

# Regression Benefits of TDD

## Software Systems

- Software Systems grow in size over time.
- They grow in complexity and they evolve.

## Evolutionary

- As the size and complexity grows, it becomes almost impossible to run tests manually.
  - So we just test some things.
  - We may just test things that are commonly used. Then, we wait.
  - Eventually, we get reports from the testers/users/customers about bugs etc.

## When things go wrong

- Software is a non-linear system → some change *here* might break something *there*.
- The amount of money it takes to find and fix a problem is proportional to the time between when the code was modified and when the problem was detected.

## Feedback Loop

- Very critical.
- The sooner we know that something is wrong in the code we wrote, the better it is.
  - The less costly it is.
  - The less time-consuming it is.

Using TDD doesn't prevent bugs — it just makes sure bugs don't recur in the code.