



# UI Design Best Practices

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# Topics today

- ✓ What are the UI & UX?
- ✓ Design Principles
- ✓ Design Process
- ✓ Where can you find new UI ideas?
- ✓ Recommended Resources

“Everything should be made  
as simple as possible,  
but not simpler”

–Albert Einstein

# What are the UI & UX?

# What are the UI & UX?

## UI

What people use to interact with your product

## UX

How they feel while they do it

# What are the UI & UX?

## UI

What people use to interact with your product

# What are the UI & UX?



UI



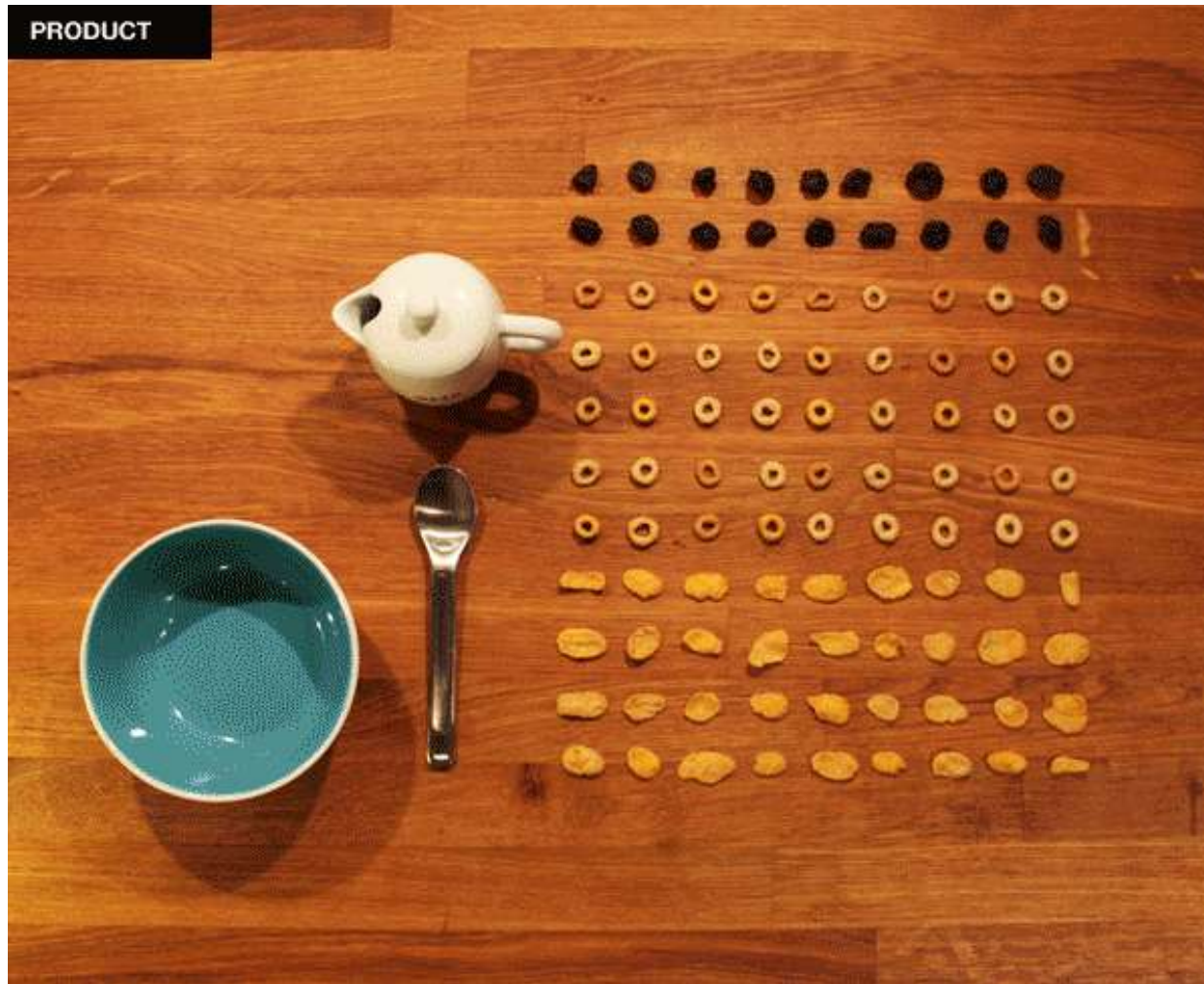


# What are the UI & UX?

UX

How they feel while they do it

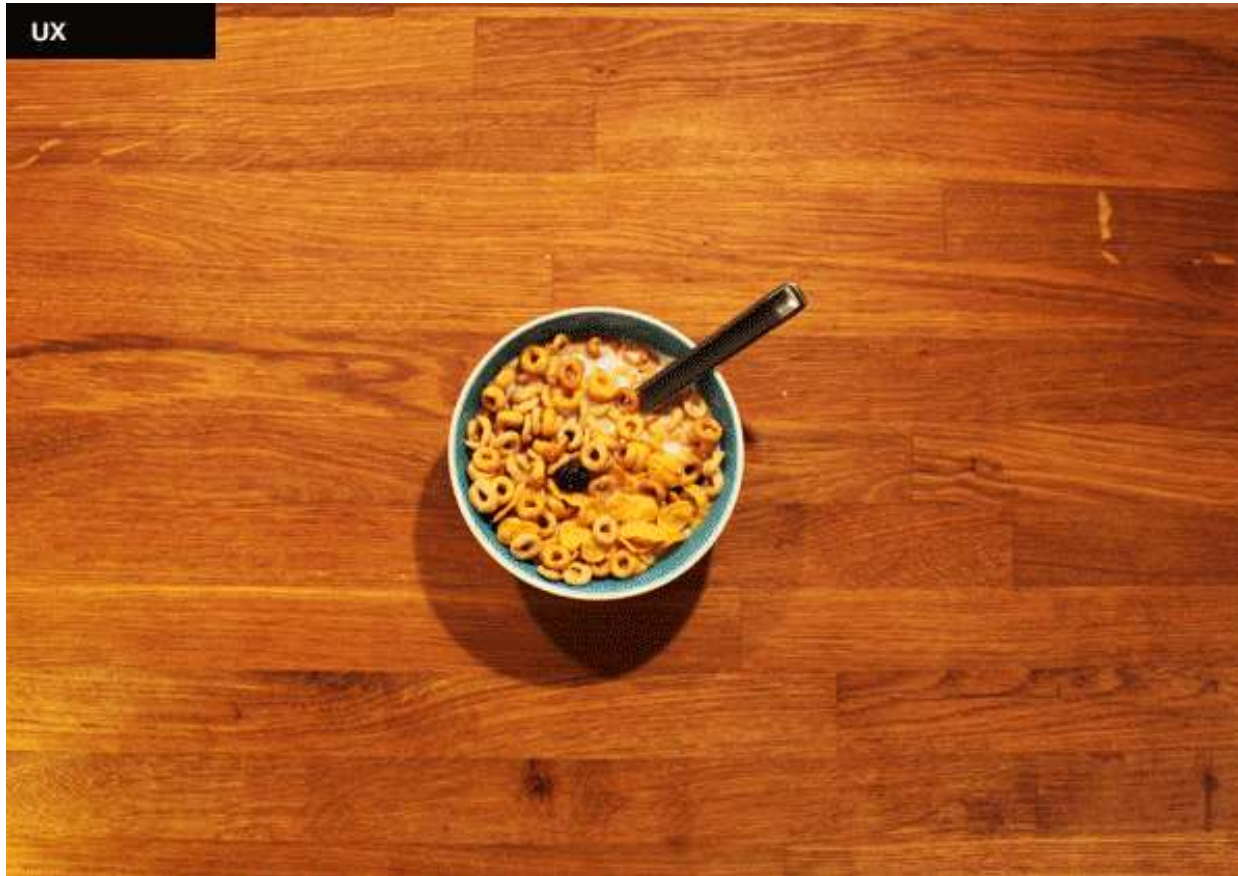
# What are the UI & UX?



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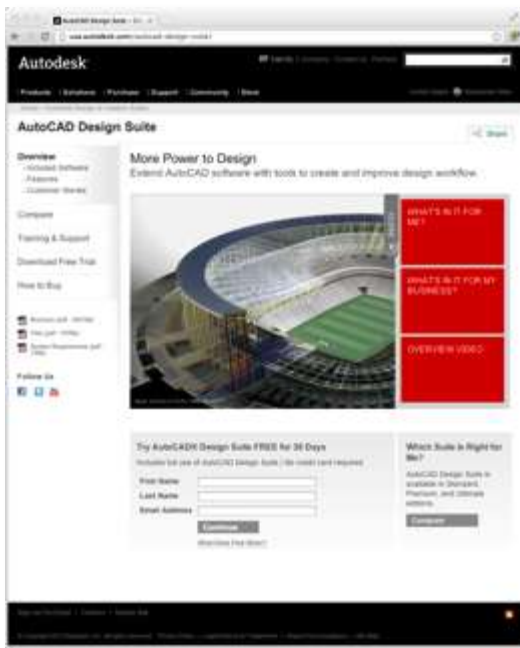
## User Experience?

When does it really start?



# What are the UI & UX?

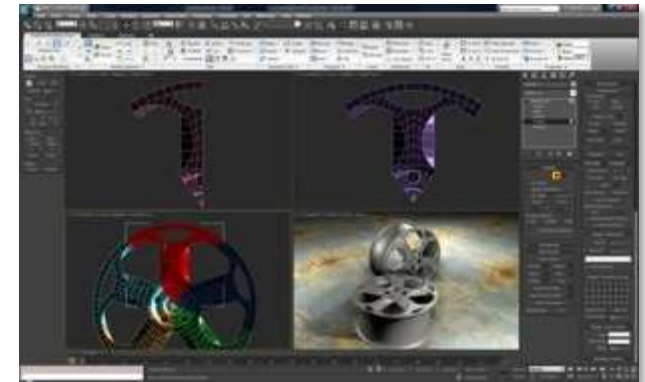
## Good User Experience?



Website



Product Box



Software

# What are UI & UX?

What is a terrible User Experience then?

# What are UI & UX?

## Bad User Experience



$\frac{1}{3}$  of medical device problems  
are due to user error

$\frac{1}{2}$  of device recalls for design  
problems are because of a poorly  
designed interface



Source: Medical Device and Diagnostic Industry



# What are UI & UX?

Fatal User Experience

Therac -25



# What are UI & UX?

Does this look like good user experience



# Design Principles

- ✓ 80/20 Rule
- ✓ Reduce Complexity
- ✓ Affordance
- ✓ Chunking

# Design Principles

## 80/20 Rule

80% of your users use 20% of your features



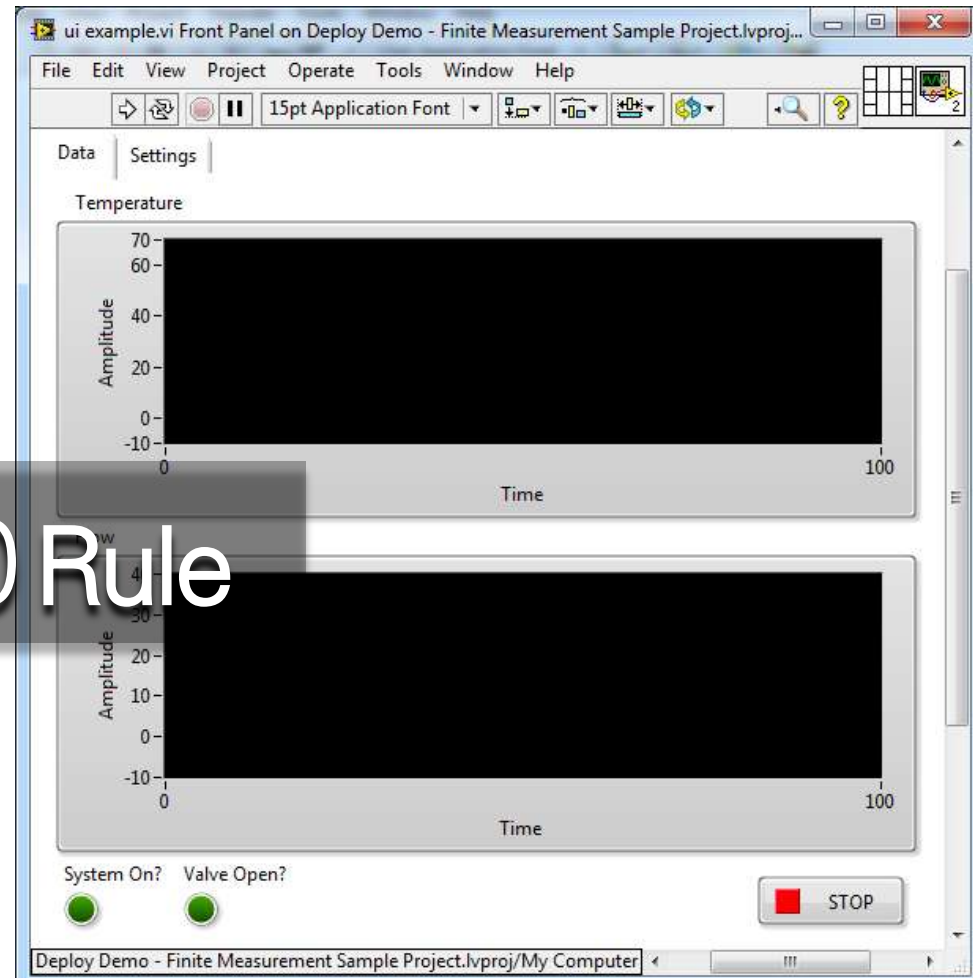
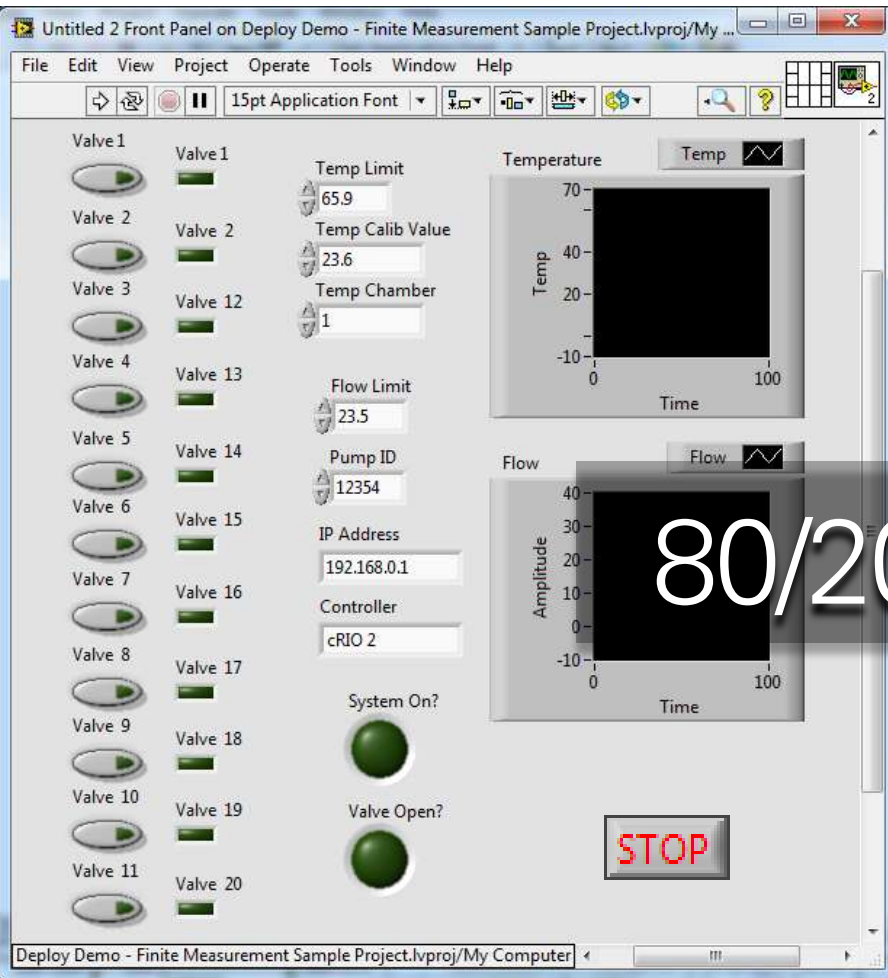
# Design Principles

# 80/20 Rule



# Design Principles

80/20 Rule



# Design Principles

## Reduce Complexity

- ✓ Do Less
- ✓ Hide non essential features
- ✓ Minimize visual noise
- ✓ Prefill data

# Design Principles

## Affordance

A property in which the physical characteristics of an object or environment influence its function



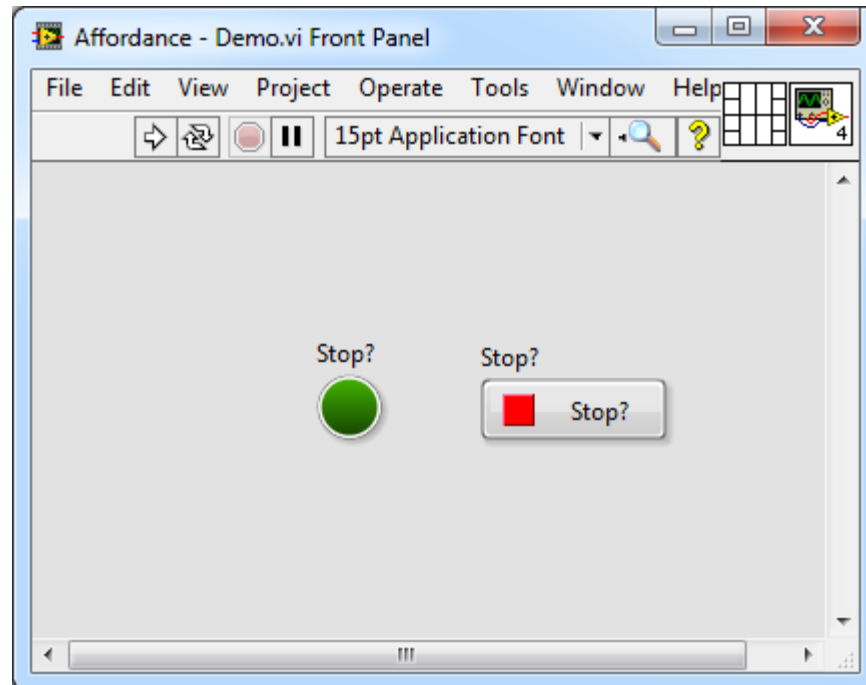
# Design Principles

## Affordance



# Design Principles

## Affordance Demo



# Design Principles

## Chunking

Combining many units of information into a limited number of units or chunks

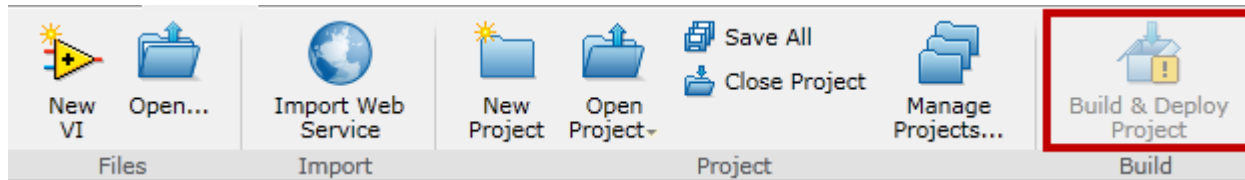
# Design Principles

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Chunking

1 (512) 683-5727

# Design Principles



## Chunking

# Design Process

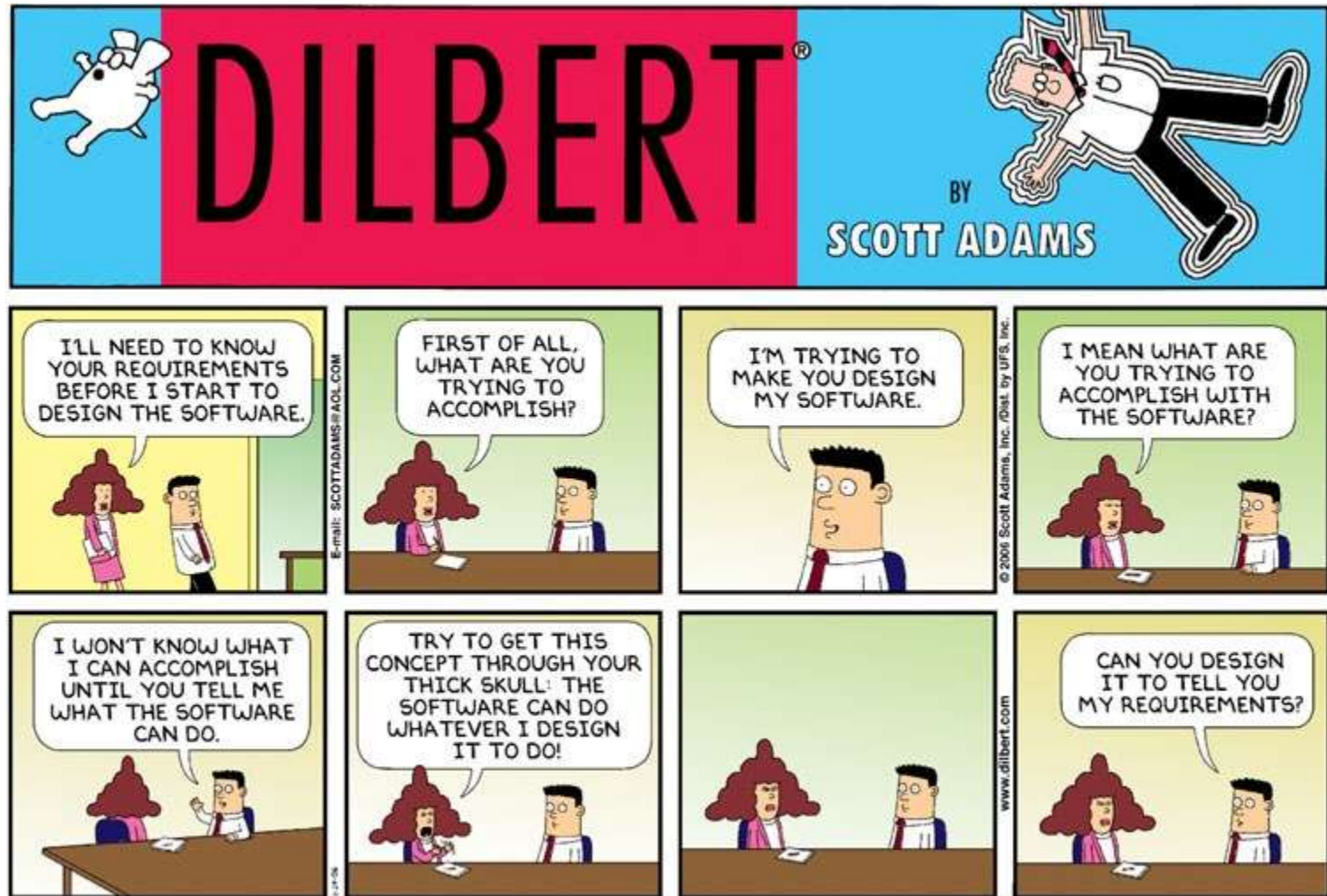
- ✓ Requirements Gathering
- ✓ User Analysis
- ✓ Creating the Interface
  - ✓ Paper Prototypes
  - ✓ Emphasis the data
- ✓ Testing a User Interface

# Design Process

## Requirements Gathering

What do we need to accomplish the goals of the project and the needs of the users?

# Design Process



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# Design Process

## User Analysis

The characteristics of users which will influence the development of your product

# User Analysis

## Many Users?

# User Analysis

## Few Users?





# User Analysis Outside?





# User Analysis

## Workflow?



# User Analysis

Rugged? Non-conventional?



# Design Process

## Creating the Interface

Design the interface before you start programming

# Design Process

## Creating the Interface



## Paper Prototypes

Go low tech before you go high tech



# Design Process



A digital prototype of a patient list interface. It displays a list of patients with their names, dates of birth, and various medical data points. The interface is clean and modern, with a dark sidebar on the left.

Time	Room	First Name	Last Name	DOB	Gender	Weight	Height	BMI	Temp	Pulse	BP
10:00am	Room 2	Last, First	12/15/1980	M	175	64.5	202	34.67	100/70	98.6	70
10:30am	In lobby	Last, First	05/04/1980	M	175	64.5	202	34.67	100/70	98.6	70



## Paper Prototypes

# Design Process

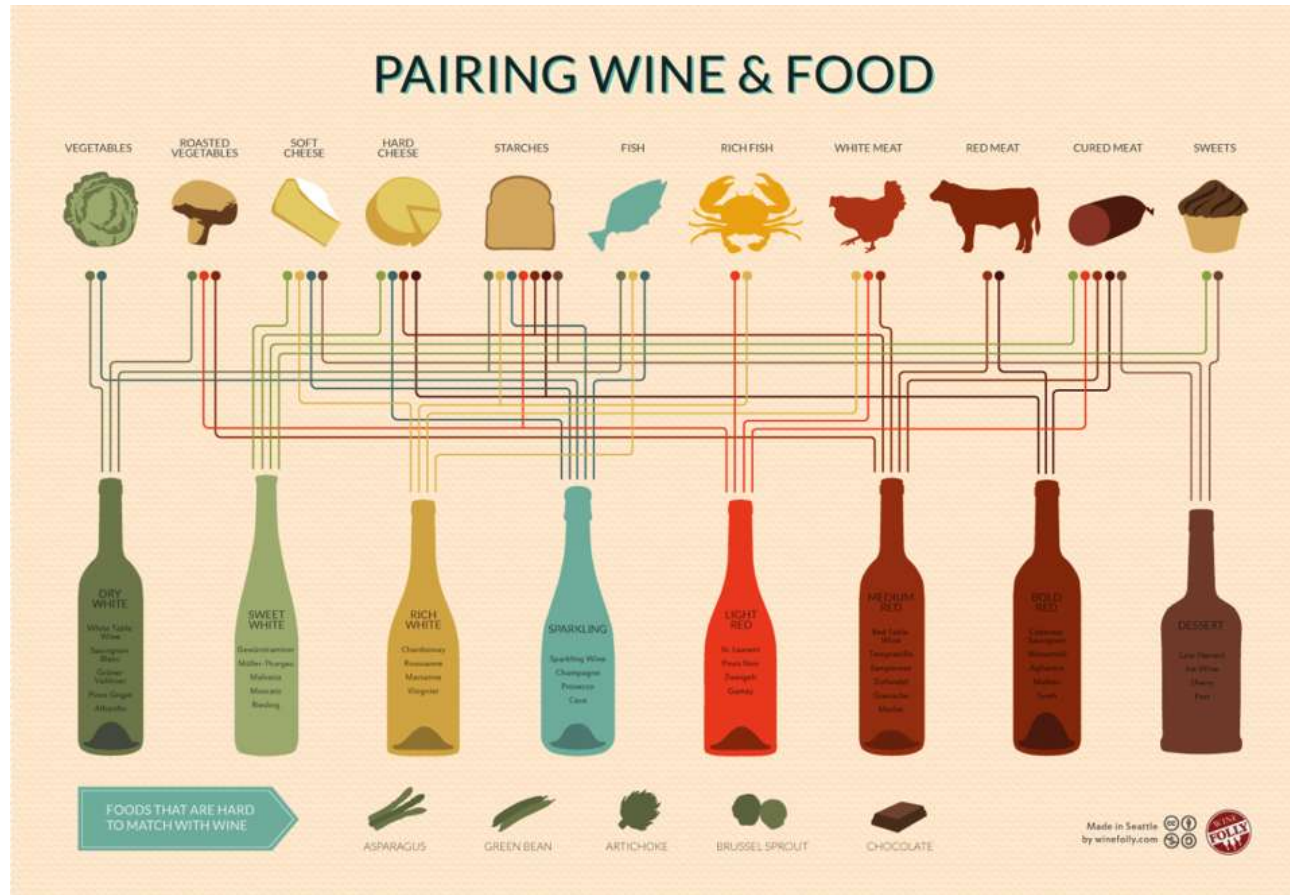
## Creating the Interface



Emphasize the Data

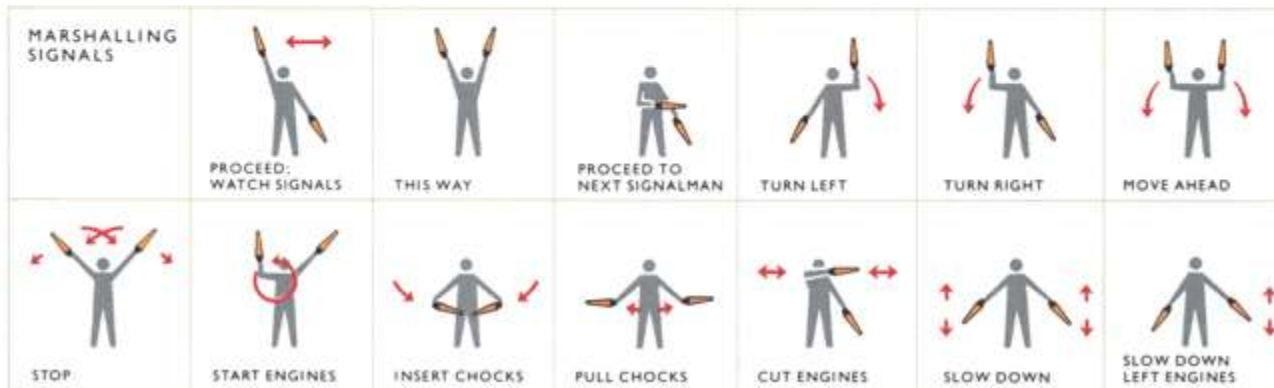
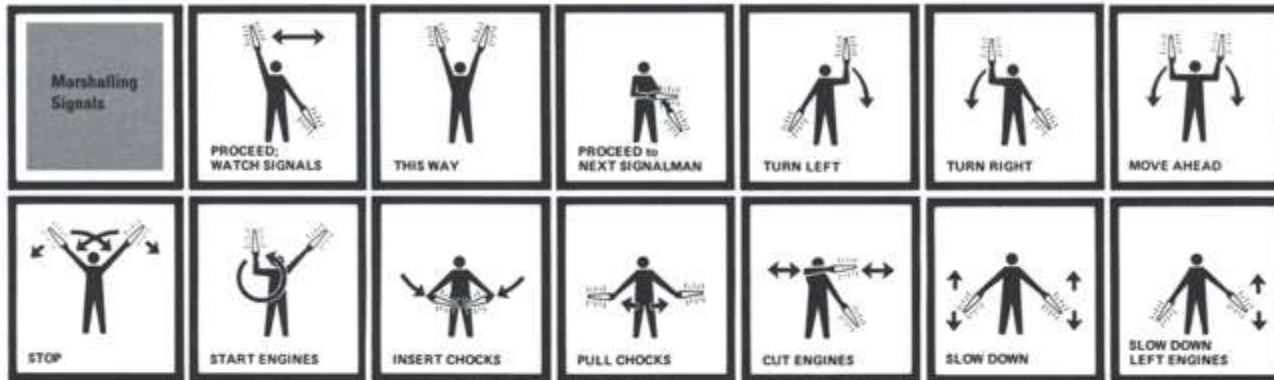
# Design Process

## Emphasize the Data



# Design Process

Emphasize the Data



# Design Process

## Testing a User Interface

# Design Process

## Testing a User Interface

What and How?

# Design Process

## Testing a User Interface

### Example Test Cases for testing User Interfaces

- ✓ Required Fields
- ✓ Data Type Errors
- ✓ Field Widths
- ✓ Onscreen Instructions
- ✓ Progress Bars
- ✓ Cosmetic Inconsistencies
- ✓ Abbreviation Inconsistencies
- ✓ Save & Delete Confirmations
- ✓ Type ahead
- ✓ Grammar and Spelling
- ✓ Table Scrolling
- ✓ Error Messages
- ✓ Shortcuts
- ✓ Invalid Choices
- ✓ Invalid Menu Items
- ✓ ... And many more







Where can you find new UI Ideas?



# Where can you find new UI Ideas?

## “Good Artists Borrow, Great Artists Steal”

- Pablo Picasso
- Steve Jobs
- T.S. Eliot

# Where can you find new UI Ideas?



# Where can you find new UI Ideas?

## Demo

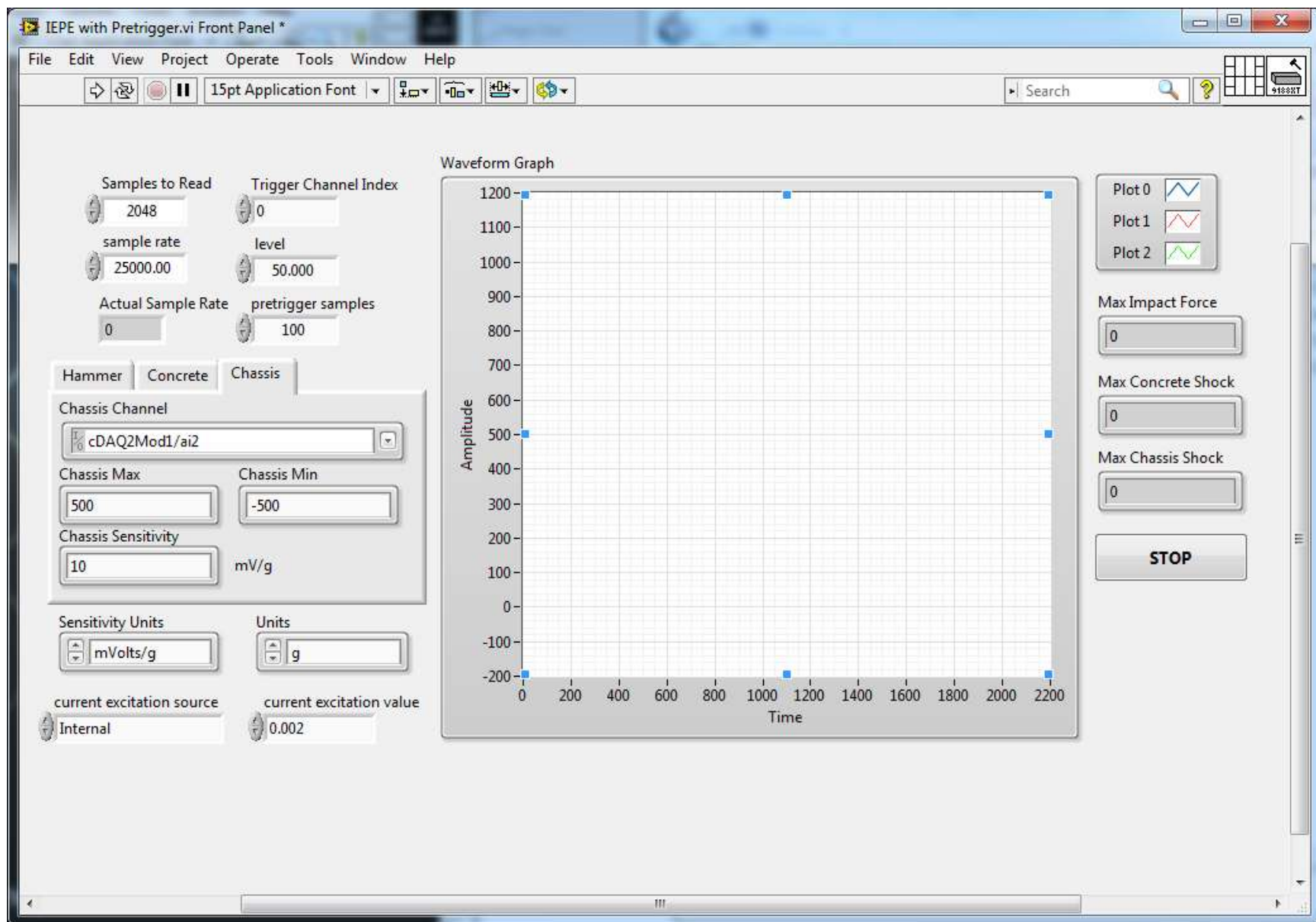


# Demo

Keynote Demo Code Clean Up

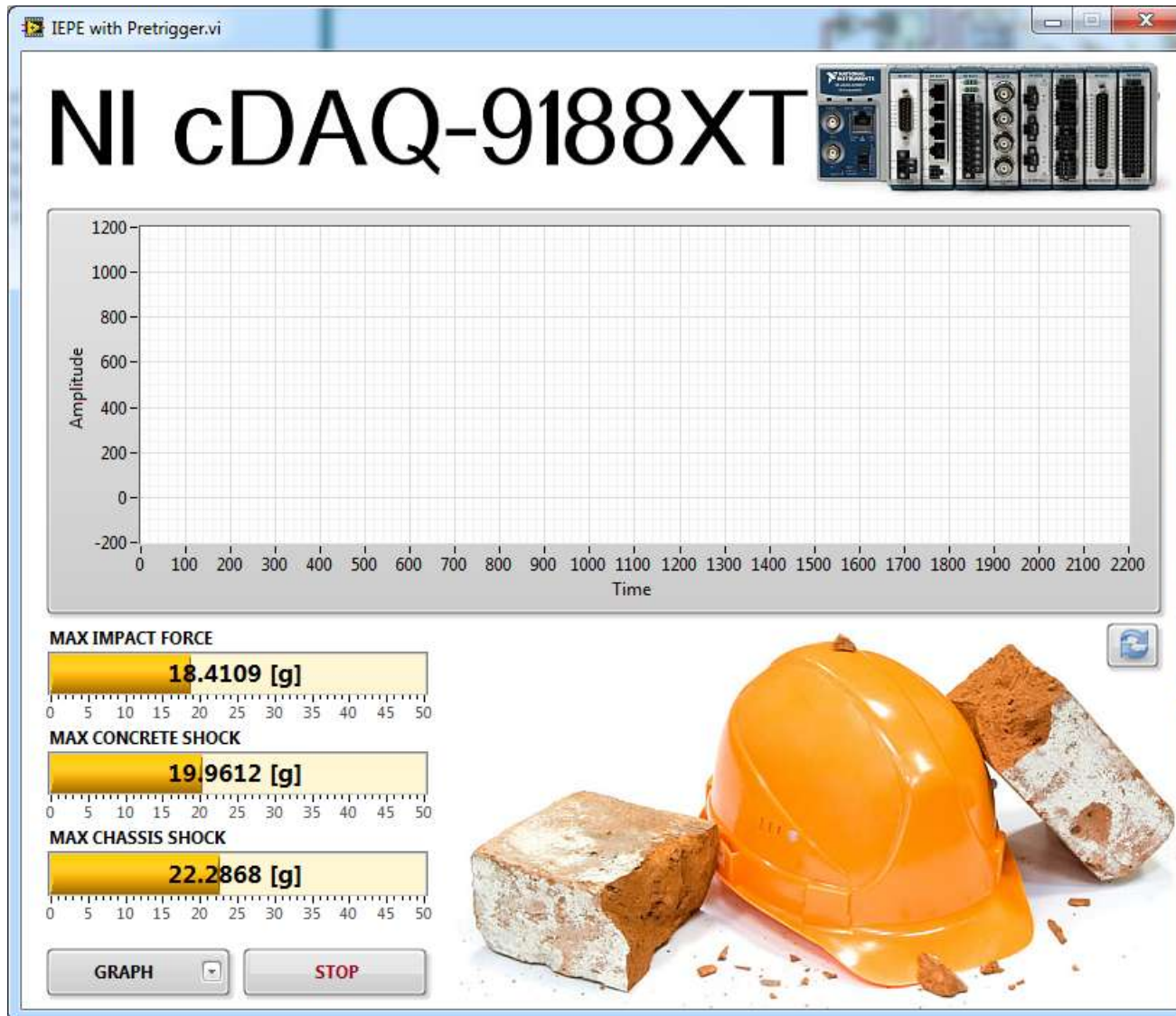
# Demo

# UI Before...



# Demo

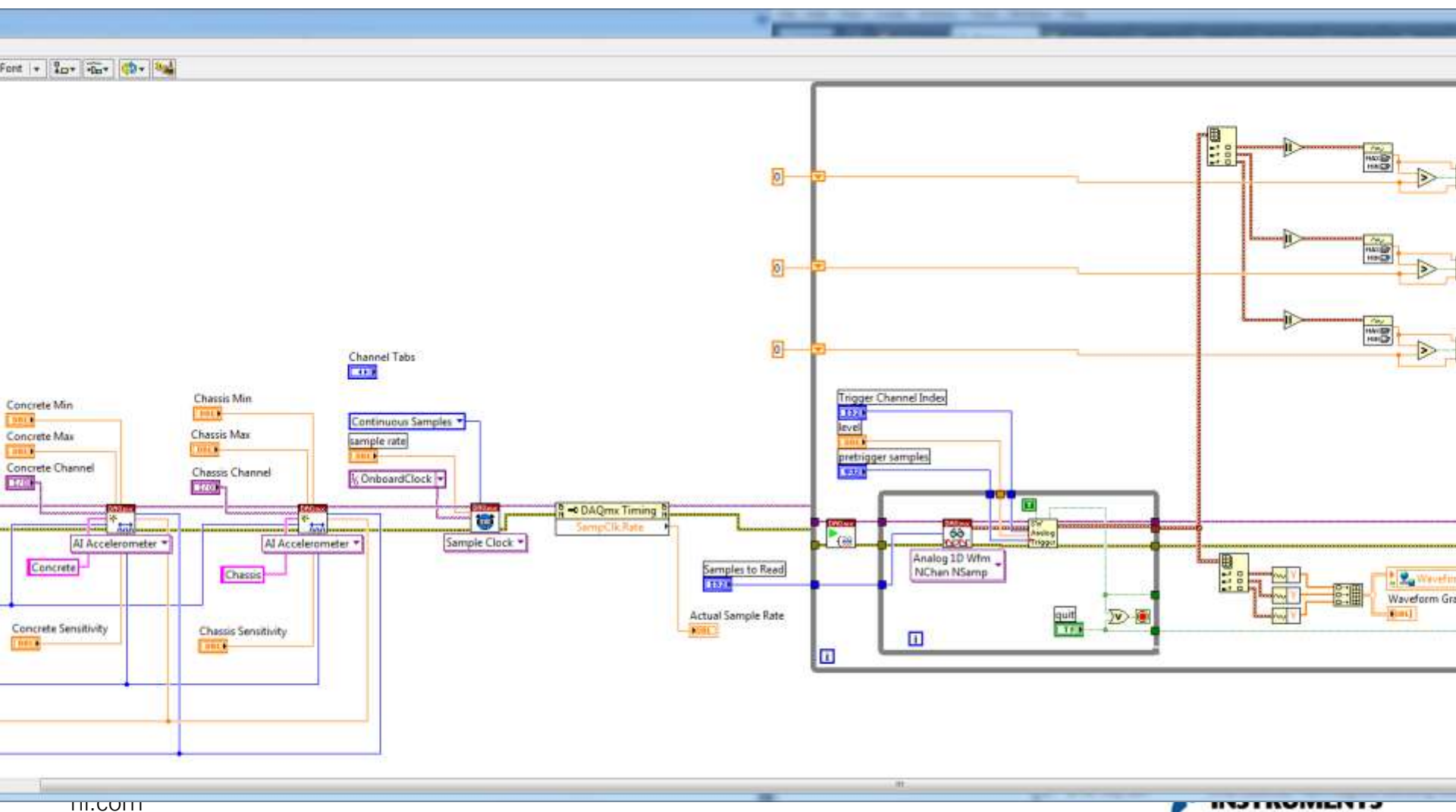
# UI After...



Don't forget the Code



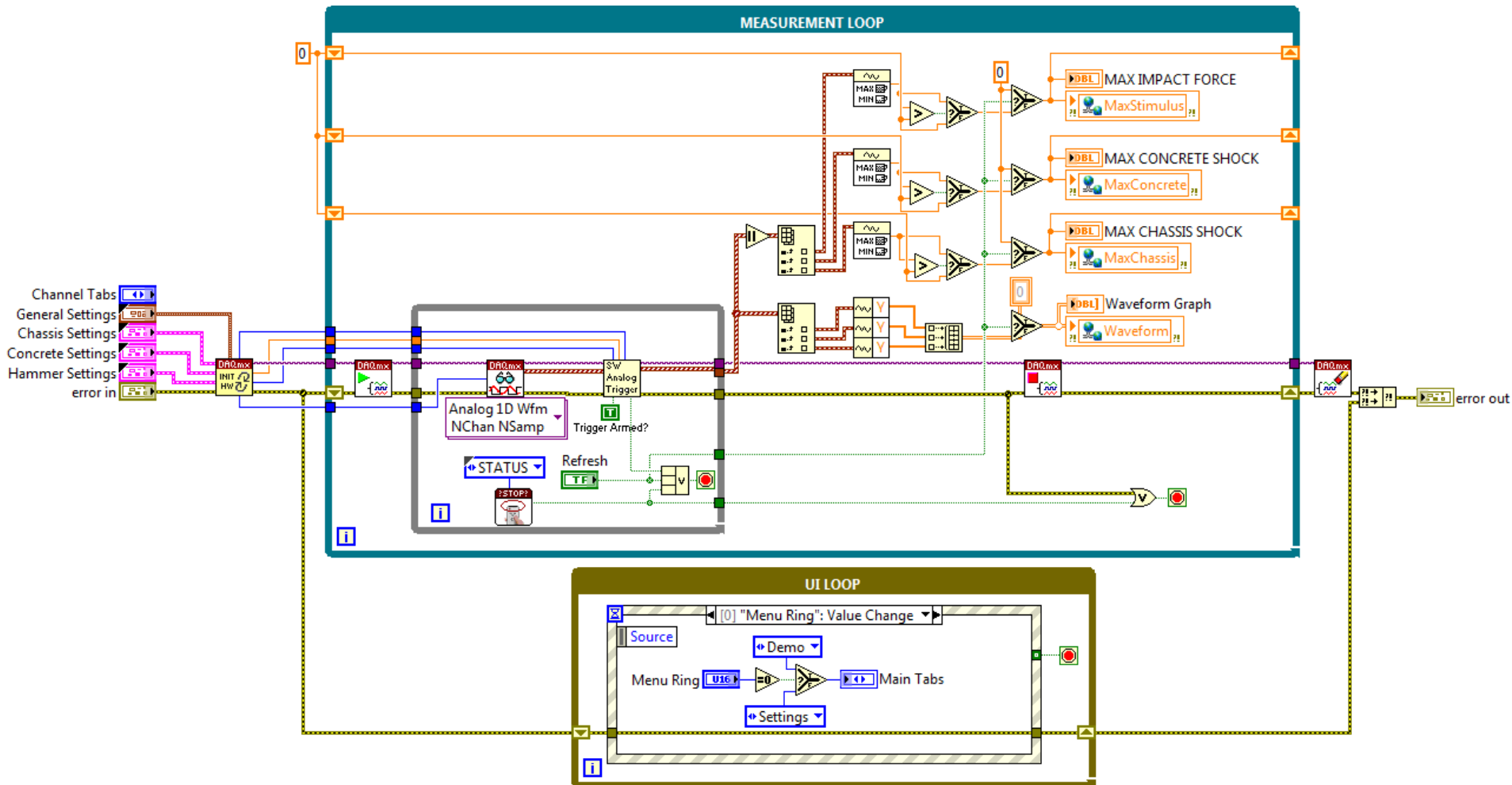
# Demo Block Diagram Before...





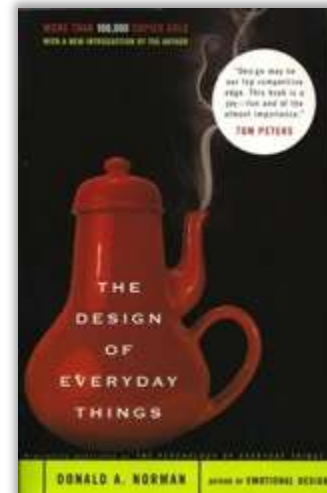
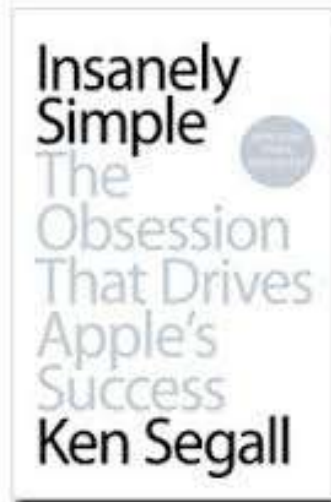
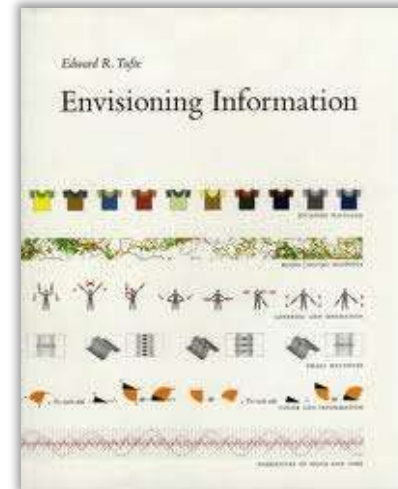
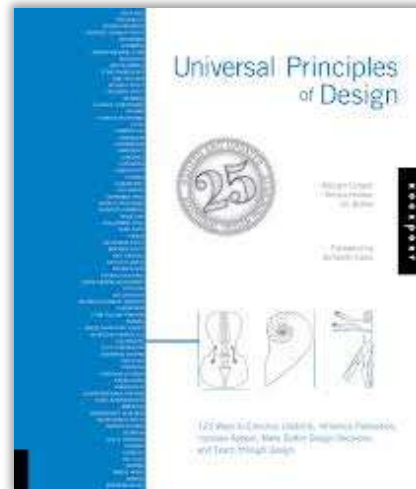
Demo

# Block Diagram After...



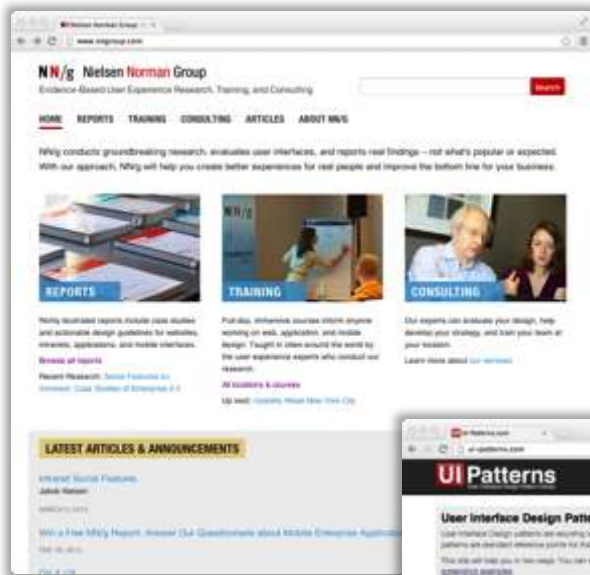
# Recommended Resources

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# Recommended Resources

<http://www.nngroup.com/>



<http://www.uiparade.com/>

