

What is Association? OOP

The relation between classes inside an application or project is called association. It is the core of the application & decides the structure & configuration of the application.

Car | MP3 Player \rightarrow Aggregation
 Car | Engine \rightarrow Composition
 Car \rightarrow Engine \rightarrow Inheritance

[Association]

Composition / Inheritance / Is - A Relationship
 BMW is a car. [Tight Coupling]

Aggregation / Reference or Variables / Has - A Relationship
 Car has an MP3 player.
 [Loose Coupling]

matrix \rightarrow [row] [col] = target
 row = mat.length
 col = mat[0].length

3x4 matrix $\log(m \times n)$
 $? \quad m = \frac{11}{2} = 5$ Binary Search?

1 3 5 7 10 11 16 20 23 30 34 60
 0 1 2 3 4 5 6 7 8 9 10 11
 size = $3 \times 4 - 1 = 12 - 1 = 11$

Stacks LIFO

peek() $top = -1$
 pop() \rightarrow top
 push() \rightarrow top
 size(), is full, is empty

* Applications:

\rightarrow Reversal
 \rightarrow Palindrome check
 \rightarrow Topological Sort
 (Stack)
 Linear Ordering

top Array

1 3 5 9 6 4 2
 -1 0 1 2 3 4 5 6
 $top++$
 $top--$
 $top = index$
 Stack.top = 4
 Stack.pop