

## Lab 4 Feedback

- Good overall
  - Problems will keep getting more difficult
  - More and more possibilities as we combine all our newly acquired skills
- Took off for insufficient **testing, comments**

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## Testing

- Eureka problem
  - Between 500 and 1000, inclusive
- Box problem

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## Input Restrictions

```
user_num=int(input("Please input a number."))
```

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## Drawing a Box Alternatives

- For loop

```
print(".*width")
for rowNum in range(height-2):
    print("."+ ".*(width-2)+".")
print(".*width")
```

- str operations

```
print(".*width")
line = "."+ ".*(width-2)+".\n"
print(line*(height-2))
print(".*width")
```

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## Code Review

```
numSpaces = 0
for x in range(5):
    print(" " * numSpaces, "\\")
    numSpaces = numSpaces + 1
```

What does code do?  
What are the values assigned to numSpaces?  
Can we simplify?

```
for numSpaces in range(5):
    print(" " * numSpaces, "\\")
```

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## Problem with Duplicate Code

```
#Print data for 100m
meters = 100
kilometers = .001*meters
yards = 1.094*meters
miles = .0006215*meters
print("%5d %12.3f %13.1f %10.3f" %
      (meters,kilometers,yards,miles))
```

```
#Print data for 200m
meters = 200
kilometers = .001*meters
yards = 1.094*meters
miles = .0006215*meters
print("%5d %12.3f %13.1f %10.3f" %
      (meters,kilometers,yards,miles))
...
```

Difficult to maintain:

- What if need to change the formatting?
- Change the conversion amount?

**Solutions:**

- Constants
- For loop

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## Error Handling

```
WIDTH_INPUT = "Enter a width (" + str(WMIN) + "-" + str(WMAX) + "): "
HEIGHT_INPUT = "Enter a height (" + str(HMIN) + "-" + str(HMAX) + "): "

width = eval(input(WIDTH_INPUT))
height = eval(input(HEIGHT_INPUT))

error = False
errorMessage = "\nError: \n"

if width < WMIN or width > WMAX:
    error = True
    errorMessage += "\tWidth (" + str(width) + ") is not within\n"
    range (" + str(WMIN) + "-" + str(WMAX) + ")\n"

if height < HMIN or height > HMAX:
    error = True
    errorMessage += "\tHeight (" + str(height) + ") is not with\n"
    range (" + str(HMIN) + "-" + str(HMAX) + ")\n"

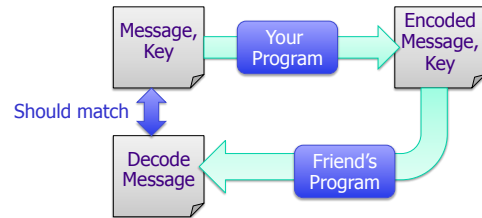
if error:
    print(errorMessage)
```

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## Caesar Cipher

- Write an encoding/decoding program

- Encode a message
- Give to a friend to decode



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## Lab 5 Overview

- String Problems
- Encoding
- Broader Issue: Bug Comparison due Friday
- "That was a good review!"
  - Review the bag of tricks/skills we learned over the last week
    - Even better to review each day
  - Some problem will likely require the new trick

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