

In this lab, we will learn to:

1. Use docstrings and inline comments to document Python programs
2. Initialize and use variables with descriptive names
3. Use integers and floating-point numbers to make arithmetic calculations
4. Request input from a user.

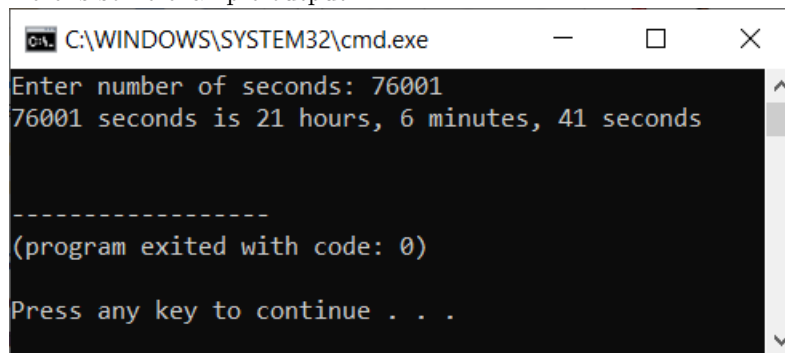
Part 1. Convert seconds to hours, minutes, and seconds.

A day has 86,400 seconds ($24 \times 60 \times 60$). Write some code that asks the user for a number of seconds between 0 and 86,399, and then outputs the time as hours, minutes, and seconds with a 24-hour clock.

Example. 56330 seconds is 15 hours, 38 minutes, 50 seconds

Example. 345 seconds is 0 hours, 5 minutes, 45 seconds

Here is some example output.



```
C:\WINDOWS\SYSTEM32\cmd.exe
Enter number of seconds: 76001
76001 seconds is 21 hours, 6 minutes, 41 seconds

-----
(program exited with code: 0)
Press any key to continue . . .
```

Part 2. Estimate population.

According to the US Census Bureau there is

- a birth every 7 seconds,
- a death every 13 seconds, and
- a new immigrant every 35 seconds.

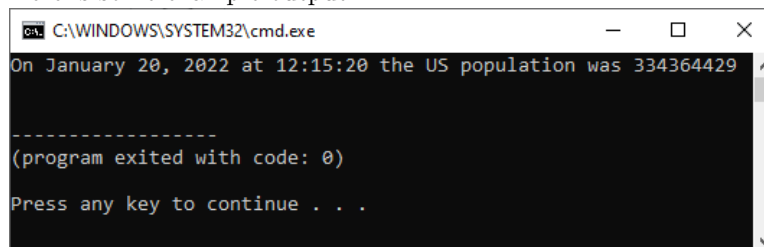
The US population on January 1, 2022 was 334,205,119. Write some code that estimates that US population on January 20, 2022 at 12:15:20.

Do not delete your code for part 1. You'll need it for part 3.

Hint: On Jan 1st at 01:00:00, it's been 0 days and 1 hour since the beginning of the year.

Hint: On Jan 2nd at 01:00:00, it's been 1 day and 1 hour since the beginning of the year.

Here is some example output.



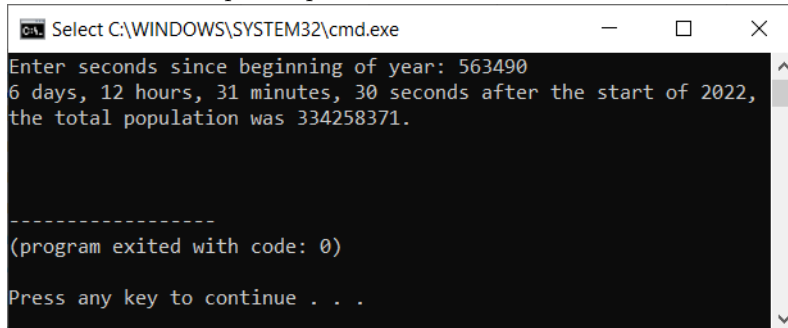
```
C:\WINDOWS\SYSTEM32\cmd.exe
On January 20, 2022 at 12:15:20 the US population was 334364429

-----
(program exited with code: 0)
Press any key to continue . . .
```

Part 3. Population change.

Let the user enter the amount of seconds since the beginning of the year, and determine how much the US population has increased in that amount of time. Give the answer in terms of days, hours, minutes, and seconds.

Here is some example output.



```
C:\> Select C:\WINDOWS\SYSTEM32\cmd.exe
Enter seconds since beginning of year: 563490
6 days, 12 hours, 31 minutes, 30 seconds after the start of 2022,
the total population was 334258371.

-----
(program exited with code: 0)
Press any key to continue . . .
```

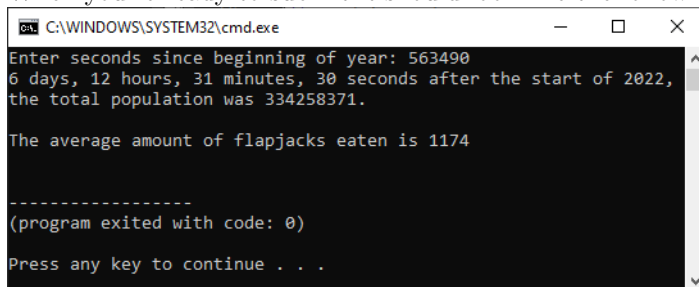
Part 4. Advanced Calculation

According to the International Flapjack Society (IFS), the amount of Flapjacks a country eats per day depends on the total population and is calculated as follows.

$$\sqrt[5]{\frac{(\text{population} + 350)^2 - 12}{50}}$$

Using the above formula, estimate the amount of flapjacks eaten in the US when the population was 334,205,119. Round answer to the nearest flapjack. Don't import any modules for this portion (specifically don't load the math module).

When you're ready to submit it should look like the following.



```
C:\> C:\WINDOWS\SYSTEM32\cmd.exe
Enter seconds since beginning of year: 563490
6 days, 12 hours, 31 minutes, 30 seconds after the start of 2022,
the total population was 334258371.

The average amount of flapjacks eaten is 1174

-----
(program exited with code: 0)
Press any key to continue . . .
```

This is your checkout criterion. Once you get it, show me.

After I give you the thumbs up, upload your .py file to D2L.

Your file name should be Lab2_firstName_lastName.py