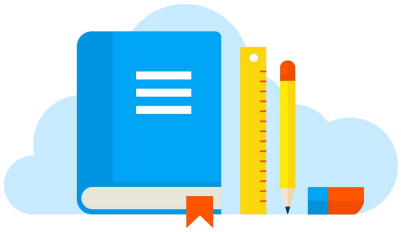

LLD & Oop's

LLD & Oop's design

- ★ **How to Approach a problem and find the solution**
  - ★ **Planning**
    - Understand problem first, ask clarify the Question
    - Don't directly jump to implementation, think about the solution
    - Think about the classes and pattern/ principal can be applied
  - ★ **Implementation**
    - Use different modules, mark imp. Field as private and use getters and setters.
    - You should have a driver class for testing code.
    - ★ **Review**
      - Start with different class you create and relationship b/w them tell them about the principles and pattern you have used.

Example: ***Game - Number Guessing game***

Rule: one player think of a number between a predefined range(e.g., 1-100) and the other player tries to guess it.

After earch guess, the other player provides feedback whether the guess is too high, too low and or correct.

- **Requirements:**
  - Create a command -line application for playing the Number Guessing Game.
  - Initailize the game with a random number within predefined range.
  - Accept guesses form the player.
  - Provide the feedback on each guess (too high, too low , or correct).

- End the game when the correct number is guessed.

- **Input Format**
  - Integer guesses from the player

Example

```
Guess a number between 1 and 100: 50
Too low. Try again.
Guess a number between 1 and 100: 75
Too high. Try again.
Guess a number between 1 and 100: 60
Too low. Try again.
Guess a number between 1 and 100: 65
Correct! The number was 65.
```

Code Description:

Step 1: Create a class "**NumberGuessingGame**" and Declare with the two variable "randomNumber" and "hasWon" both are private.

Step 2: both variables are initailized using "**constructor**"

Step 3: create a function "**play()**" and take user input and implement the conditions.

```java
package Projects.NumberGuessingGame;

import java.util.Scanner;

2 usages  new *
class NumberGuessing {
    3 usages
    private int randomNumber;
    3 usages
    private boolean hasWon;

    1 usage  new *
    public NumberGuessing() {
        this.randomNumber = (int) (Math.random() * 100) + 1;
        this.hasWon = false;
    }
```

```java
    public void play() {
        Scanner scanner = new Scanner(System.in);
        while (!hasWon) {
            System.out.print("Guess a number between 1 and 100: ");
            int guess = scanner.nextInt();

            if (guess < randomNumber) {
                System.out.println("Too low! Try again.");
            } else if (guess > randomNumber) {
                System.out.println("Too high! Try again.");
            } else {
                System.out.println("Congratulations! You guessed the number.");
                hasWon = true;
            }
        }
        scanner.close();
    }
}
new *
public class NumberGuessingGame {
    new *
    public static void main(String[] args) {
        NumberGuessing game = new NumberGuessing();
        game.play();
    }
```