

CSCI 141
Lab 3 - Spring 2021

Eligibility for Office

From Wikipedia here are the rules for running for US Representative and US Senator. (Note I left out the third qualification requiring residency of the state in which they are running for office. We're not testing that qualification with this program).

- Article I, Section 3, of the Constitution, sets two qualifications for senators:
 1. they must be at least 30 years old
 2. they must have been a citizen of the United States for at least nine years
- Article I, Section 2 of the Constitution, sets two qualifications for representatives:
 1. they must be at least 25 years old
 2. they must have been a citizen of the United States for at least seven years

1. Write this program using Boolean operators

One way to solve the problem would be to use nested if statements. You could put an if statement inside of another if statement to test two different conditions. Consider the following code snippet that uses nested if statements.

```
x = 9
if x < 10:
    if x > 0:
        print("you entered a single digit positive number.")
```

Notice that the print statement will execute only when x is less than 10 and x is greater than 0. Also notice that I used the word “and” in the previous sentence.

An alternative way (that is logically equivalent) to write the code segment above is:

```
x = 9
if x < 10 and x > 0:
    print("you entered a single digit positive number.")
```

Notice the correspondence between nesting if statements and utilizing the Boolean operator **and**.

Using those ideas, you're going to write a program that checks to see if you're eligible to run for office.

2. Sample Output for one person

Here is some sample output from my program which might help you. The numbers below were entered by the user.

Also note that I ran this program three times, once for each person.

```
Enter the age of the person. 28
How many years have they been a citizen? 11
They can run for Representative
```

Here is another sample output.

```
Enter the age of the person. 58
How many years have they been a citizen? 22
They can run for Senator or Representative
```

And finally one more.

```
Enter the age of the person. 19
How many years have they been a citizen? 18
They are not eligible to run for either office.
```

Here is a rough outline how things should look

```
ask for the person's age
ask for the person's years of citizenship

if they are eligible to run for Senator, tell them
else if they are eligible to run for Representative, tell them
else tell them they are not eligible for either
```

This is clearly not Python code but what we call pseudocode. It's a great way to get your ideas on paper in a semi-structured way to help guide you when you write actual code. I often write pseudocode before I write Python because it helps me think through the steps I need to take before I start thinking about the details of expressing those steps in Python.

3. Test your code

Save your program as `representative.py`. When you are done be sure to test your program with different inputs.

Any time you write code you should test it thoroughly. It's more important to test code carefully than simply test a lot of random cases.

In this particular example, test the program by inputting data that falls into each of the three scenarios (i.e. (1) Senator or Representative, (2) Representative, (3) neither)

4. Add a comment to your code

Be sure to include a comment to the top of your code that lists your name, the date, and a short description of the program's purpose.

5. Turn in your code to Canvas

Submit your code to the Lab 3 assignment on Canvas.

Great job! You've completed Lab 3. If you need help, you can always visit office hours after your lab time.

Rubric

representative.py (20 points)

Author, date, and program description given in a comment at the top of the file	1 point
Code is commented adequately and variables are appropriately named	2 points
Code uses at least one the boolean logical operator: and , or , not	5 points
Correct output for someone who is eligible to run for Representative but not Senator	4 points
Correct output for someone who is eligible for both	4 points
Correct output for someone who is eligible for neither	4 points

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