Blank Activity (13 minutes)

Activity Introduction
Breakouts
Backup

Session 3

Purpose of Today's Session

This session is focused on further practicing the fundamentals of loops and conditionals using the list data structure.

HCs

Readings

Study Guide

Review the following sections from learnpython.org:

- **Lists**
- **Conditionals**
- **Loops**

While reviewing, be sure to do the exercises - you cannot learn to code by just reading!

It is strongly recommended that you work on the exercises given last week if you did not finish them. Please see your tutors for a reminder of the problems.

Pre-Class Work

◉ **Individual**
Group

Background Readings for Faculty

Classroom Activities

Blank Activity 13m

NOTES FOR FACULTY

This is a second problem-solving session devoted to lists, loops, and conditionals. Should there be difficulties implementing the Cocalc notebooks, please use the document provided in the last step to share the problems with students.

Activity Introduction LAYOUT: 2-UP 2m

Remind students of the format of the structured study sessions: students work on Python exercises in small breakout groups with students of similar proficiency, calling on the peer tutors for help as needed. You should be prepared to move students around in the groups as appropriate. Students may work on problems appropriate to their level, but should continue working through the entire session. Students should also periodically check in with you to report on their progress.

Activity Learning Goal Slide

Slide

Activity Learning Goal

Write programs with loops and conditionals using the list data structure.

Breakouts LAYOUT: 1-UP 10m

Breakout

Breakouts

Groups

8 groups

8 groups

unlimited

Breakout Notes

BREAKOUT NOTES CONTENT

**Session 3: More lists / conditionals / loops
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1. (Beginner) Summing: (a) Input any integer n. Use a for loop to sum the integers 1, 2, ..., n. (b) Do the same thing, but use a while loop. (c) Modify either (a) or (b) so that when you sum the numbers less than n, you skip any number divisible by 5.

2. (Beginner) More list manipulation: (a) Enter two lists of your choice, say list1 and list2, then create and print a new list of length 4 whose first and last entries are the first and last entries of list1, and the middle two entries are the first and last entries of list2. (b) Enter a list of integers of your choice, then print the second-largest entry of the list.

3. (Advanced Beginner) Project Euler #31: In England the currency is made up of pound, £, and pence, p, and there are eight coins in general circulation: 1p, 2p, 5p, 10p, 20p, 50p, £1 (100p) and £2 (200p). It is possible to make £2 in the following way: 1×£1 + 1×50p + 2×20p + 1×5p + 1×2p + 3×1p How many different ways can £2 be made using any number of coins?

4. (Intermediate) Project Euler #24: A permutation is an ordered arrangement of objects. For example, 3124 is one possible permutation of the digits 1, 2, 3 and 4. If all of the permutations are listed numerically or alphabetically, we call it

numerically or alphabetically, we call it lexicographic order. The lexicographic permutations of 0, 1 and 2 are: 012   021   102   120   201   210 What is the millionth lexicographic permutation of the digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9? Note: If this problem is not challenging because you used library functions, try creating those functions yourself!

◉ Same notes duplicated for all groups
Different notes for each group

ALL GROUPS Exercises

□ Backup LAYOUT: 1-UP 1m

Resource

Document

Generated Doc

DOC CONTENT

After teaching all sections of this class...

please feel free to submit your feedback on this LP