

# Software Engineering

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## Process Summaries

### XP Summary

- XP is a type of iterative project management structure
- This is well suited for situations where you have:
  - a high volume and pace of requirements
  - a customer who is willing to be heavily engaged with the team
  - a team that isn't very large, < 20 and is collocated
  - a team with a strong skillset/strong capabilities

### Waterfall Summary

- It's simple, easy to execute, intuitive, logical, and contractually easy
- It can be too risky, the requirements are set in stone early, you may end up struggling with outdated tech, it's hard to make changes, you don't get user feedback, and it encourages bloating of requirements

### Prototyping Summary

- Great for novice devs (aka us)
- It helps with requirement elicitation, reduces the risk that waterfall brings, and creates a more stable final system
- It can be front heavy, create a higher cost and longer schedule, encourages bloating of requirements, and disallows changes

### Iterative Summary

- This creates regular deliveries (and increases business benefit), accomodates for changes, allows for user feedback, doesn't lead to requirements bloating, and some other stuff I missed

### Timeboxing Summary

- All of the benefits of iterative, while also making planning easier

### RUP Summary

- All of the benefits of iterative plus a flexible framework for lots of projects
- Downside is that each project requires a new process design

## How do you decide what to do?

- The model you use should be based on the problem at hand
- Rafal generally recommends iterative which I 100% agree with
- Example: highly competitive product with rapidly changing requirements and outsourcing is desired
  - not XP because you need a collocated team
  - not waterfall because the reqs are rapidly changing
  - iterative may not deliver fast enough
  - timeboxing is the best!

## Overall Summary

- Development process models:
  - waterfall
  - prototyping
  - iterative
  - timeboxing
  - RUP
  - Agile/XP
- All have their pros and cons

## Project Management

### Background

- The dev process divides development into phases/activities
  - to execute this efficiently, we need to allocate resources, manage them, etc
- This is all part of the project management process, hence this is an essential part of executing a project

### Planning

- This is done before the project begins (shocking)
- I missed the rest of the slide

### Monitoring and Control

- Lasts for the duration of development
- Looks into cost, schedule, risk, etc - all of the primary things we need to be concerned about
- Takes corrective actions when needed
- Needs information on the dev process

## Homework Info

- Three new homeworks: CV, recommendation letter, retrospection

## CV

- Two sections:
  - Skills
    - \* Languages, tools
  - Interested in learning
    - \* Languages, tools
- Also mention if we will have the time and passion to work on a challenging project
- We will use markdown and submit it to github, then upload the name of our repo

## Rec Letter

- Writing a rec letter for all of our team members, including ourselves. 4 letters in total
- Must be based on our experience in *this class alone*
- We will work on this through the end of the semester
- Done on github, as always

## Retrospection

- Looking back at how our group has worked. Did we listen well, were we available, did we contribute?
- Use this time to plan out a little bit