COURSE OVERVIEW

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[Lecture 0]

This Course in a Nutshell

Data Structures and Algorithms	Software Engineering and Development
• Hash table, binary search tree • Red-black tree, B-tree, AVL tree • Divide-and-conquer • Dynamic programming • Complexity analysis • Benchmarking, performance • Persistent data	• Software testing • Parsing • Design by contract • Design patterns • Intellectual properties

Tentative Course Plan

Week	Lectures	Labs	Assessments
1	Software Testing		
2	Data Structures I	Lab1 Warmup	
3	Data Structures II, III	Lab2 Testing	Lab2, QZ1
4	Algorithms I	Lab3 Trees	Lab3
5	Algorithms II, III	Oral Test (Hurdle)	Written Test
6	Performance, Persistent Data	Lab4 Persistent Data	Lab4, QZ2, GP starts
	2-Week Break	*Practice*	IndAsg
7	Parsing		Midterm
8	Design by Contract	Lab5 Parsing	Lab5, QZ3
9	Design Patterns	*Practice*	
10	Intellectual Properties	*Practice*	QZ4
11	Review		GP due
12	Group Project, Demo		

Online Teaching

- Live online lectures
  - Interactive, but time constrained
- Pre-recorded lectures
  - Flexible and rewatchable, but lack of interactions
- Harness both live and pre-recorded lectures
  - All live lectures have pre-recorded versions
    - But not all materials in pre-recorded lectures are covered in live lectures
  - Pre-recorded lectures are not recorded live lectures
    - Live lectures also contain more audience participation and interactions
- You are strongly encouraged to both attend online lectures and watch pre-recorded lectures for revision

Assessments

Assessment Items	Weight
4 Lab Assignments	8%
1 Individual Assignment	3%
4 Quizzes	4%
Test (Oral + Written)	5%
Group Project	20%
Mid-term	25%
Final Exam	35%

Labs and Individual Assignment

- 5 Lab sessions:
  - Lab registration on Wattle (open in Week 1 Wednesday noon)
  - 2-hour lab session per week for practical programming tasks
  - Write to tutor Henry Zhu (henry.zhu@anu.edu.au) for any lab registration issues
  - 4 Labs have assignments, which are submitted on Wattle
- One individual assignment in semester break
- Note: Pay attention to the submission requirements
  - DO NOT add package name, nor change class, method, variable names
  - Violation will result in 50% mark reduction

Quizzes

- 4 Online quizzes on wattle
  - Multiple choice questions
- Questions will be normally available on Monday and due on Saturday
- You can complete anytime in a given week, but
  - Only one attempt is not allowed
  - 1-hour time limit (once it’s started)

Group Project

- Up to 4 students per group
- Develop a system based on the knowledge of this course:
  - Apply data structures, persistent data, parsing, testing, etc.
  - Emphasis on teamwork, creativity, technicality
  - Practice Git, documentation, design by contract, etc.
  - GUI/Android is optional
- Details (requirements, guidelines, rubrics) will be available in Week 6

Test (Hurdle!)

- In Week 5
- Oral
  - Demonstration of using IDE
  - Basic programming concept
  - Hurdle: must pass in order to pass this course
- Written
  - Self-invigilation
  - Multiple-choice questions
  - Programming questions
  - You can complete anytime in a given week
    - Only one attempt allowed with 1-hour time limit

Mid-term and Final Exam

- Format
  - Self-invigilation
  - Multiple-choice/short questions
  - Programming questions
  - 2-3 hour exam duration
- Covering all lectures, lab materials and assignments
  - This year has an increased weight on non-programming questions
- Good news: final exam is not a hurdle in this semester! 😄
- Practices of past exam questions will be provided
- More information at the end of semester

Self-invigilation

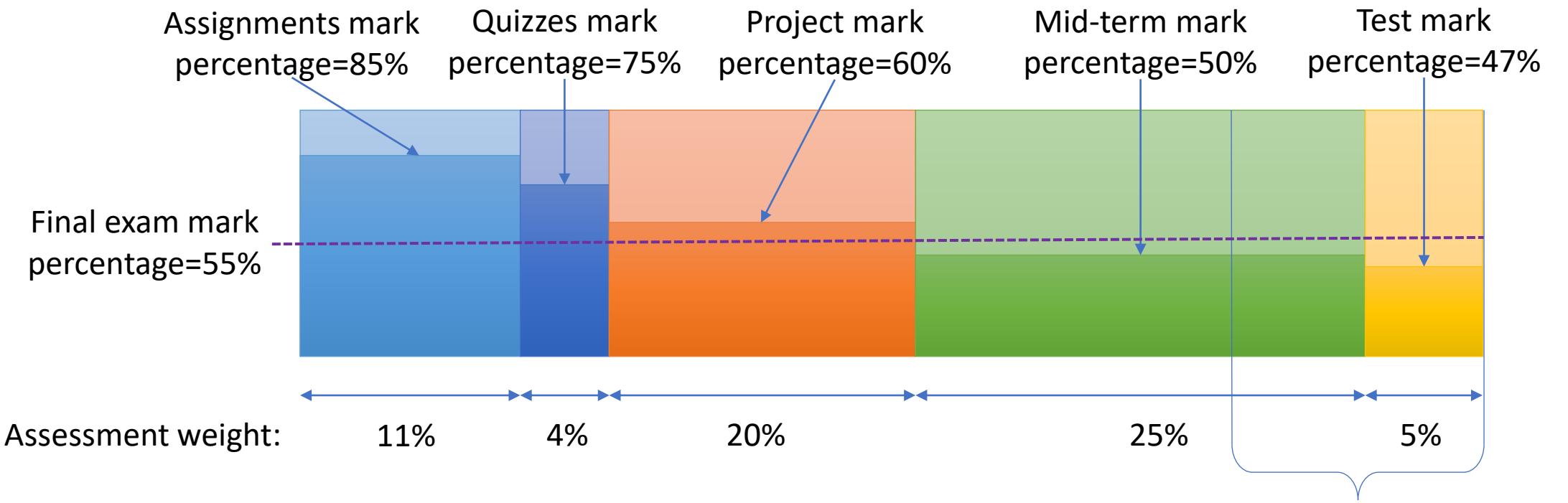
1. Record the screen, camera and microphone by yourself during test/ mid-term/exam
   - Instructions and demo will be provided
   - Videos need to be kept for at least a month
2. Upload a hash of the recorded video at the end of test/mid-term/exam
   - Prevent tampering of recorded video
3. Random interview
   - Check your recorded video and hash
   - Oral test your answers

- Failure to comply with self-invigilation will result in severe penalty

- You will be rewarded with ★stars★ for supportive and positive behavior
  - Reporting any cheating and dishonest behavior
  - Showing positive interactions in lectures and on forum
  - Supporting your fellow students in lectures and on forum
  - Helping instructor and tutors
  - Providing constructive suggestions and feedbacks
- How to use your stars?
  - 1 star = 1% of total mark that can be redeemed from the final exam
  - Redemption begins with your assessment items of the lowest mark percentages
- Good news: all students by default are awarded 3 stars in the beginning of semester !

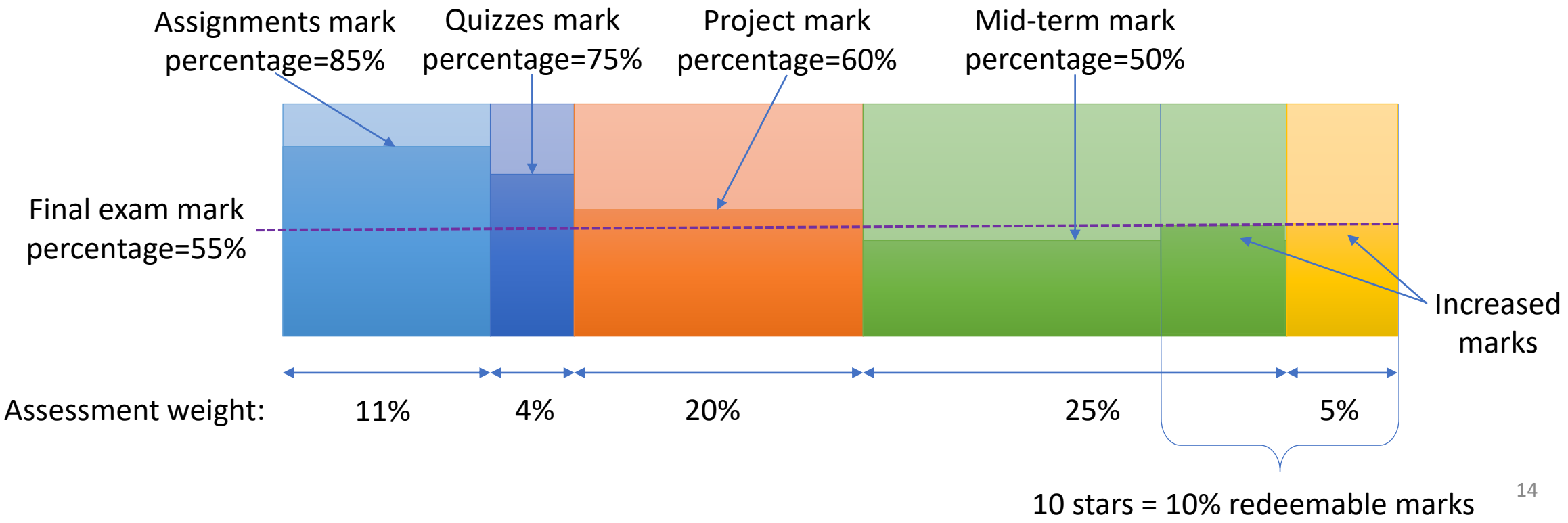
Redeeming Stars: Example

- Mark percentage = your received marks / total marks
- Consider the following example:



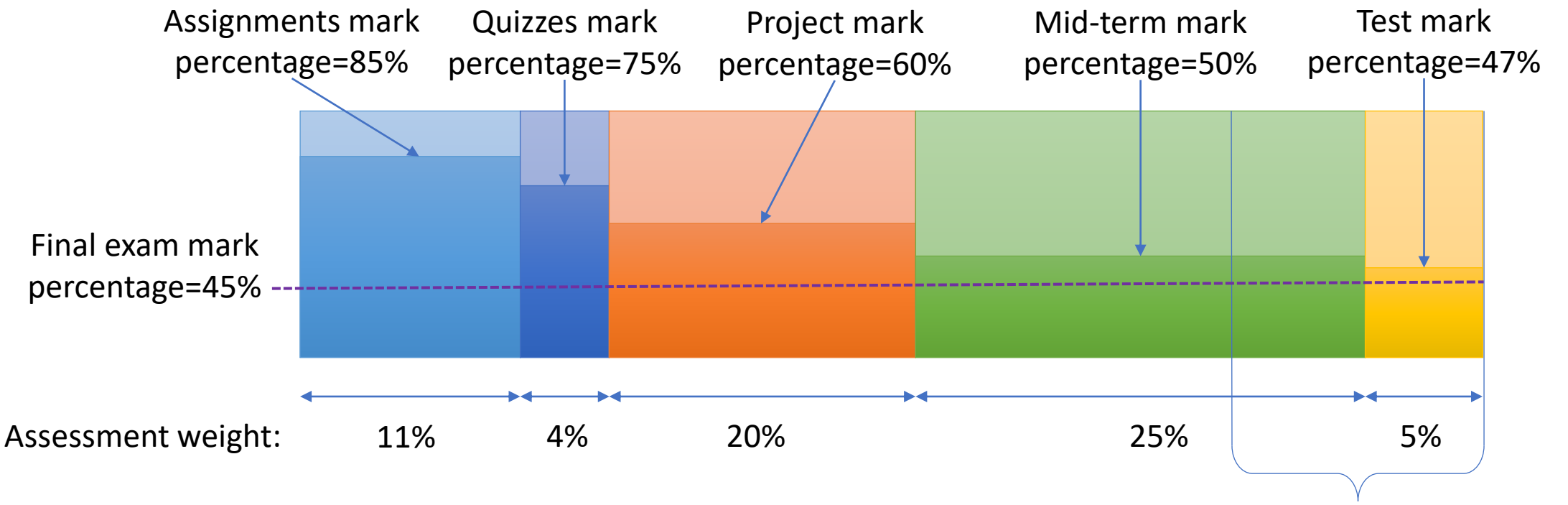
Redeeming Stars: Example

- Consider the following example:
  - After redeeming 10 starts, you will receive



Redeeming Stars: Example

- Consider another example:
  - If final exam has a low mark percentage, redemption would not help



Late Submission

- Submissions after deadlines are normally unacceptable
  - As per university policy of late submissions
- However, special consideration may apply under specific conditions
  - Your total marks nearly miss PX or P at the end of semester
- How to evaluate late submission
  - Upload your late submission to your own GitLab repo as soon as possible, even the submission deadline is passed
  - Once uploaded, don't modify your submission
  - Request for special consideration at the end of semester and share your repo
  - We will check your submission and its upload time, and decide if special consideration will be granted
  - Don't send your late submission directly to instructor or tutors

Appeal

- From the date that your assessment marks are released electronically, you will have a maximum period of two weeks to question your marks
- You need to fill up an appeal request form for each appeal
- After two weeks, your mark will be final
- Release of assessment marks and appeal forms will be usually announced on the course announcement forum

Further Questions?

- Please check FAQ page on wattle for a list of FAQs
  - Many questions have been answered previously
  - Consult FAQ first before you post any questions about this course
- Post your questions on wattle forum
- There is always a tutor who will provide you a quick answer on the forum daily (Monday to Saturday)
  - This is the most efficient way to get an answer
- Private confidential questions can be addressed to instructor by email