

## Lab 7

- Lab 6 Review
- Review for Lab 7

## Lab 7: Pair Programming

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Lindsey	Chas
Alison	Ian
Kalady	Joseph
Rachel	Olivia
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Anna	Robert
Chase	Lizzie
Andrew	Harris
Chas	Lindsey
Davis	Findley
Olivia	Rachel
Margaret	Ryan
Ian	Alison
Jordan	Parker
Joseph	Kalady

## Lab Musings

- As we learn more computer science, we're moving toward a **much higher ratio of *thinking to coding***
  - Give yourself the time and room to think
  - Discuss, reinforce your understanding
- Going beyond simply correctness in solutions
  - Looking for understanding of good coding practices
    - Testing, readability, usability, documentation, organization, efficiency
      - (not necessarily in that order)

## Lab Musings

- Lab benefit: access to other students, lab assistants, and instructor to help
- Lab limitation: may not be the best environment
  - Seems to cause a competitive atmosphere, increased anxiety for some students
  - You have until Friday to complete the lab
  - Work at your pair's pace, **think clearly and deeply**

## Checking if a str contains a substring

Instead of using a method, could use `in` operator because didn't care where in the string it was:

```
if "r" in phrase:
```

## def reverseString(mystr):

- Both are correct implementations
  - Preference depends on how you think
  - (other correct implementations as well)

```
reverse = ""  
for index in range(len(mystr)-1,-1,-1):  
    reverse = reverse + mystr[index]  
return reverse
```

```
reverse = ""  
for char in mystr:  
    reverse = char + reverse  
return reverse
```

## Programmatically Testing Functions

- Trying to get you to be more efficient testers
  - Don't worry about user input
  - Just make the test calls
    - Think about input and expected output

- Example:

```
test.testEqual( reverseString("cat"), "tac")
```

- Can still print in function during debugging
  - Then remove print statements

## Reminder: doc strings on all functions

- Content template:
  - What function does
  - Precondition: what parameters are, their types, any restrictions on them
  - Postcondition: what is true after function executes, e.g., what is returned or displayed

## Over string

- Why do you **not** need to use `str` in the following code segments?

```
origString = str( input("What is your string? ") )
```

```
print(str(fahr), "degrees F is", str(cels), "degrees C")
```

**Goal:** Simplify/reduce code

→ Less code → easier to understand, less error-prone

## Review

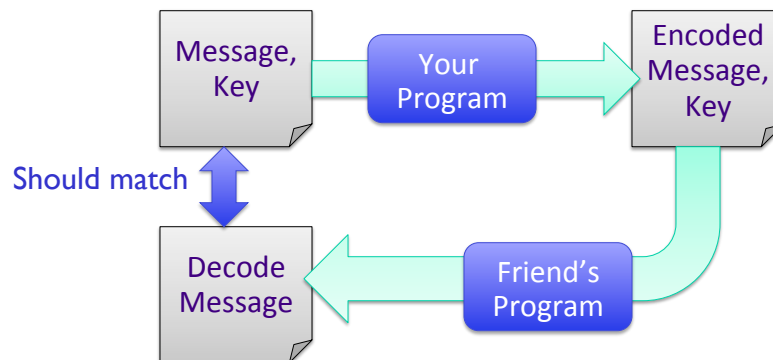
- How can we find the ASCII value for a character?
- How can we find the character associated with an ASCII value?

## Review

- What is the syntax for representing a list?
- How are lists and strings similar?
  - How are they dissimilar?
- What are some common list methods and operations?

## Caesar Cipher

- Write an encoding/decoding program
  - Encode a message
  - Give to a friend to decode



## What is the algorithm for encoding a letter?

- Assuming a lowercase letter

## What is the algorithm for encoding a letter?

(Assuming a lowercase letter)

1. Convert the character to its ASCII value
2. Add the key to that value
3. Make sure that the new value is a “valid” ASCII value, i.e., that that new value is in the range of lowercase letter ASCII values
  1. If not, “wrap around” to adjust that value so that it’s in the valid range
4. Convert the ASCII value into a character

## What is the algorithm for encoding a message?

- Assuming message only made of up lowercase letters and spaces

## Caesar Cipher (Partial) Algorithm

- Accumulate a new encoded message
- For each character in the message
  - Check if the character is a space; if it is, it stays a space
    - Add space to the encoded message
  - Otherwise
    - Encode letter
    - Add encoded letter to the encoded message



## Textbook Grading

- No need to panic
- Just trying to reconcile the grades
  - 4% of your grade
  - The “small” things don’t worry me over ~11 assignments
- I want to know if there are grades that you think aren’t correct.
- List for those

## Lab 7

- Strings
  - Escape sequences
  - Formatting
- Lists
- Caesar Cipher