48024 Applications Programming

Dr Angela Huo

Zoom Manner

- Chat: Message the lecturer if something is wrong
- Icon: Slow down or faster?
    - When you have a question, click “Raise hand”, I will unmute you and you can speak
    - Vote for a poll, click “Yes” or “No”
- Padlet: https://padlet.com/angelahuo/appsprog
    - I will answer the posted questions at the end of the lecture.

This subject adopts “flipped learning” teaching strategy. You need to complete the “Pre-class” activities to prepare for the interactive quiz and application questions in lectures, which help you prepare for the LMS exam.

How you get support from us?

- **Live Lectures and Live Labs:** main scenarios for us to answer your questions, provide feedbacks or advise on your work.
- **U:PASS:** provides extra exercises to help you get better understanding about the materials.
- **Consultation time:** 3:30pm-4:30pm Tuesday online booking
- **Extra Consultation:** 5:10pm-6:00pm Tuesday online booking
- **Off the class:**
  - Check the FAQ on ED --- It's not the discussion board, no one answers questions there!
  - Ask your peers in the **Discussion Board on Canvas Lab page**
  - Ask your tutor
  - Forward the question to the subject coordinator

Post your question to https://padlet.com/angelahuo/appsprog

Any Feedback?

About the lecture

When: Tuesday 1 March 2022

Time: 14:00 pm - 15:00 pm

Zoom link for this meeting: https://utsmeet.zoom.us/j/83972106130

Slides: 48024 AUT 2022 W2.pdf

Recording: https://cloudstor.aarnet.edu.au/plus/s/0DBqCfyTTTHC8Nm (Password: **#zqmuANG_CA0**)

Padlet: padlet-2022AUT-2.pdf

Response: https://cloudstor.aarnet.edu.au/plus/s/7SLJah7ZiGYqg08 (Password: **#zqmuANG_CA0**)

Feedback Survey: Let us know if there is anything we can improve for the subject by filling out the anonymous survey.

Post your question to https://padlet.com/angelahuo/appsprog

Contents

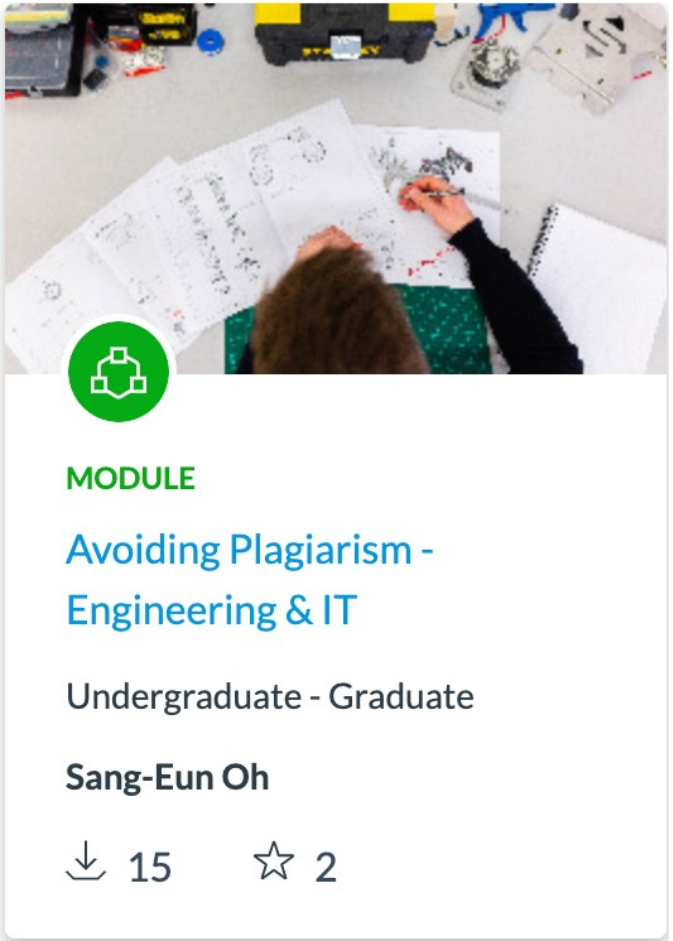
Prep: Open Question Board(https://padlet.com/angelahuo/appsprog)

1. Announcement
2. Lab 3 Review
3. Week 4
    1. Quizzes
    2. Question board
4. Lab4 Preview

Post your question to https://padlet.com/angelahuo/appsprog

Avoiding Plagiarism - Engineering & IT

- You need to pass the quiz (12/15) to access the Assignment modules.
- You will have a better understanding about whether a behaviour is regarded as plagiarism or not.



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On a more serious note:

- It your code is detected as “High similarity” by the system.
  It means majority of the codes are identical.
  You will receive a feedback with grade “0” on ED.

- What if it happens again?
  Your grade will be pending for misconduct investigation.

NOTE:

- **You should write every line of code yourself except for code copied from the lecture notes, lecture code or lab code.**
- **DO NOT rely on any code outside of the class!**

Post your question to https://padlet.com/angelahuo/appsprog

Labs

- Java or Python?
  - You must complete Java solution to unlock the following labs.
  - You won’t be able to access the following Python labs if not completing previous Python lab.
- MARKing:
  - The last submission before due will be counted into your final grade by summing up each test case score.
  - You can access the lab after the due date, but the late submission won't be assessed.
  - Labs and assignments are built upon the solutions of the due labs and assignments, so any submission later than the release of the following lab or assignment won't be assessed.
- Lab guide:
  Become available in Lab page on Canvas after lecture day.

Post your question to https://padlet.com/angelahuo/appsprog

Supports

Refresher Modules

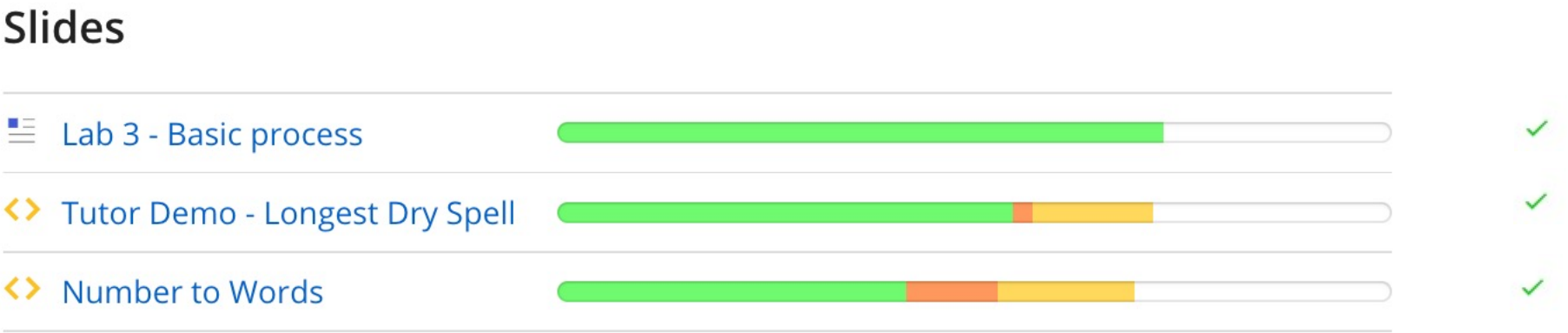
- Module 3 and Module 4 are available for preparation for Study Module 5: Classes.
- They won't affect following lab assessment but are helpful for Study 5.

Advanced Challenges

- Advanced challenge can be implemented either in Java or Python.
- Advanced challenge is graded by PASS or FAIL. Partially passing the test cases won't be credited.
- You can attempt the advanced challenges with improved programming skills after finishing all the lab exercises, assignment 1 and 2.
- No explanation or solution will be released before due (10th June).

Post your question to https://padlet.com/angelahuo/appsprog

Lab 3 Review



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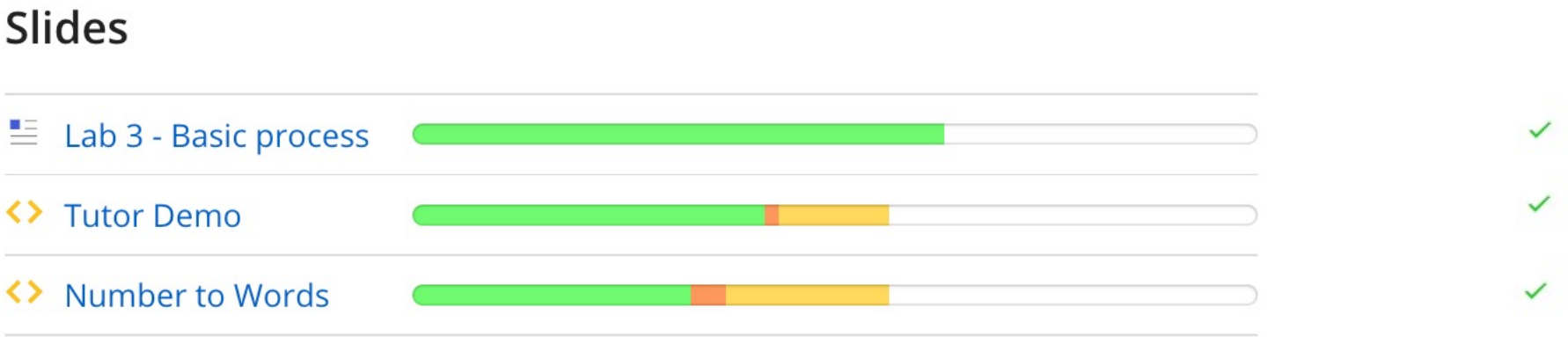
Lab 3 Review -- Python

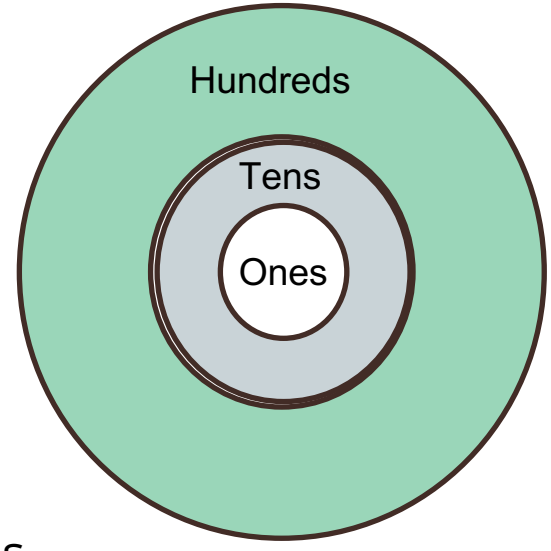


Post your question to https://padlet.com/angelahuo/appsprog

Lab 3 Summary

- Read in numbers between 0-999 until -1.
- Show the number in words.

  Number: 234
  two hundred and thirty four
  Number: -1



- Breaking down the goal into incremental goals.
- Build it up from bottom up

Reusable!

Post your question to https://padlet.com/angelahuo/appsprog

Lab 3 Reflections

- **Your initial plan may not have all of the details right, and that the plan could change slightly when you hit unforeseen roadblocks or requirements for your code**. Trying to find and plan for these roadblocks ahead of time in this initial plan is the goal.

- **Combining all of the calls into a single line to make this code work could be a complicated concept to grasp. Take it step by step.**
    - **Count[value/10]++;**

- **Reduce the duplicated code as many as possible.**

Question: How to remove the ending space without adding extra line?

Post your question to https://padlet.com/angelahuo/appsprog

How to improve?

1. If an expression appears more than once,
   declare a variable for it.
2. If the methods share the common part,
   extract the common part as a new method.
3. If the method contains only one sentence?

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Week 4

- Methods: functions vs procedures
- String functions
- Process: break it down, build it up.

Patterns:

- String Loop
- For-each loop
- Merged read loop
- Read function
- Any, every, none
- Boolean functions

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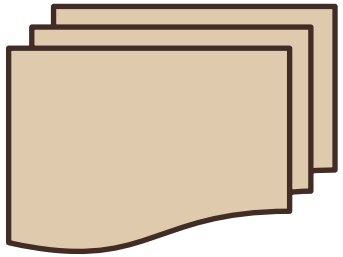
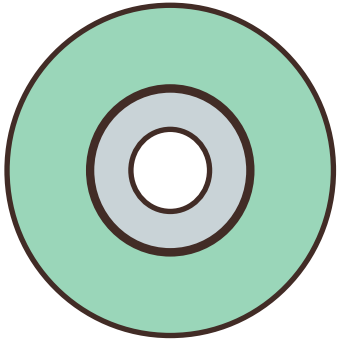
How to build incremental goals?

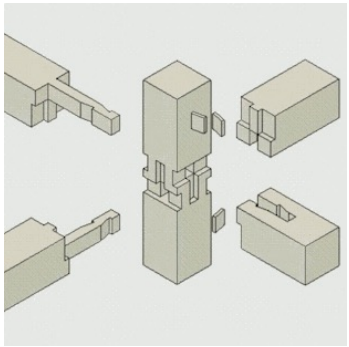
- Break down the solution into sequenced steps!



EASY
Pattern



MEDIUM
Process



HARD
Functions & Procedures

Post your question to https://padlet.com/angelahuo/appsprog

Quiz

- What is the difference between a function and a procedure?

- Can a procedure call a procedure? YES
- Can a procedure call a function? YES
- Can a function call a function? YES
- Can a function call a procedure? NO

Post your question to https://padlet.com/angelahuo/appsprog

What is the method header?

- Goal: Find how many words in a sentence
  - `public static int wordCount(String sentence)`
- Goal: Check if a character is a vowel
  - `public static boolean isVowel(char c)`
- Goal: Find the highest rainfall
  - `public static double highestRainfall(double[] rainfall)`
- Goal: Show the highest rainfall
  - `public static void showHighestRainfall(double[] rainfall)`

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What's the executing sequence?

You could achieve the same thing using:

- *String input = readString();*
- *int count = zCount(input);*
- *System.out.println("z count = " + count);*

Then from there you can simplify it to:

- *String input = readString();*
- *System.out.println("z count = " + zCount(input));*

Then finally:

- *System.out.println("z count = " + zCount(readString()));*

Post your question to https://padlet.com/angelahuo/appsprog

What's the executing sequence?

1	()、[]
2	!、+、-、~、++、--
3	*、/、%
4	+、-
5	«、»、>>>
6	<、<=、>、>=、instanceof
7	==、!=
8	&
9	^
10	|
11	&&
12	||
13	?:
14	=、+=、-=、*=、/=、&=、|=、^=、~=、«=、»=、>>>=

- To ensure the code priority, adding () always works!

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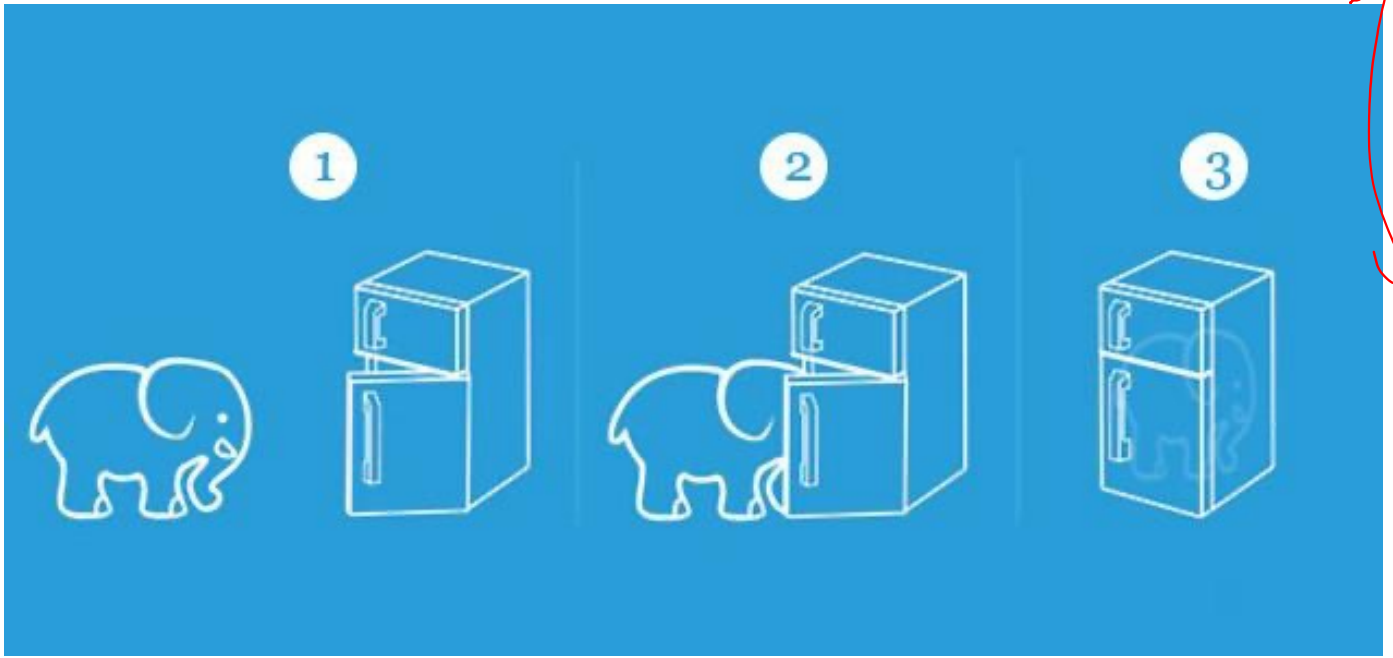
How to break it down, then build it up?

methods



1. Input
2. Process
3. Output

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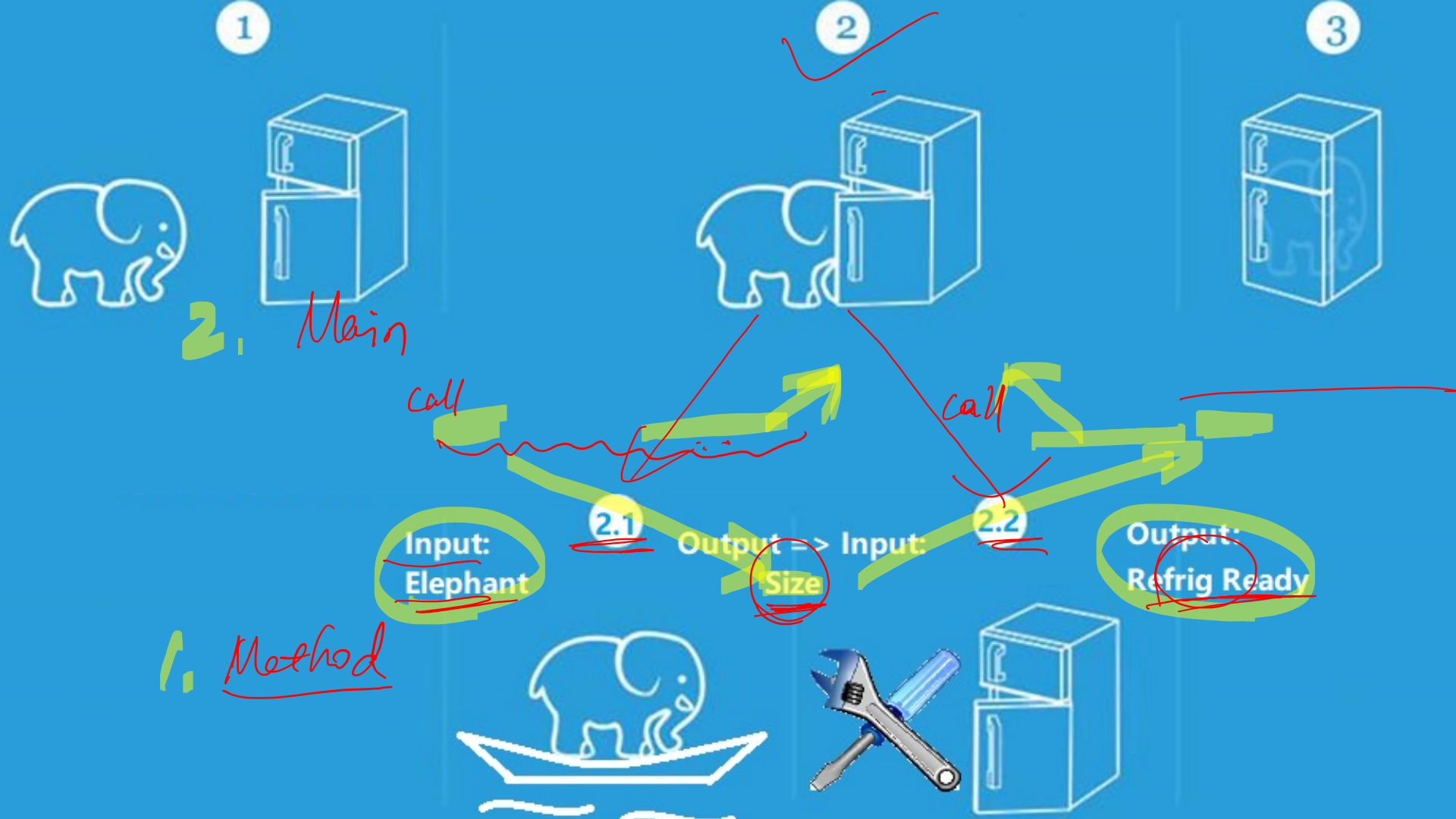
1
2
3
2. Main
call
call
2.1
2.2
Input:
Elephant
Output => Input:
Size
Output:
Refrig Ready
1. Method

Whether two methods can share the same name?

- When two methods have the same name, the parameters must be different:
  - If the number of parameters is the same
    - Then the type of the parameters must be different!
- For example:
  - **zWords(String[] sentences)** Java ✓
  - **zWords(String sentence)**
- **Note:** Python works different! Python X

Post your question to https://padlet.com/angelahuo/appsprog

Familiar with String Methods!

- Example: reading characters:

```
char c;
while ((c = readChar()) != '.') {
    <use c>
}
```

- Example: reading strings:

```
String s;
while (!(s = readString()).equals("end")) {
    <use s>
}
```

For more, see the documentation: https://docs.oracle.com/javase/8/docs/api/java/lang/String.html

Note: Python works different!

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Familiar with String Methods!

- What does it means when there is a (“ +”) in the string methods?
  - “aeiou”.contains(“”+c);
  ---- “+” means “append”
  - Sentence.split(“ +”);
  ---- “+” means 1 or more
- **Note:** Python works different!
- String. Trim() can remove the spaces before and after the string.

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Summary

Prep: Open Question Board(https://padlet.com/angelahuo/appsprog)

- Functions and Procedures
- Incremental Goals
- Executing sequence
- Method Overload
- String Methods

Java != Python.

- Question Board Response!
- Lab Preview

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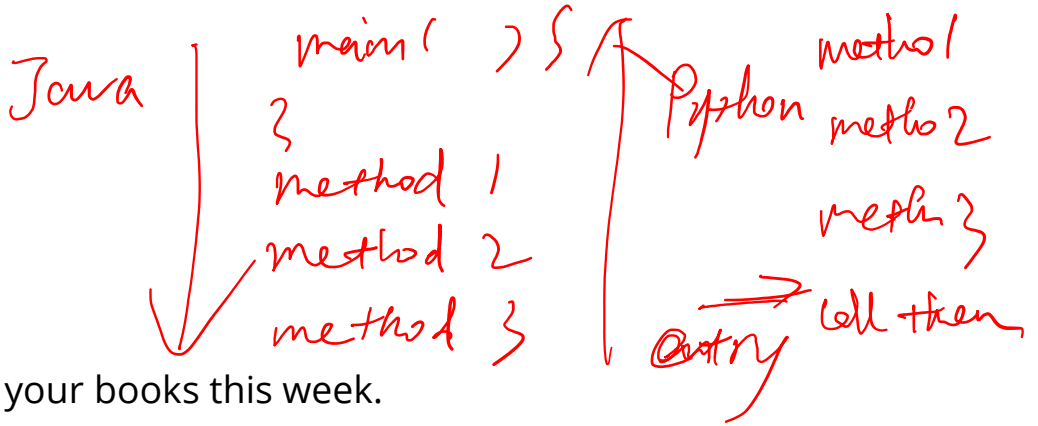
Lab 4 Preview



- Pattern Book:
  - there should be **8** new patterns in your books this week.
  - Patterns are not always spelled out as such in the lecture notes, and you should write it down if it looks like a pattern (merged read loop)
- Topic:
  - Last week is all about breaking away from patterns and thinking up new solutions.
  - This week: functions vs procedures, and the break it down, build it up approach. You break it down in a table, and you build it up in code.
- **Note:** Python works different!

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Timing

- 30 min Intro + Demo
- 10 min Form a group, do the levels/goals
- 30-50 minutes -- Groupwork
- Remaining time – Coding and Consulting!

See you next time!

Post your question to https://padlet.com/angelahuo/appsprog

Contact

- Subject Coordinator and Lecturer: Angela Huo
- Email: huan.huo@uts.edu.au
- Contact information on Canvas

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