Pleasing Your Customer

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Goals

- Review material from Chapter 1 of Pilone & Miles
- Concepts include
  - Ultimate goal of software development
    - Hint: title of chapter gives it away
  - Importance of Iteration
  - Initial steps in planning a development activity

Pleasing Your Customer

- If your customer is unhappy, you're unhappy
  - The ultimate goal of software development is
    - solving your customer's problem by delivering
      - what is needed
      - on time
      - on budget
  - This is NOT easy
- Important: Need to have a clear idea of who your customer is!! Why?

Who is the customer?

- The person or persons playing the role of the customer can vary across development contexts
  - In chapter 1, we have a situation in which we are being hired by Tom, a small business owner, to create a website
    - Tom is clearly the customer
      - he is providing requirements and paying for the work
    - But when the website is deployed, who becomes the customer?
      - Tom's customers!

Customer == User

- HCI and CSCW research shows that systems live or die by how happy the “end users” are with the system
  - Tom’s customers in this case are the end users
    - However, in this initial sequence of development, we only have Tom and we have to go by what he says
    - In the future, Tom will be hearing from his customers about the utility and usability of our website and he will convey that feedback to us
- What’s the difference between utility and usability?

Other Customers

- You (!)
  - Often for only small scale software
- CTOs
  - Acquiring enterprise level systems for an organization
  - Who are the end users in this situation?
- New Application Development (be it desktop, web, mobile)
  - For version one: development team
    - How can you avoid this? Who are the end users?

Chapter Example (I)

- Tom's Trails Website for existing small business
  - Find Trails
  - Buy hiking boots and other related items
  - Learn from Tom's experience (FAQs, monthly column, etc.)
- Needs website created in three months time for upcoming industry trade show
- Two questions
  - How much will it cost?
  - How long will it take?

Chapter Example (II)

- Big Bang Approach to Software Development
  - The developer that Tom hires
    - takes his initial ideas
    - disappears for a month and codes like crazy
    - displays final product to Tom
- What happens?

Chapter Example (III)

- The developer delivered software that did not meet Tom's expectations
  - And if the customer is unhappy…
- Reasons
  - Did not fully understand Tom's requirements
  - Tom's view of what he wanted can shift over time
  - Did not check in with Tom during development
    - So any unclear requirements were resolved by developer making arbitrary decisions

Not Guesswork

Software

is NOT

Guesswork

Not Guesswork

Software
is NOT
Guesswork

You need to keep the customer in the loop to make sure you're on the right path

even when you're SURE you know what the customer wants… why?

Great Software Delivers

What is needed

requirements

On Time

project planning
project management

On Budget

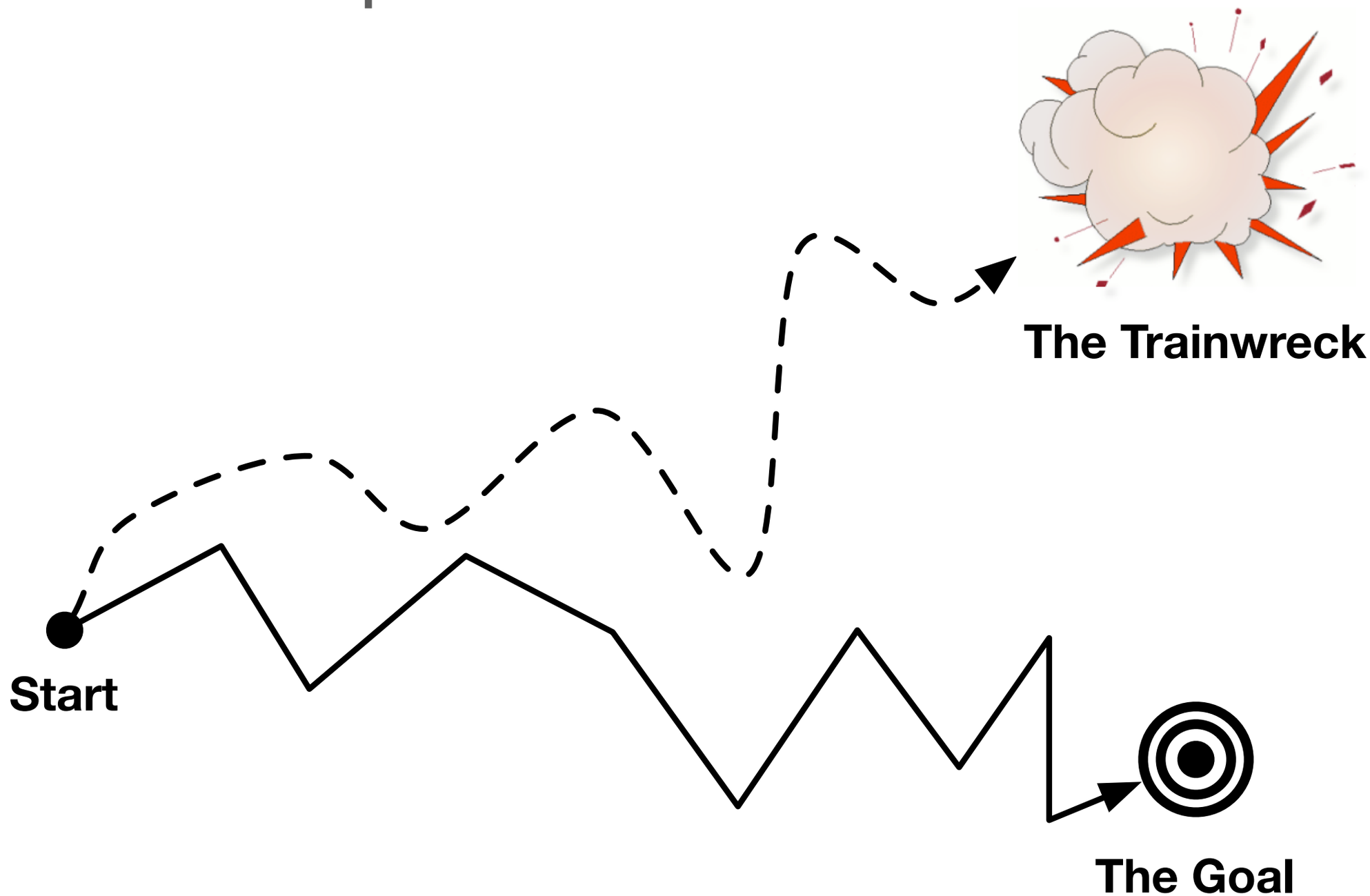
So, how to get there?

- The developer in the example
  - did not apply basic project planning/management techniques
  - did not make use of iteration
  - did not acquire feedback
  - did not clarify requirements with the user
- The developer made use of a life cycle (barely worth the name) called

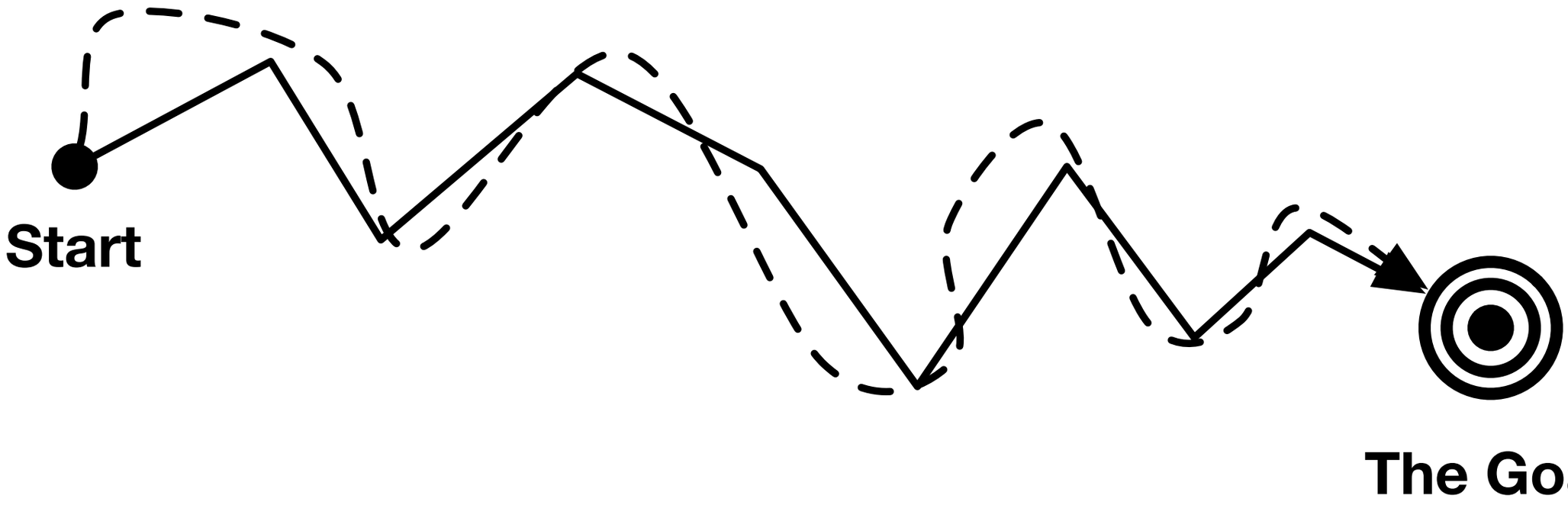
CODE & FIX

actually just “code” and now needs to do a LOT of fixing!

Iteration is important because requirements CHANGE



With iteration a project can make **course corrections** as requirements change so that **what's delivered** matches **what's needed**



Iteration (I)

- An iteration produces working software
  - when you complete an iteration, you have something to show the customer
- Iterations should be relatively short; where “short” is defined by the estimated length of the project
  - they can be anywhere from two weeks to six weeks
  - Our book picks 20 days, because that is roughly what you get if you start with a calendar month and subtract out the weekends

Iteration (II)

- Iterations are “fractal”
  - They decompose nicely into smaller iterations
    - A 20 day iteration can be split into two “internal” 10-day iterations
    - A work day can be split into roughly three 2-hour iterations
      - Here the customer is yourself: what can I get done in two hours
        - did the result match my expectations? should I show this to my co-worker for feedback? etc.
- Iterations promote continuous building and testing
  - Otherwise, you are not delivering “working software”

Iteration (III)

- Each iteration is a mini life cycle
  - A typical life cycle consists of these major activities
    - Requirements; Design; Code; Test; Deploy
  - High-level: ideas come in and working software comes out
  - Iterations decompose this high-level process such that all of the major steps are performed for each iteration
    - By doing this, you increase your chances of producing high quality software that solves your customer's problem

Iteration (IV)

- Indeed, the MIT Sloan Management Review published an analysis of software development practices in 2001
  - Strong correlation between quality of software system and the early delivery of a partially functioning system
    - **the less functional the initial delivery the higher the quality of the final delivery!**
  - Strong correlation between final quality of software system and frequent deliveries of increasing functionality
    - **the more frequent the deliveries, the higher the final quality!**
- These results suggest that iterations need to be short!

Iterations Help You Plan

- Iterations can help you plan ahead to achieve success
  - Input:
    - List of features with estimates and priority
      - Customer supplies list and priority
        - Book recommends priority scheme based on multiples of 10
      - Developer supplies estimates (we'll see how in lecture 5)
  - Output
    - List of proposed iterations with features assigned
      - Highest priority features are tackled first
      - Features assigned have estimates less than iteration length

Can you do it?

Having an iteration plan lets you keep track of whether the project is feasible

(Days of Work Left) - (Days left before deadline)

==

Can you do it?

You want this number to be NEGATIVE

15 - 30 == -15 (i.e. fifteen days ahead of schedule)

Iterations Help You Respond to Change

- And things will change
  - The book shows Tom introducing a new request near the end of the second iteration that leads to three new features, each with their own estimates and priorities
- With an iteration plan, you can “rejigger” the features across iterations to come up with a new plan that shows how you’ll respond to the change request
  - It will most likely create one or two more iterations which can be stressful because, note, the deadline HASN’T changed
    - In lecture 7, we’ll discuss what to do if the new schedule slips past the deadline

Working Code

- Note: Your software isn't complete until it has been released
- We measure progress via working software
  - NOT via number of iterations complete
- So, if we complete three out of 10 features in two iterations of a four iteration project
  - We are 30% done NOT 50% done

Time to Try It

- Please develop an iteration plan for the following
  - Iteration length is 10 days; Due date is 40 days away

Feature	Estimate	Priority
Log In	2 days	30
Create Account	6 days	20
View Stories	2 days	10
Add Story	4 days	10
Rate Story	1 day	20
Find Similar Stories	5 days	40
Contextual Ads	7 days	10

Customer Change

- At the end of day 8 in the first iteration, customer submits new idea that results in these features

Feature	Estimate	Priority
Add Comment	6 days	30
View Comments	4 days	20
Rate Comment	2 days	10

- Is it still possible to meet the deadline?

Wrapping Up

- The ultimate goal of software development is pleasing your customer; to do that you need to
  - deliver (i.e. ship) a system that solves the customer's problem
  - on budget (under budget preferable)
  - on time (ahead of schedule preferable)
    - (There is one more thing we should achieve; what?)
- Iteration is the key technique to achieving this goal
  - Provides ability to plan project, respond to change, and deliver what's needed

Coming Up Next

- Lecture 4: Introduction to Concurrency
  - Chapter 1 of Breshears
- Lecture 5: Gathering Requirements
  - Chapter 2 of Pilone & Miles