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Date: 22 May 2017 at 20:53  
Subject: Foundations Homework 1  
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Hi all!

Here's the extensive, exhaustive, and borderline-abusive homework - don't say I didn't warn you! Feel free to skip around, and don't worry about finishing it all. Tons of help is around in the form of TA's, Slack, tips (read the whole email first!!!), and [the course site](http://jonathansoma.com/site/lede/foundations-2017" \t "_blank).

**## SUBMITTING HOMEWORK**

For some reason the submission system isn't working just yet, so please Reply-All to this email with your homework zipped up as an attachment.

**## PYTHON PARTS**

Inspired by the BBC's "Your life on earth" - [http://www.bbc.com/earth/story/20141016-your-life-on-earth](http://www.bbc.com/earth/story/20141016-your-life-on-earth" \t "_blank) - we will be creating a program to analyze the year a user was born in.

**Please create a brand new file named homework-1-lastname.py**

* The first line should be a comment with your full name
* The second line should be a comment with the date
* The third line should be a comment "Homework 1"

**When run from the command line, this file should**

1. Prompt the user for their year of birth, and tell them (approximately):
2. How old they are
3. How many times their heart has beaten
4. How many times a blue whale's heart has beaten
5. How many times a rabbit's heart has beaten
6. If the answer to (5) is more than a billion, say "XXX billion" instead of the very long raw number
7. How old they are in Venus years
8. How old they are in Neptune years
9. Whether they are the same age as you, older or younger
10. If older or younger, how many years difference
11. If they were born in an even or odd year
12. How many times the Pittsburgh Steelers have won the Superbowl since their birth.
13. Which US President was in office when they were born (1935 onward)

Additionally, if someone gives you a year in the future, try asking them again (assume they'll do it right the second time).

**## TIPS**

* How fast does a rabbit's heart beat? I don't know, I'm not a vet - Google it!
* If you're having trouble wrapping your head around a problem, write out what you want to do in steps before you try to write the actual Python code.
* XXX billion will involve division.
* You might end up googling multiple comparisons in an 'if' statement, adding one to variables, the else and elif operators (that's advanced conditionals!), and modulo (for the even/odd one).

**## COMMAND LINE PARTS**

Do you like murders or do you like workplace fatalities? The choice is yours!

**1. A command-line murder mystery.**

Who did it? Unzip the following and cat instructions to see your task.

[https://github.com/veltman/](https://github.com/veltman/" \t "_blank)clmystery/archive/master.zip [ github. com/veltman/clmystery/archive/master. zip ]

**2. Using the list of workplace fatalities from class, answer the following questions. Submit as a plain-text file named homework-1-lastname.txt with both the answers and a list of commands you used to get them.**

You can also download the file again from [https://www.osha.gov/dep/fatcat/dep\_fatcat.html](https://www.osha.gov/dep/fatcat/dep_fatcat.html" \t "_blank)

1. How many accidents are in the file?
2. What companies were involved in explosions?
3. I would like a file of only 2017 accidents. How many lines is in it?
4. What command would I use to show me ONLY the first line of the file?
5. How many accidents involved forklifts? Also, save them to a file.
6. How many accidents were on Christmas Eve? Also, save them to a file.
7. I need a text file of accidents that involve trees!

**## TIPS**

You can find some notes related to class a few guides on using the command line at [http://jonathansoma.com/site/lede/foundations-2017](http://jonathansoma.com/site/lede/foundations-2017" \t "_blank)

Watch out, question #1 is a clever trick!

When searching, think about why choosing singular vs. plural might be important

If you run a command, it usually prints out the result. For example, "cat Oxford-English-Dictionary.txt" will print out the entire file. You can also use the neat trick below to count the number of lines in a result:

  OS X:**cat Oxford-English-Dictionary.txt | wc -l**

  PowerShell:**cat Oxford-English-Dictionary.txt | measure -lines**

**wc** stands for 'word count' (even though it counts lines) and **measure** is the PowerShell equivalent.

You can use command > filename.txt to save the output of a command to a file.

**ls -la > files.txt**

would save the listing of files into files.txt, and

**cat blah.txt > result.txt**

would take the contents of blah.txt and send them into result.txt.

**## THE END**

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