CSCI 134 Fall 2021:
Lab 2: Day of the Week

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Lab 2: Goals

• In this lab, you will be writing a non-trivial Python script to compute the current day of the week in Williamstown

• High-level learning goals:
  • Defining and calling functions.
  • Using arithmetic operators in Python.
  • Testing your code in interactive Python.
  • Writing conditional (if else) statements to make decisions in your code
How Computers Keep Track of Time

- On Unix machines time is represented by the **number of seconds**, starting from the beginning of Thursday, January 1, 1970
  - The date is arbitrary, but is called the Unix "epoch"
- In Python we can access this value using the `time` module
- The time value is in UTC (current time in England)
- While the value is a float, we only need the integer part for this lab

```python
$ python3
>>> from time import time
>>> time()
1612800680.9091752
```
Figuring Out the Day of the Week

• The time module gives us the total number of seconds since Thursday, January 1, 1970

• Our goal: Use this value to figure out what is the current day of the week in England (for now, later we will deal with timezones)

• Approach (break down the problem):
  • How many minutes have elapsed since the epoch?
  • How many hours? Days?
  • Suppose, the number of days divide evenly by 7, what day of the week is it? What if they do not?
  • How do we do this using arithmetic operations we have learnt?
UTCDay(timeval)

• This function takes a floating point number, `timeval`
  • `timeval` represents the UTC time in England
  • And is the total number of seconds since the Epoch (beginning of Thursday, January 1, 1970)
• This function should return
  • A number between 0-6, which is the day of the week corresponding to this `timeval`
  • Where 0 is Sunday, 1 is Monday, ..., 6 is Saturday
Interactively Testing Functions

- Enter interactive python by typing python3
- import the function and any modules you need
  - from day import UTCDay
  - from time import time
- Call the function and see if it returns the desired output
- If you need to make changes to the code in day.py
  - quit out of interactive python session
  - Re-enter, re-import modules before resuming testing
Running as a Script

- To run a program as a script:
  - type `python3 (filename.py)` in the Terminal
- This ensures that the code block within `if __name__ == '__main__'` block is executed

```python
if __name__ == "__main__":  # run as a script?
    now = time()  # UTC time
    dayNumber = localDay(now, -4)  # Eastern day of week number
    dayName = dayOfWeek(dayNumber)  # get day name
    print("It's " + dayName + "!")  # print it out
```