CompSci 101
Main, Functions, Import, Random, Conditionals

Announcements
• Upcoming due dates
  • Sakai quizzes 1-4: 2/4 @145pm.
  • All future quizzes due @145pm day of lecture
  • Assignment 0-TODAY @1130pm
  • Assignment 1-released today (due 2/11 @1130pm)
• Last day to register (TODAY)-can't change labs without permission #
• Consulting hours vs. office hours
• Piazza channel

D is for …
• Design
  • Great programs are the result of great designs. (KISS principle)
• Decomposition
  • Breaking down a problem/task into smaller subproblems/subtasks
• Debugging
  • A key skill in making your programs run
• Data (Science)
  • Creating information from 0’s and 1’s

Computer Scientists to Know
• Dr. Mark Dean
  • Degrees: Electrical Engineering
  • University of Tennessee, Florida Atlantic University, Stanford University
  • Dean of Engineering, University of Tennessee
  • Former chief engineer (IBM)
• Mrs. Angie Jones
  • Degrees: Computer Science
  • Tennessee State University, NC State University
  • Principal Automation Architect
  • Applitools (Test Automation Univ)
  • Master Inventor-25 patents
PFTD

• Main
• Functions
• Import
• Conditionals

Why do we need this statement?

```python
if __name__ == '__main__':
```


```python
if __name__ == '__main__':
    name == "Jeff"
    hours = 15
    rate = 15

    # Calculate and output total pay
    totalPay=hours*rate
    print("Total Pay for " + name + "=$" + str(total_Pay))
```

Functions-Why Do We Need Them?
What’s the Difference?

All the single ladies call the single ladies
All the single ladies call the single ladies
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Now get your heads up

1. Define the function (How it works)
2. “Call” the function (Using it)

```python
def functionName(parameters):
    block

if __name__ == '__main__':
    variable = functionName(arguments)
```


Benefits of Functions

- Easier to
  - Read/understand
  - Modify
  - Test
  - Debug
- Pro tip: Look for any repetition in your programs

Creating Functions

Update this program to:

- Create function
  - Calculates/outputs pay for each student
- Use calculate_pay in program to update this program
Why Import?? Added Functionality

```python
import module_name

if __name__ == '__main__':
    print(module_name.function_name(arguments))
```

Python Standard Library

- [https://tinyurl.com/kt4ogfu](https://tinyurl.com/kt4ogfu)

Random numbers

- `random.random()`
  - Return floating point number in range [0.0, 1.0)
- `random.randint(a, b)`
  - Return random integer N such that a <= N <= b
- How would we simulate rolling dice?

WOTO 3

- Edit this code to simulate rolling two dice
  - Generate values for two dice
  - Output values of each die
  - Use function to calculate sum of dice and output it

Conditionals: if...elif...else

- If condition is true → action1
- Or else if new condition is true → action2
- Or else → action3
WOTO 4

• Simulate rolling two dice
  • Within the function sum
    • Sum dice
    • If sum is 7 or 11 then output “You win!”
    • Otherwise, output “Next time!”

Can we only import modules from the Python Standard Library?

Remember

• Work smarter, not harder
• Design first
• Leverage PythonTutor to understand control
  • [http://pythontutor.com](http://pythontutor.com)