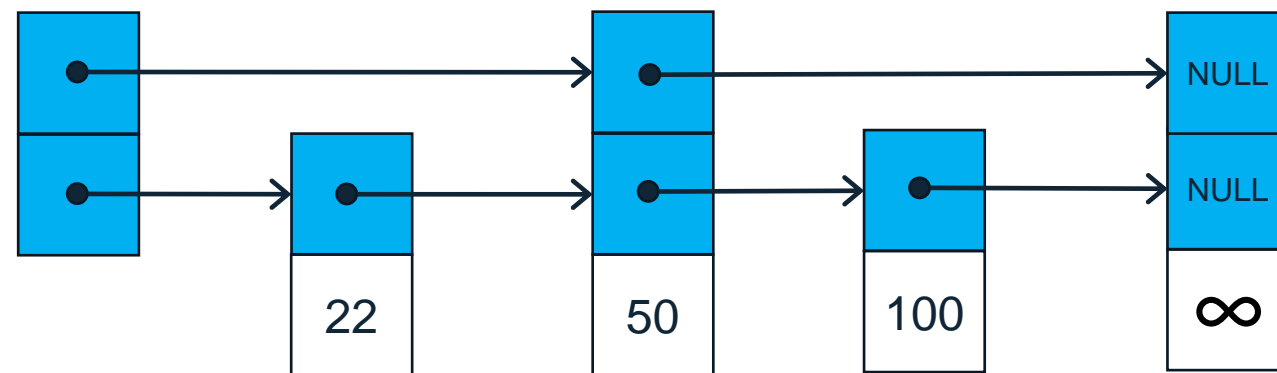


# Insert 22

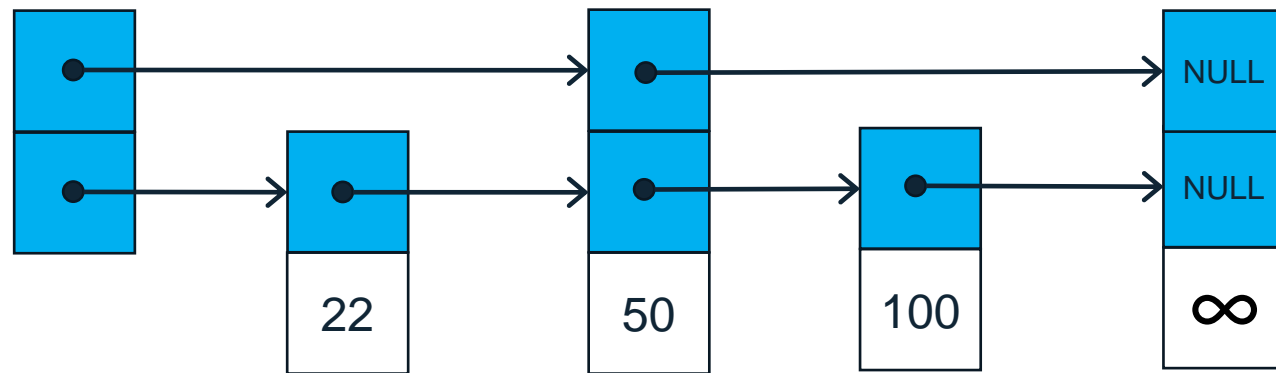
Insert node 22

Flip a coin: 

Head->Add layer and flip the coin again  
Tail -> Don't add layer

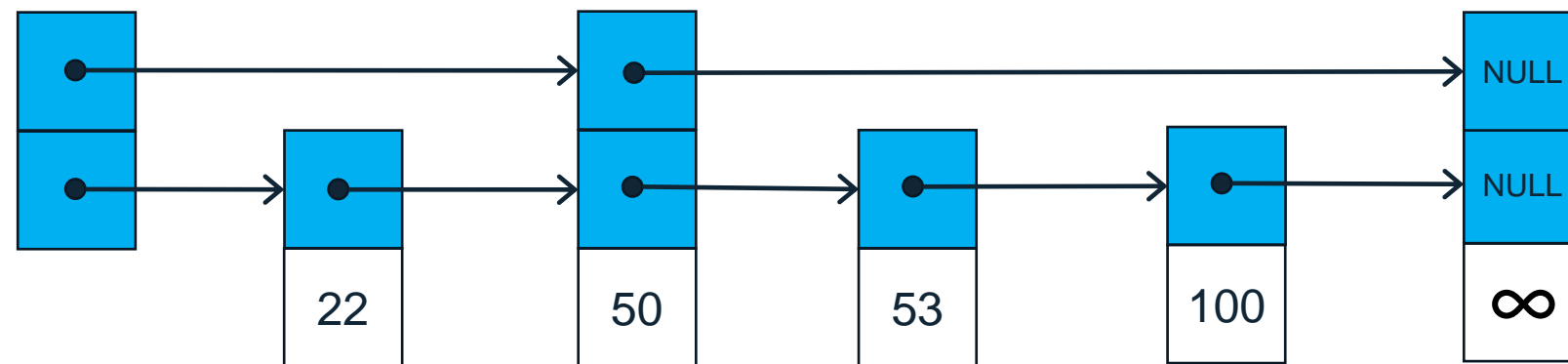


# Insert 53



# Insert 53

Insert node 53

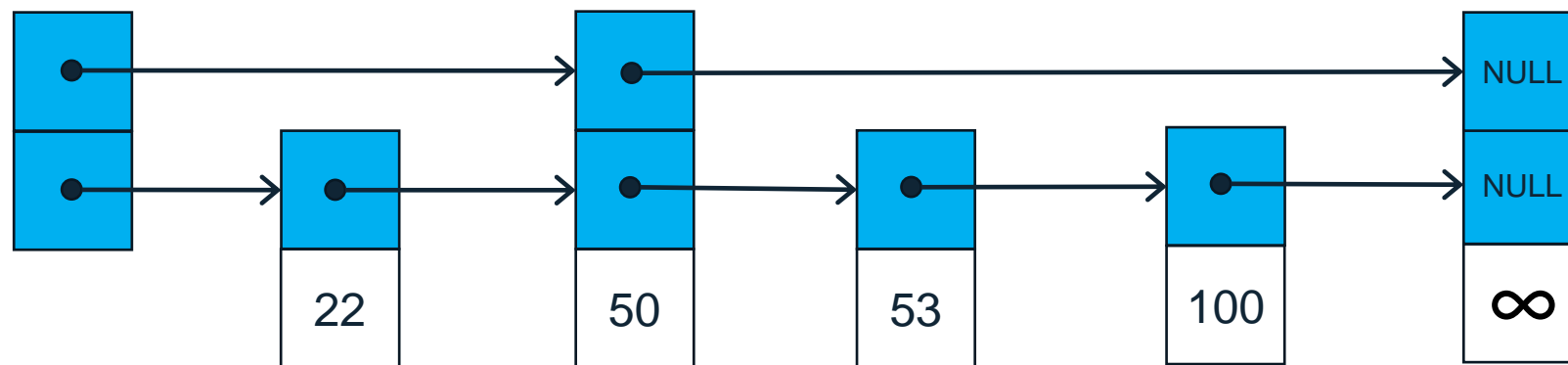


# Insert 53

Insert node 53

Flip a coin:

Head->Add layer and flip the coin again  
Tail -> Don't add layer



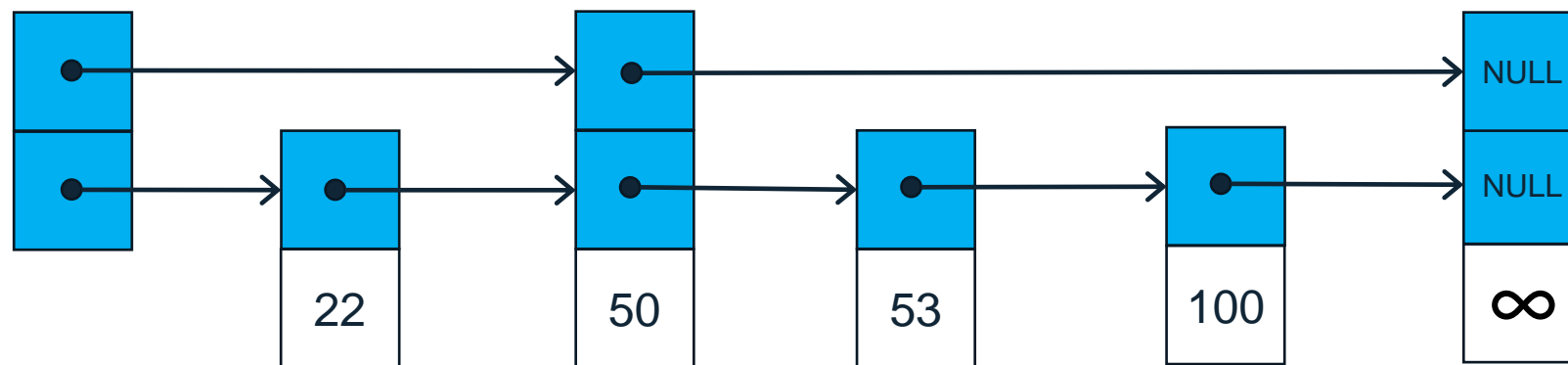
# Insert 53

Insert node 53

Flip a coin:



Head->Add layer and flip the coin again  
Tail -> Don't add layer



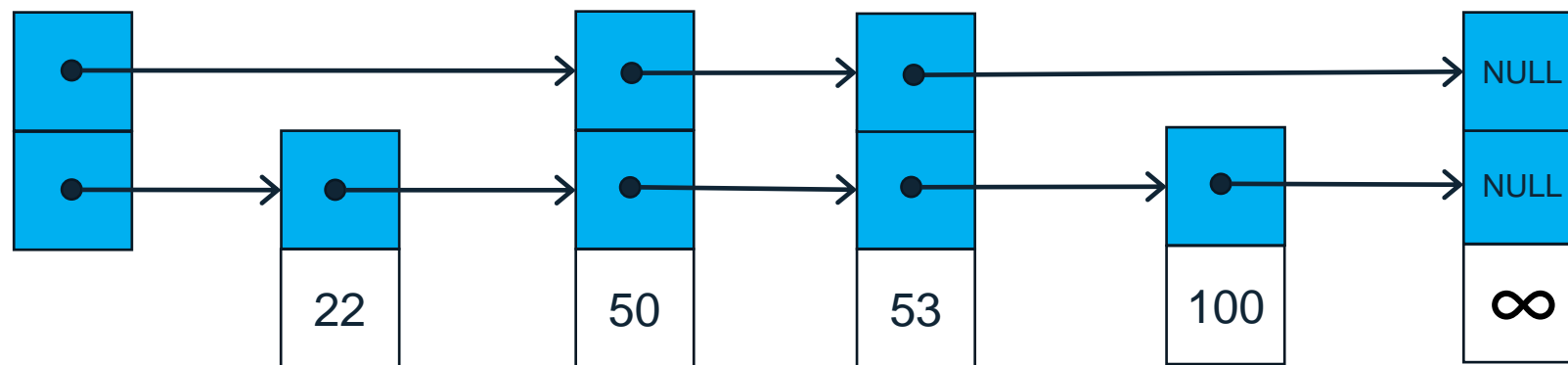
# Insert 53

Insert node 53

Flip a coin:



Head->Add layer and flip the coin again  
Tail -> Don't add layer



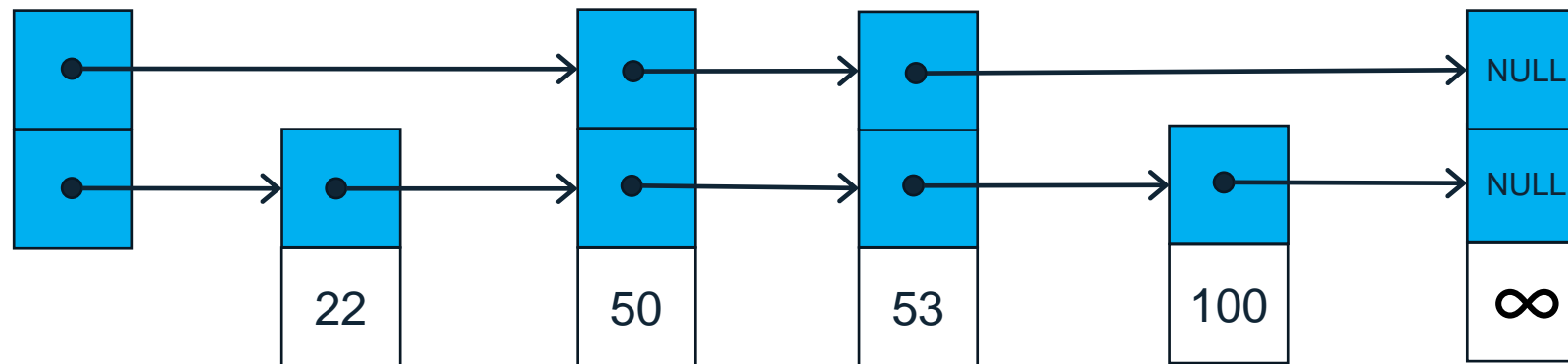
# Insert 53

Insert node 53

Flip a coin:



Head->Add layer and flip the coin again  
Tail -> Don't add layer



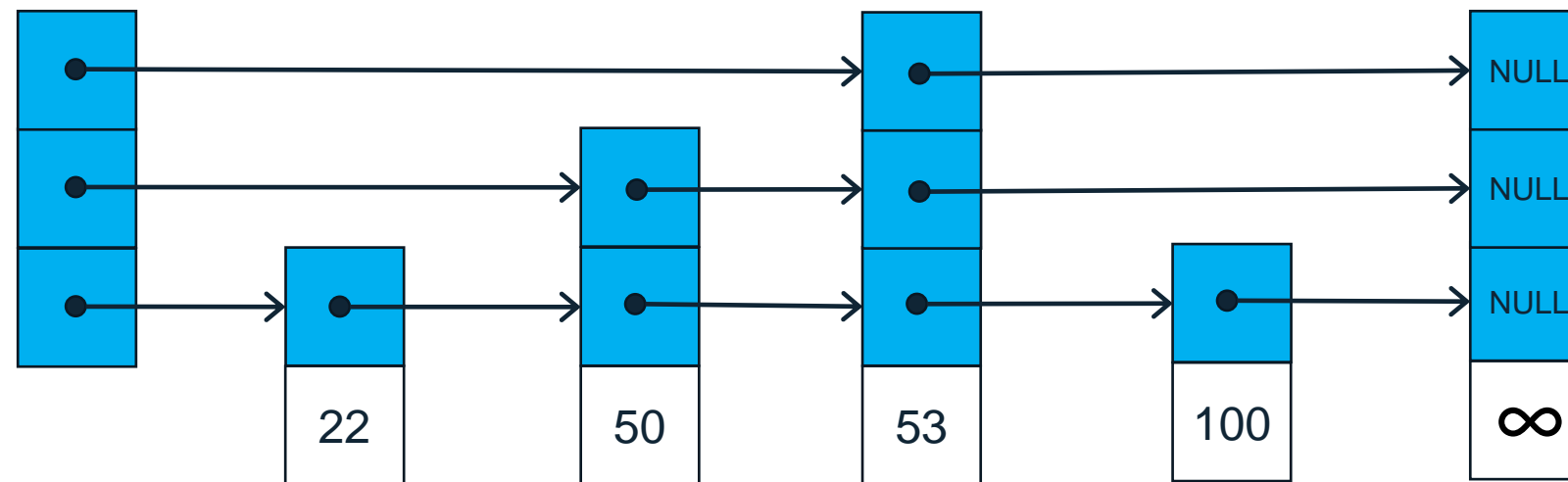
# Insert 53

Insert node 53

Flip a coin:



Head->Add layer and flip the coin again  
Tail -> Don't add layer

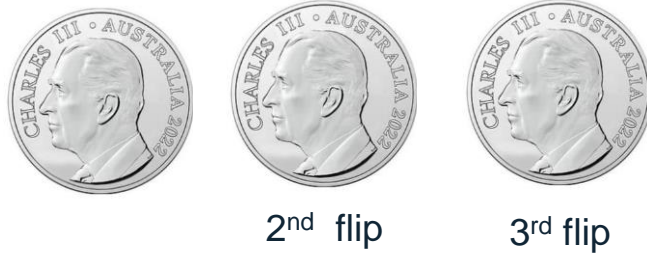




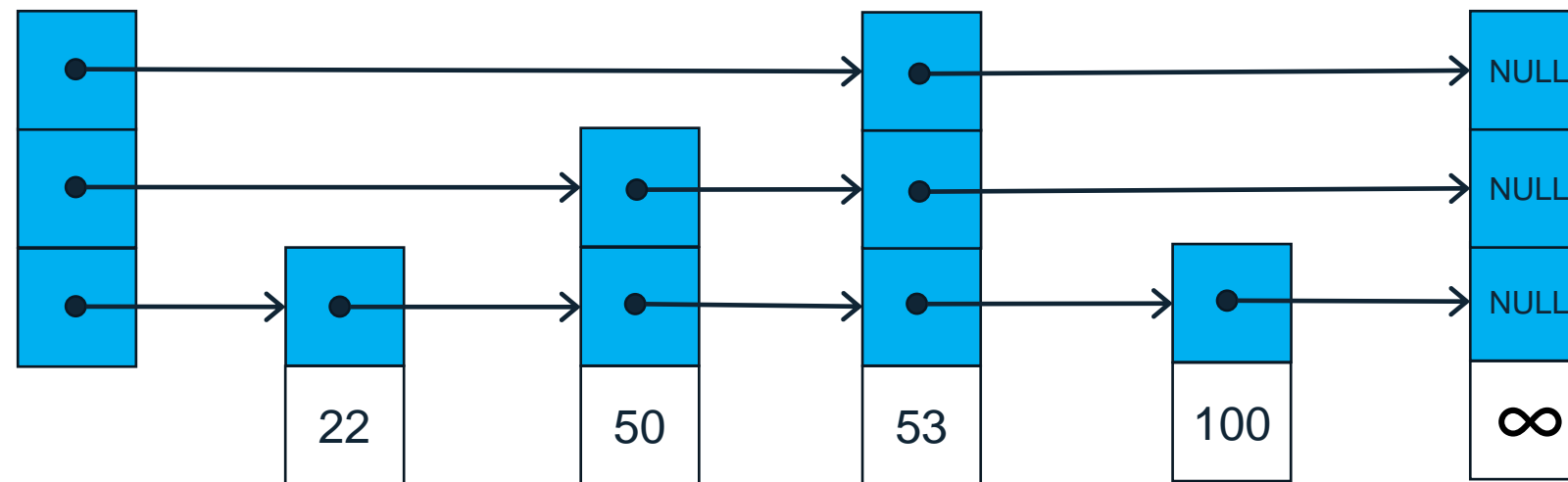
# Insert 53

Insert node 53

Flip a coin:



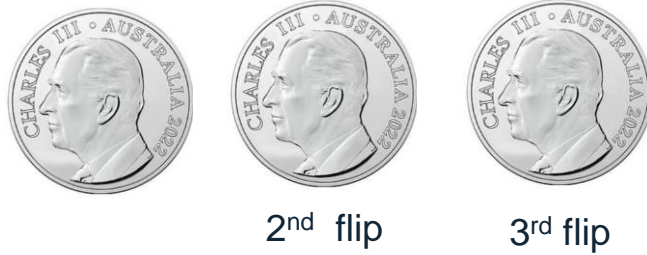
Head->Add layer and flip the coin again  
Tail -> Don't add layer



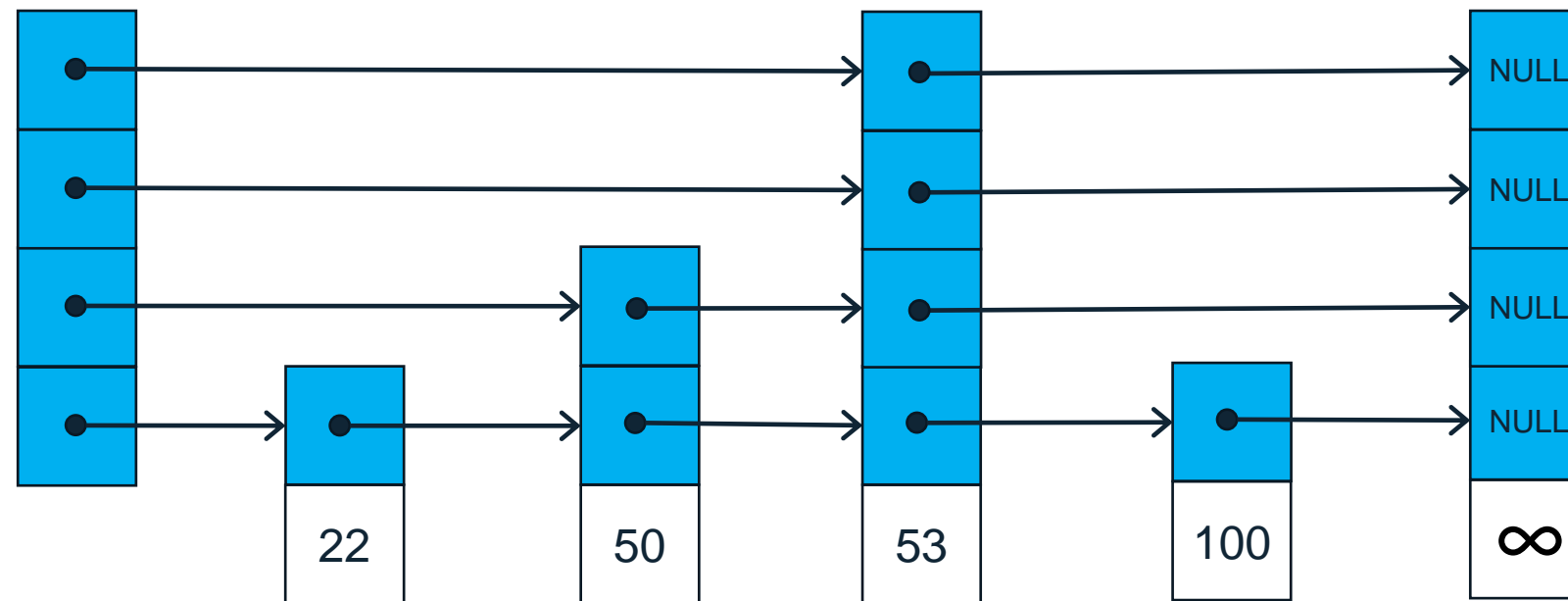
# Insert 53

Insert node 53

Flip a coin:



Head->Add layer and flip the coin again  
Tail -> Don't add layer



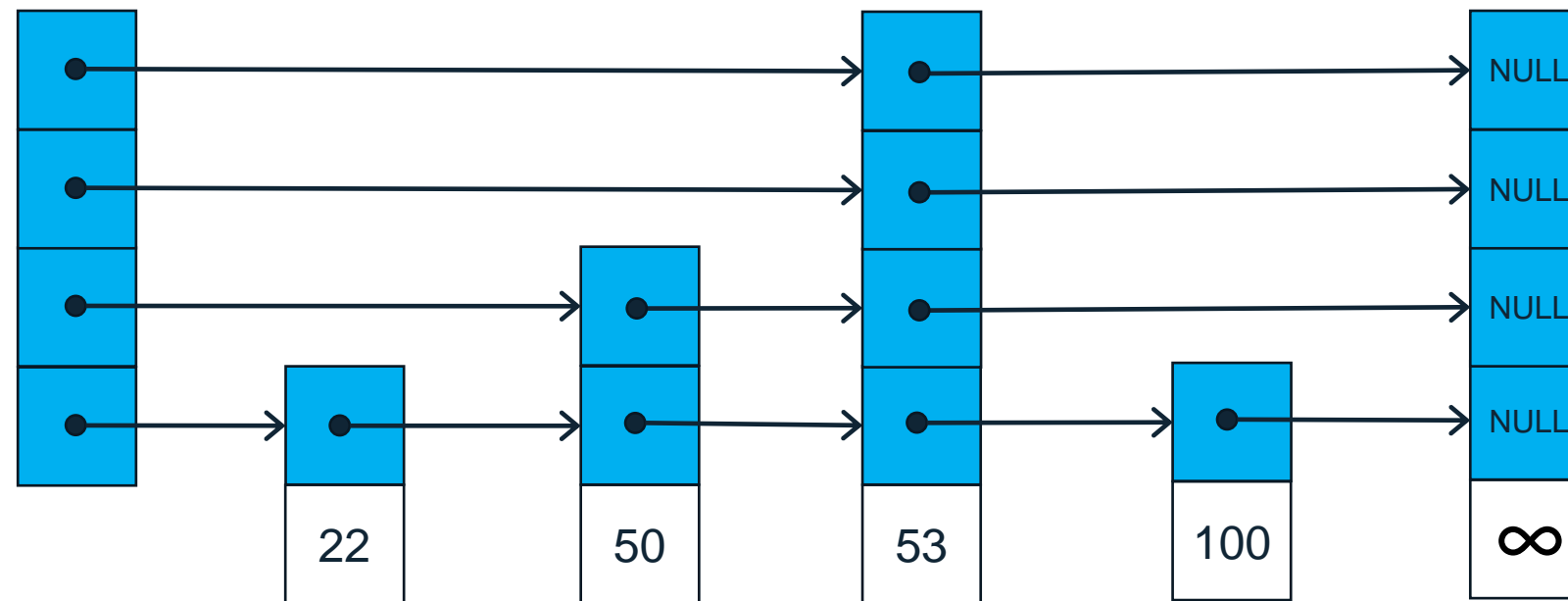
# Insert 53

## Insert node 53

## Flip a coin:

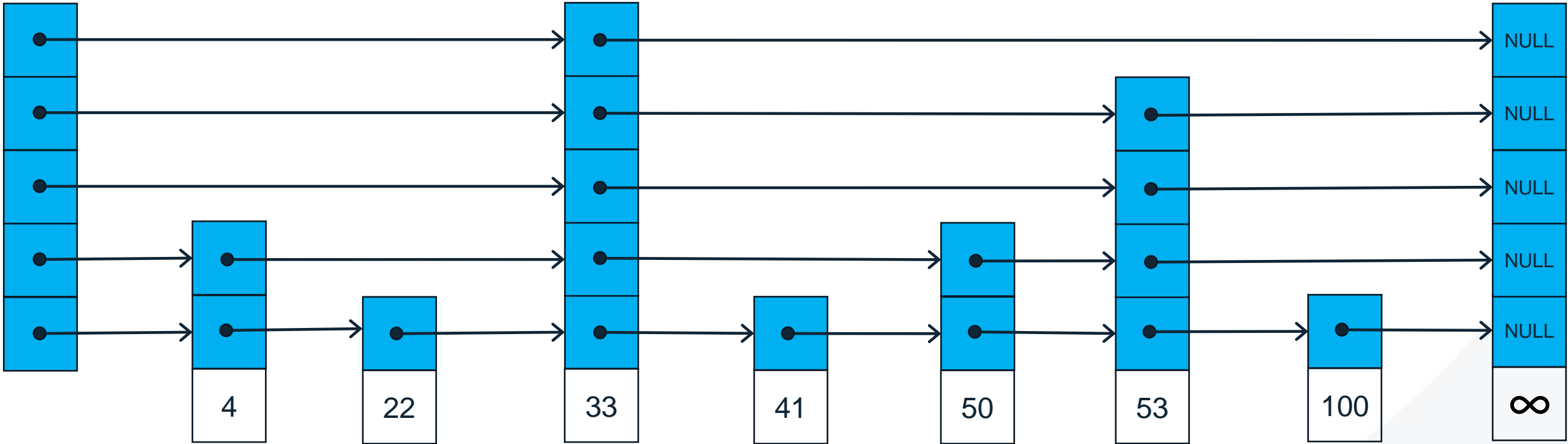


Head->Add layer and flip the coin again  
Tail -> Don't add layer



# Final Skip List

Objects: 100 50 22 53 4 33 41



Skip List