THE AUTHOR OF THE WINDOWS FILE COPY DIALOG VISITS SOME FRIENDS.

Cost Estimation and Planning

COMP23420: Software Engineering

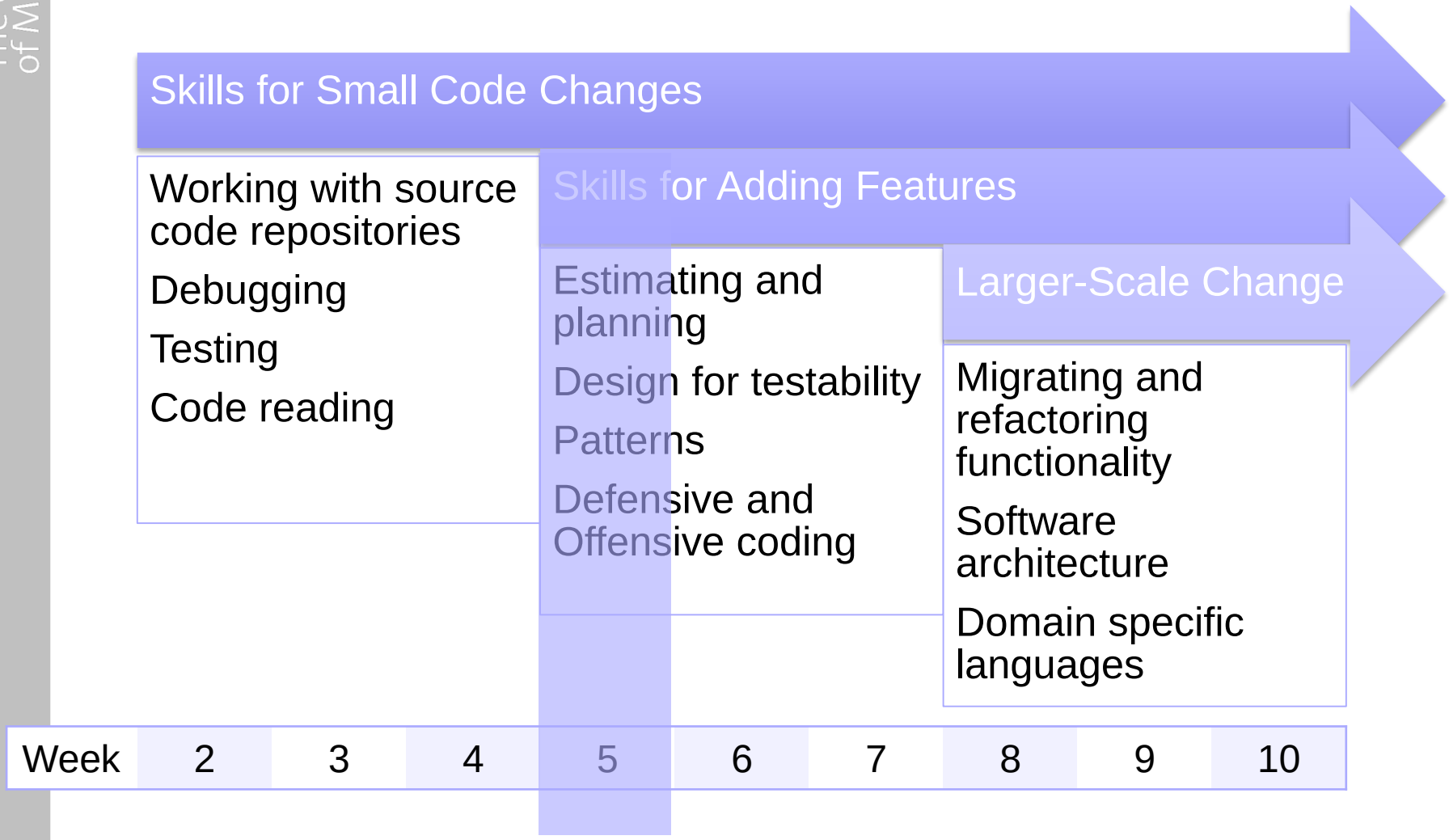
Week 5

Caroline Jay and Robert Haines

Who are we?

- Caroline
  - Lecturer in Empirically Sound Software Engineering
- Rob
  - Research Software Engineering Manager
  - Honorary Lecturer

Course Unit Roadmap (Weeks 2-10)



Link to the Coursework/Exam

- We will learn…
  - Why estimating accurately is difficult.
  - Things that can help improve the accuracy of your estimation.

- Coursework: Accurate estimation will help with allocating work.
- Exam: Questions on estimation.

Cost estimation

- Estimating the effort, resources and schedule for software projects*.
  - Effort
  - Resources
  - Schedule

- *Other definitions are available, but this is the one we are working with today.

Reflection

- In groups, discuss your first piece of coursework.
  - How long did you think it was going to take you to complete your feature?
  - How long was your official estimate?
  - How long did it actually take you?

Building a plane

- How long will it take your team to build a plane the length of an A4 piece of paper, that can fly the width of the room, to the nearest 30 seconds?
- What resources do you need?
  - Tape disks (number)
  - Glue (at all)
  - Paper (number of sheets)
- Estimate individually – write it down
- Come to a consensus.

Build another plane

- Write down your estimate (time and resources).
- Build the plane.
- Was it more or less accurate?

Building a bigger plane

- How long will it take to build a plane that's the length of two A4 pieces of paper? What resources do you need?
- Write down your estimate.
- Build it.
- Was your estimate accurate?

Break: 10 minutes

Building an even bigger plane

- How long will it take to build a plane that's the length of three A4 pieces of paper?
- Join up with the team next to you.
- Write down your estimate.
- Build it.
- Was your estimate accurate?

Things that make estimating hard

- Process
  - Poor management
  - Which units should we use?
  - Deadlines
  - Bigger teams need more communication
- Unknowns
  - Lack of experience
  - Unforeseen problems
  - Unfamiliar tools
  - Complexity
  - Variable quality of materials
- External issues over which we have no control
  - Distractions
  - Relying on other people / services
- Different opinions
- Over optimism or pessimism

Things that can help you estimate

- Having a clear view of your objectives
  - Focused scope
- Experience
  - Removing uncertainty
  - Shared experience
  - Familiarity with
    - Process
    - Team members
    - Tools
    - Resources
    - Code/application (estimating gets easier as project goes on)
- Interest
  - Easier to estimate if you are engaged
- Reuse of resources
  - Templates
  - Designs
  - Components
- Honesty

Chaos Report (Standish Group)

- Successful projects:
  - Large companies 9%
  - Medium companies 16%
  - Small companies 28%
- Cost overruns
- Time overruns
- Content deficiencies
- Around half of IT Executives think there are more project failures now than there used to be.

Next Week

- In the team study sessions you will work on the coursework
- In the workshop we will learn about writing testable code

Summer job opportunity

- We are recruiting students to work on Digital Humanities projects in June and July this year.
  - Short (up to 7 weeks) practical projects
  - Collaborations between Computer Science and the Faculty of Humanities

- Contact Sean Bechhofer if you are interested
  - sean.bechhofer@manchester.ac.uk