

# CPSC 3720

## Lesson 8

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**Professor of Practice**



*School of*  
**COMPUTING**

# **QUIZ #1**

**MONDAY SEPT 7 – will be a timed quiz (no more than 15 min) taken outside of class based on content from Classes 3-6**

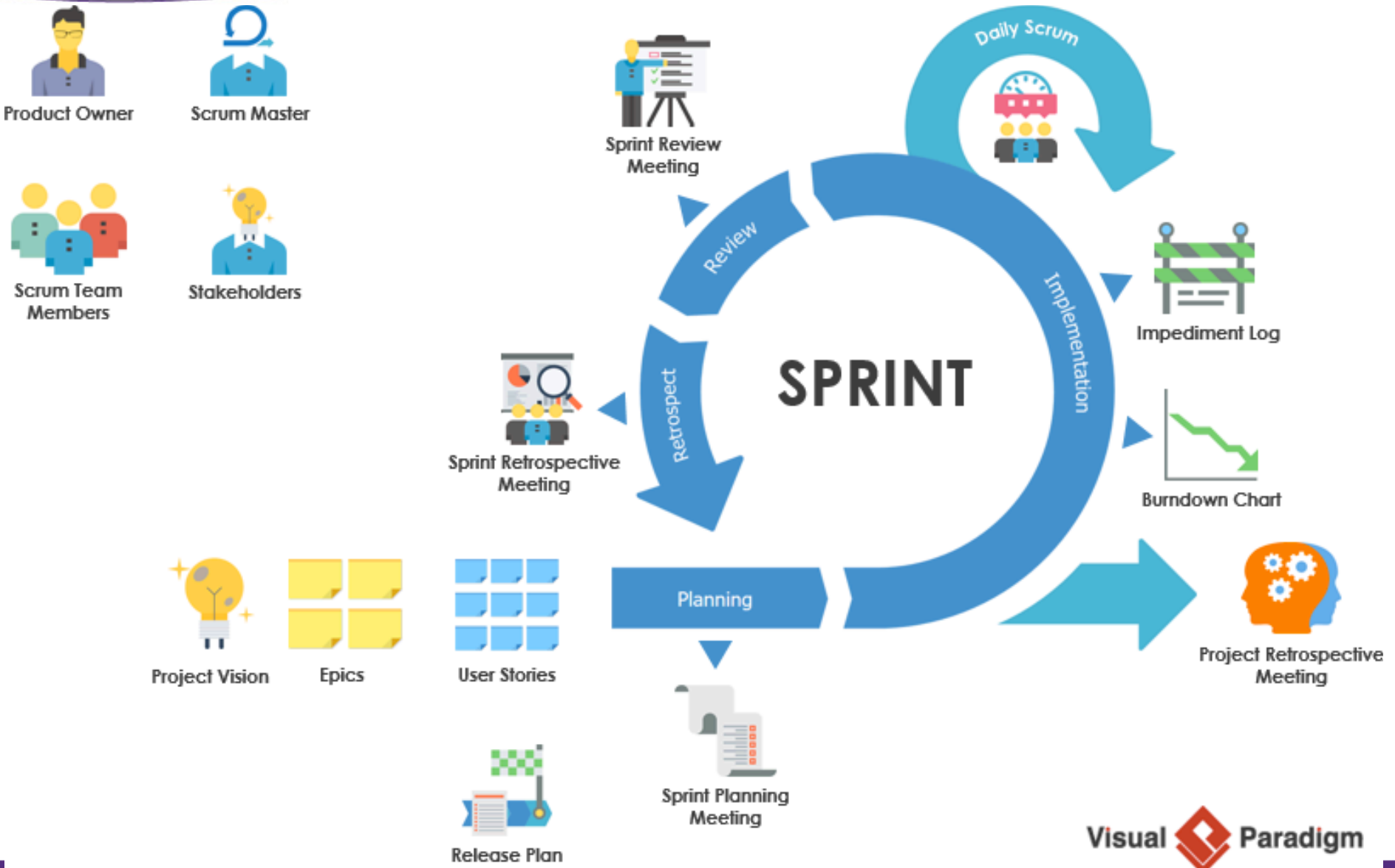
**You cannot collaborate with your classmates about the contents of the quiz prior to, or during the quiz.**

**Quiz is open from 9am Saturday through 11pm Monday.**

# Today's Objectives

- Creating requirements with User Stories
  - *Why Create User Stories?*
  - *The Three C's*
  - Users and User Roles - CUSports
  - Gathering Stories
  - INVEST to create great stories

# Scrum in 1 Picture



# Why User Stories?

- Stories are comprehensible
  - Developers and customers understand them
  - People can understand them better as stories
- Stories support iterative development
- Stories support participatory design
  - The users of the system become part of the team designing the behavior of the system

# The Three C's of User Stories

## Card

- Stories are traditionally written on note cards.
- Cards may be annotated with estimates, notes, etc.

## Conversation

- Details behind the story come out during conversation with customer

## Confirmation

- Acceptance tests confirm the story was coded correctly

# Think about User “Roles”

- Users vary by
  - How they use the software
  - Their backgrounds
  - Their familiarity with software/computers
  - What they use the software for
- A **User Role** is a collection of defining attributes that characterize a population of users and their intended interactions with the system.

# Advantages of using roles

Users become tangible

Start thinking of software as solving needs of real people.

Avoid saying “the user”

Instead we talk about “a frequent flier” or “a repeat traveler”

Incorporate roles into stories

“As a <role>, I want <story> so that <benefit>.”



# Clemson Sportswear eCommerce Site

## Who is the User?

We've been hired to build  
**CUSports.com**  
a new eCommerce site for all things  
Clemson Sports

**Brainstorm the user roles who  
will interact with this site:**

# User Roles: Modeling Steps

- ✓ Brainstorm an initial set of user roles
- ❑ Organize the set
  - ❑ Discuss roles and group together those roles that are similar or overlapping
- ❑ Consolidate roles
  - ❑ Combine roles or replace with a new more generic role
  - ❑ Eliminate roles that are unimportant to the success of the product
- ❑ Refine roles
  - ❑ Review roles to clarify and refine

# CUSports Users – Round 1

First time users

International Fans  
US Fans

## MESSAGE BOARD ROLES

Avid Clemson sport fan who would like message boards

People looking for tickets  
Message board moderators

IPTAY Donor

System Administrator  
CUSports Ecomm team members

High school Clemson prospects  
Fraternity/Sorority admins  
Bulk buyers

Clemson President  
Clemson Faculty  
School administrators

## FAN ROLES

Alumni  
Clemson students  
Clemson Parents  
Season Ticket holders

Fantasy League team manager

Clemson News  
ESPN Correspondents

Fantasy League team manager  
Monitoring by Police

Ticket vendors  
Sportswear Vendors  
Clothing Brand/Product Managers

Coaches  
Athletes  
Courier services

People looking for schedules

Desktop users  
Mobile users

Rival team members  
Athletic Booster members

Warehouse employees

Business partners (Bojangles)

Event planners

# CUSports Users – Round 2

## MESSAGE BOARD USER

Avid Clemson sport fan who would like message boards  
People looking for tickets  
Message board moderators  
Monitoring by Police  
Rival team members?

## CLEMSON FANS

Alumni  
Clemson students  
Clemson Parents  
Season Ticket holders  
Athletes  
IPTAY Donor  
High school Clemson prospects  
Fantasy League team manager  
Athletic Booster members  
Fraternity/Sorority admins

## CORPORATE USERS

System Administrators  
Ecomm team members  
Warehouse employees

## PARTNER USERS

Shipper Courier services  
Business partners (Bojangles)  
Ticket vendors  
Sportswear Vendors  
Brand/Product Managers

## CUSTOMERS

Desktop users  
Mobile users  
International Fans  
US Fans  
Bulk buyers  
First time users

## CLEMSON EMPLOYEES

Clemson Faculty  
School administrators  
Clemson President  
Coaches

## MEDIA

Clemson News  
ESPN Correspondents

## EVENT PLANNING

People looking for schedules  
Event planners

Rival team members?

# CUSports Users – Round 4 (in class)

## MESSAGE BOARD USER

~~Avid Clemson sport fan who would like message boards~~  
~~People looking for tickets~~

## SYSTEM ADMINISTRATORS

## ECOMM TEAM MEMBERS

## WAREHOUSE EMPLOYEES

## CLEMSON EMPLOYEES

Clemson Faculty  
School administrators  
Clemson President  
Coaches

## MESSAGE BOARD MODERATOR

## LOCAL POLICE

## CLEMSON FANS

Alumni  
Clemson students  
Clemson Parents  
Season Ticket holders  
Athletes  
IPTAY Donor  
High school Clemson prospects  
Fantasy League team manager  
Athletic Booster members  
Fraternity/Sorority admins

## SHIPPER SERVICES USER

## BUSINESS PARTNER USER (BOJANGLES)

## TICKET VENDOR?

## SPORTSWEAR VENDOR USER

~~Brand/Product Managers~~

## MEDIA?

Clemson News  
ESPN Correspondents

## CUSTOMERS

Desktop users  
Mobile users  
International Fans  
US Fans  
Bulk buyers  
First time users

## EVENT PLANNING

People looking for schedules  
Event planners

**Rival team members?**

# CUSports Users – Round 5

## Rival team members?

- 1. MESSAGE BOARD USER
- 2. MESSAGE BOARD MODERATOR
- 3. MESSAGE BOARD ANALYTICS USERS
- 4. ECOMM TEAM MEMBERS
- 5. WAREHOUSE EMPLOYEES
- 6. SHIPPER SERVICES USER
- 7. ADVERTISER PARTNERS (BOJANGLES, MEDIA)
- 8. VENDOR USER
- 9. CUSTOMERS
- 10. EVENT PLANNERS
- 11. SYSTEM ADMINISTRATORS

~~People looking for tickets~~

~~Avid Clemson sport fan who would like message boards~~

Alumni  
Clemson students  
Clemson Parents  
Season Ticket holders  
Athletes  
IPTAY Donor  
High school Clemson prospects  
Fantasy League team manager  
Athletic Booster members  
Fraternity/Sorority admins

Desktop users  
Mobile users  
International Fans  
US Fans  
Bulk buyers  
First time users  
CLEMSON FANS  
CLEMSON EMPLOYEES

Brand/Product Managers  
People looking for schedules  
Event planners

MEDIA  
Clemson News  
ESPN Correspondents

**WILL NOT SELL TICKETS**  
**TICKET VENDOR?**  
Clemson Faculty  
School administrators  
Clemson President  
Coaches

# Gathering User Stories

- The Waterfall way
  - Eliciting or capturing requirements
  - Implies users know and don't want to tell us
- The Agile way
  - Trawling\* for requirements
  - Requirements change and mature or die
  - Can be caught with different size nets
  - Skill matters – this is not an easy task



\*Mastering the Requirements Process by  
Suzanne and James Robertson, 1999.

## Gathering User Stories

- Our “net” will not be so large or fine that we can get all user stories up front
- But we should come up with as many as possible



# Techniques for Gathering Stories

Questionnaires

Observation

User interviews

Story-writing  
workshops

# Gathering Stories

## Questionnaires

- Good way to drill into existing stories
- If you have a large user base, questionnaires can help prioritize stories

## Observation

- A terrific way to pick up insights on usage
- Can do this with or without a user's knowledge or through a user doing a demo

# Gathering Stories

## User Interviews

- Need to interview the right people and as many roles as possible
- Most users don't really know what they want (so don't just ask them what they want)
  - Since users don't know how to solve their problems, we need to stop **asking**
  - We need to **involve** them instead

Empirical design

- Designers of the new system make decisions by studying prospective users in typical situations

Participatory design

- The users of the system become part of the team designing the behavior of the system

# User Interviews

Don't ask it this way:

“Would you like it in a browser?”

“Of course, now that you mention it!”

This is more open, so better.  
But, it has too much context.

“What would you think of having this app in a browser rather than as a native Windows application even if it means reduced performance, a poorer overall user experience, and less interactivity?”

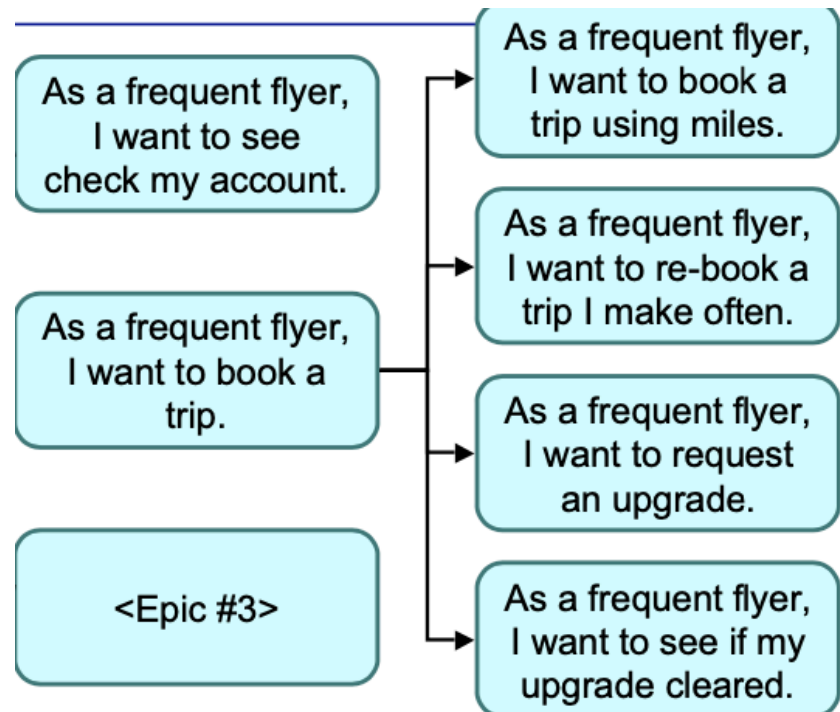
## **The best way**

- Open-ended
- Context-free

“What would you be willing to give up in order to have it in a browser?”

# Story-writing workshops

- Includes the developers, users, customers, others
- Write as many user stories as possible and they are not prioritized
- Low-fidelity prototypes and other brainstorming techniques can be used.



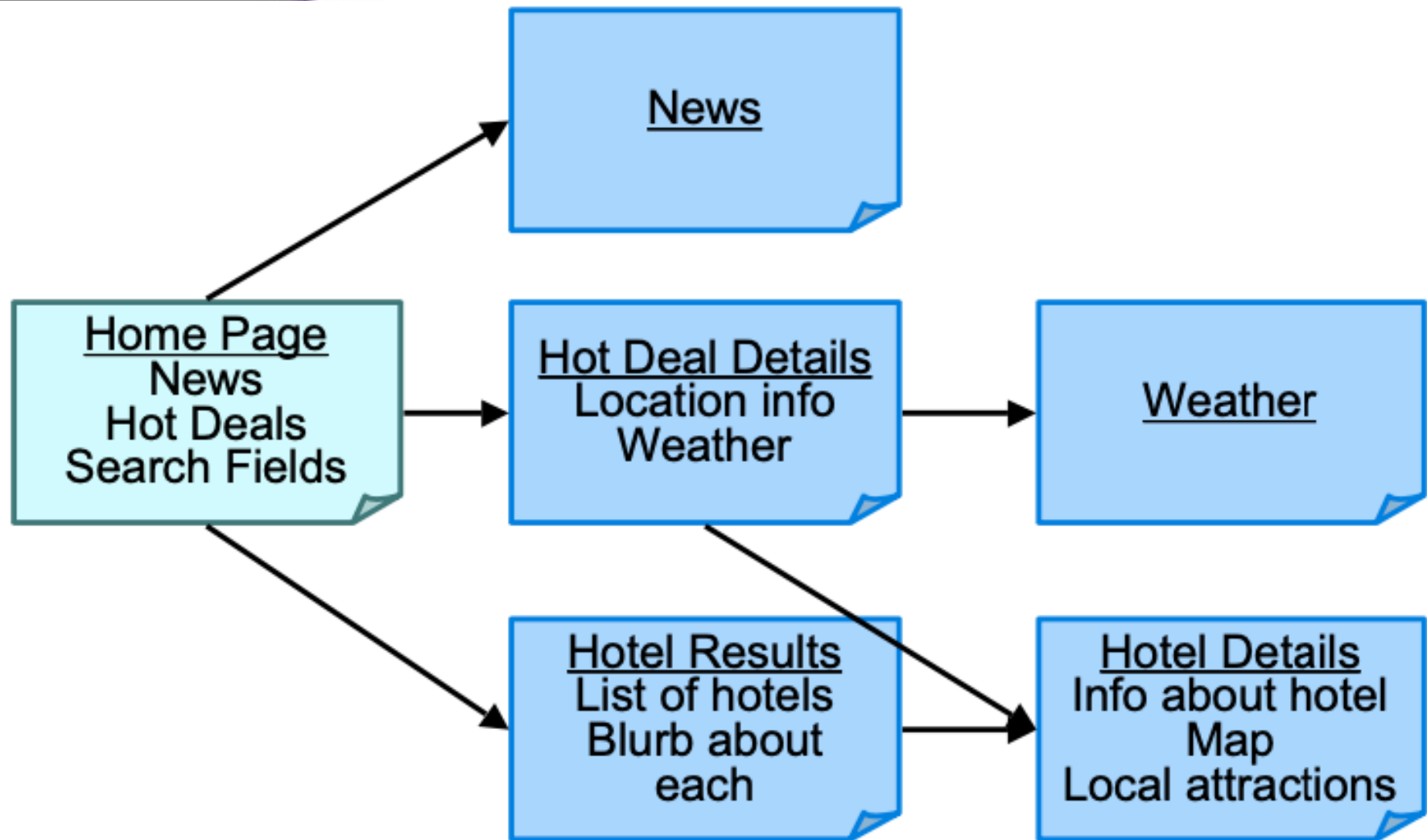
# Low-fidelity prototyping

- Use paper, note cards, white board, big Post-its
- Prototype is of components or areas within the application, *not* of actual screens
  - Hotel Results could be on Home Page or be a separate page
- Doesn't require knowledge of how screens will look
- Throw it away a day or two later
- Works better to go depth-first

# Low-fidelity prototyping

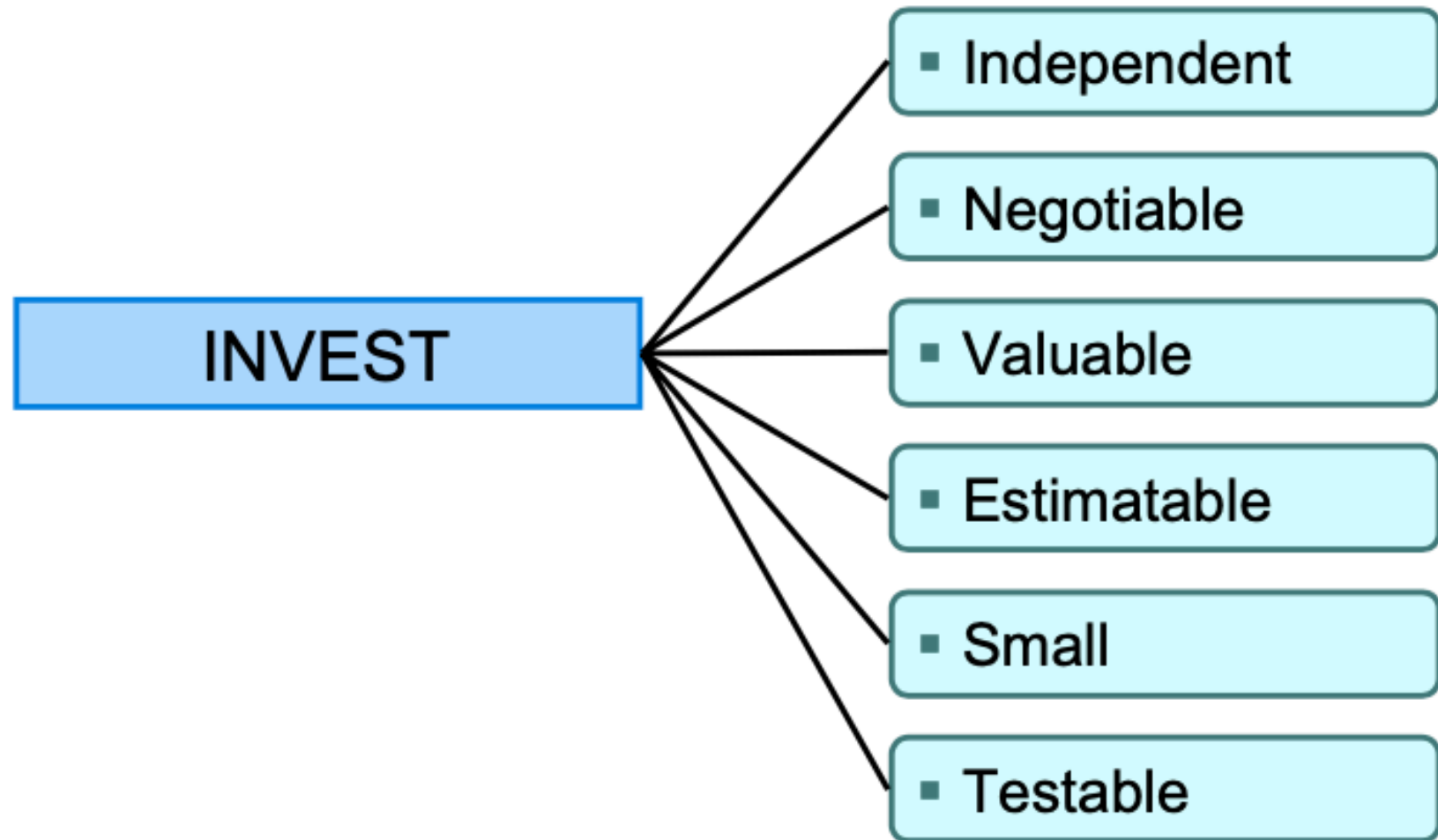
- Start with an empty box:
  - “Here’s the main screen in the system”
- Ask open-ended, context-free questions as you go:
  - What will the users most likely want to do next?
  - What mistakes could the user make here?
  - What could confuse the user at this point?
  - What additional information could the user need?
- Consider these questions for each user role

# Example: Low-fidelity prototype





# What makes a good user story?



Thanks to Bill Wake for the acronym. See [www.xp123.com](http://www.xp123.com).

# INVEST: Independent

## ■ Avoid introducing dependencies

- Leads to difficulty prioritizing and planning

A company can pay  
for a job posting with  
a Visa card.

?

A company can pay  
for a job posting with  
an AmEx card.

A company  
for a job po ?  
a MasterCard.

?

- The first of these stories will take 3 days to develop
  - It doesn't matter which is first
- The others will take 1 day

# INVEST: Independent – cont'd

Combine the stories

- A customer can pay with a credit card.

Split across a different dimension

- A customer can pay with one type of credit card.
- A customer can pay with two other types of credit cards.

Write two estimates and move on

- 3 days if first; 1 otherwise

# INVEST: Negotiable

- Stories are not contracts – need flexibility so that we can adjust what gets implemented
- Too much detail can give an impression of completeness or precision

Do you think this story is negotiable?

Print dialog allows the user to edit the printer list. The user can add or remove printers from the printer list. The user can add printers either by auto-search or manually specifying the printer DNS name or IP address. An advanced search option also allows the user to restrict his search within specified IP addresses and subnet range.

## ■ Stories must be valuable to either:

Users

- As a user, I can search for a job by title and salary range.

Purchasers

- Throughout the project, the team will produce documentation suitable for an ISO 9001 audit.
- The development team will produce the software in accordance with CMM level 3.
- All configuration information is read from a central location.

- Should be rewritten to show the benefit

All connections to the database are through a connection pool.



Up to 50 users should be able to use the application with a five-user database license.

All error handling and logging is done through a set of common classes.



All errors are presented to the user and logged in a consistent manner.



# INVEST: Estimatable

- Because stories are used in planning
- A story may not be estimatable if:

Developers lack domain knowledge

- As a new user, I am given a diabetic screening.

Developers lack technical knowledge

- As a site visitor, I can elect to see all text in a larger font.

The story is too big

- As a user, I can find a job.

- Large stories (epics) are
  - hard to estimate
  - hard to plan
    - They don't fit well into single iterations
- Compound story
  - An epic that comprises multiple shorter stories
- Complex story
  - A story that is inherently large and cannot easily be disaggregated into constituent stories



# INVEST: Small- Compound Stories

## ■ Often hide a great number of assumptions

As a user, I can post my resume.

- A resume includes separate sections for education, prior jobs, salary history, publications, etc.
- Users can mark resumes as inactive
- Users can have multiple resumes
- Users can edit resumes
- Users can delete resumes

# INVEST: Small- Compound Stories

Split along operational boundaries (CRUD)

- As a user, I can create resumes, which include education, prior jobs, salary history, publications, presentations, community service, and an objective.
- As a user, I can edit a resume.
- As a user, I can delete a resume.
- As a user, I can have multiple resumes.
- As a user, I can activate and inactivate resumes.

# INVEST: Small- Compound Stories

Split along data boundaries

- As a user, I can add and edit educational information on a resume.
- As a user, I can add and edit prior jobs on a resume.
- As a user, I can add and edit salary history on a resume.
- As a user, I can delete a resume.
- As a user, I can have multiple resumes.
- As a user, I can activate and inactivate resumes.

# INVEST: Testable

- Tests demonstrate that a story meets the customer's expectations
- Strive for 90+% automation

A user must find the software easy to use.



As a novice user, I am able to complete common workflows without training.

A user must never have to wait long for a screen to appear.



New screens appear within 2 seconds in 95% of all cases.

# Sources

Much of the presentation content was developed using slides and information provided and permitted for this use by Mountain Goat Software: [www.mountaingoatsoftware.com](http://www.mountaingoatsoftware.com).

The company (and founder Mike Cohn) are great sources for Agile best practices.

# Assignment for Monday

Come up with as many User Stories for CUSports as you can using this template (make a copy to your local drive):

[https://docs.google.com/spreadsheets/d/1avPImqIIAQQe9PCfOB\\_rc4jkazl9sYyb\\_QkC9lqdTGo/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1avPImqIIAQQe9PCfOB_rc4jkazl9sYyb_QkC9lqdTGo/edit?usp=sharing) (Links to an external site.)

You only need to fill in Columns D-F.

ATM Example is included as a separate tab on the spreadsheet.

Try to do about 25 stores for the roles from this list: