What is TDD? - TEST DRIVEN DEVELOPMENT

- A style of software development that focuses on **testing first**

1. Read requirements
2. MAKE TEST cases
3. Write code
4. Test your code
5. Fix your bugs
6. Imporve your test cases
7. Write more code
8. Fix your bogs
9. Impove your test cse
10. Test cases pass
11. SHIP CODE

1. Read requirements
2. Design a solution
3. Code
4. Cry if your code doesn't work
5. Code
6. Code
7. Code
8. Deadline comes
9. Panic
10. Bug testing
11. Pray that it works
12. Deliver you code
13. DONE

Expected outcome of TDD

- Completed code for your app
- A full set of test cases
- Code that has been redesigned and refactored multiple times

Benefits of TDD:

- Similar or faster development time as non-TDD
- Higher quality code
- Code that has been tested more often
- Fewer bugs

How to do TDD?

Method #1 - Sequential

1. Build test cases first
2. Design your code around the test cases

Method #2 - Iterative

1. Use a **red-green-refactor** cycle to create test cases + code at same time

Rules:

- Implement requirements 1 at a time
- For each requiement, do a red, green refactor
- Commit after each phase (3 commits - red, green refactor)

In class examples

Method #1 - Library App
Method #2 - FizzBuzz

Example 1 - Adding books to a library

Implement the functionality of adding books to the library. Only the administrator is allowed to do this.

R1: Administrator is logged in

The interaction scenario is as follows:
1. Administrator logs in by providing the admin password. You may assume there is only 1 administrator account.
2. A new book is created with the appropriate fields
3. The administrator adds the book to the library.

R2: Administrator is not logged in

If an administrator tries to add a book, but is not logged in, then throw an exception when **adding book**

Reasons why the administrator is not logged in include: because the password was wrong, or because he skipped the log in step

The interaction scenario is:
1. Administrator is not logged in
2. A new book is created with the appropriate fields
3. The administrator adds the book to the library
4. The library application throws an OperationNotAllowed exception

R3: Searching for books.

Every user can search for books. The method search returns a list of books for which the given keyword matches a substring of the title or the author.