

# Agile Approach (Lecture 5)

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- Components of Extreme Programming

# Components of XP

- Design
- User stories
- Development
  - Pair programming
- Production

# Extreme Programming (XP)

- Design
  - Writing unit tests before programming and keeping all of the tests running at all times. The unit tests are automated and eliminates defects early, thus reducing the costs.
  - Starting with a simple design just enough to code the features at hand and redesigning when required.

# Extreme Programming (XP)

- Design: User Stories

## The 3 C's

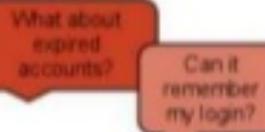
### 1. Card

Written on a card

As a user, I can login and gain access to the intranet, so that I can collaborate with all the organization.

### 2. Conversation

Details captured in conversations



### 3. Confirmation

Acceptance criteria confirm that the story is Done.

- Expired accounts fail  
- Remember the login, not the password  
- After 3 attempts the account is locked out for 24h (SOX compliance)

Source: XP Magazine 8/30/01, Ron Jeffries

# Extreme Programming (XP)

- Development
  - Programming in pairs (called pair programming), with two programmers at one screen, taking turns to use the keyboard. While one of them is at the keyboard, the other constantly reviews and provides inputs.
  - Integrating and testing the whole system several times a day.

# Extreme Programming (XP)



## Pair Programming

- two programmers work together at one workstation.
- One, the ***driver***, writes code while the other, the ***observer*** or ***navigator***, reviews each line of code as it is typed in.
- The two programmers switch roles frequently.



## Pair Programming

- While reviewing, the observer also considers the "strategic" direction of the work, coming up with ideas for improvements and likely future problems to address.
- This frees the driver to focus all of their attention on the "tactical" aspects of completing the current task, using the observer as a safety net and guide.



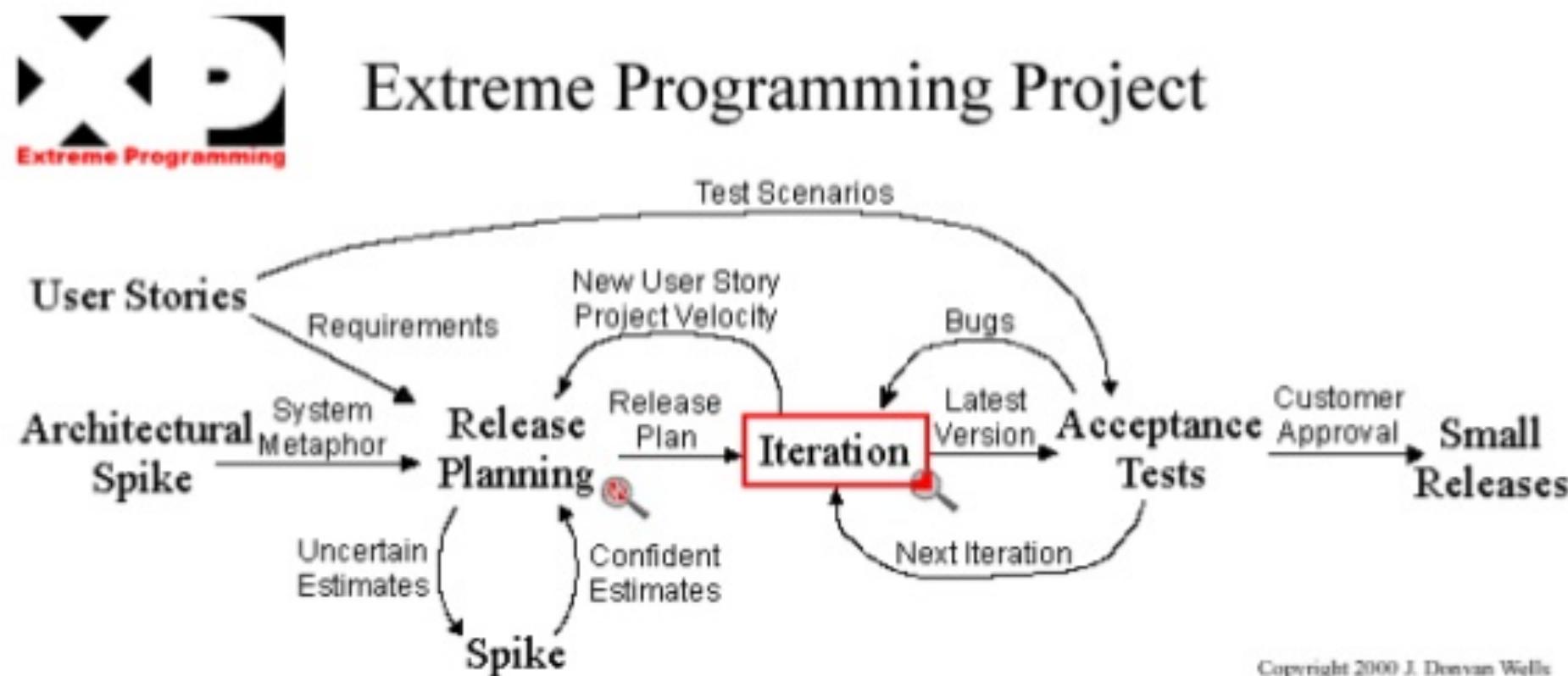
## Pair Programming

- Pair programming increases the man-hours required to deliver code compared to programmers working individually from up to between 15% and 100%.
- However, the resulting code has about 15% fewer defects.

# Extreme Programming (XP)

- Production
  - Putting a minimal working system into the production quickly and upgrading it whenever required.
  - Keeping the customer involved all the time and obtaining constant feedback.

# Extreme Programming (XP)



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# ADVANTAGES OF XP

1. Large projects are divided into manageable amounts.
2. Reduced cost and time required for project realization.
3. XP teams save lots of money due to less documentation.
4. Simplicity
5. Reduces risk related to programming since XP uses module structure and pair program.
6. Quality, robustness due to software simplicity and test driven development at coding stage lead to success.

# DISADVANTAGES OF XP

1. XP is focused on the code rather than design.
2. XP requires a detailed planning from the start due to changing cost and scope.
3. XP doesn't measure/plan quality assurance of coding.
4. XP is practiced with pair programming which might usually lead to too much duplication of codes and data.

# Questions

- Mention the components in XP.
- Explain the following in XP
  - Design
  - User stories
  - Development
  - Production
- Define pair programming in XP.
- List the advantages and disadvantages of XP

# References

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- Chris Sims and Hillary Louise Johnson, Elements of Scrum, Dymaxicon, LLC
- Martin Flower, Refactoring, Addison Wesley; 2<sup>nd</sup> edition