Assignment 4: Functions

Winter Code Camp

DUE: January 3, 2021, 11:59PM

At the beginning of each python program, please include comments indicating your name and your student number

Example:

```
# Animesh Sarker
# 105184718
```

Please submit this assignment as a **single zip file** called `FIRSTNAME_LASTNAME_assignment4.zip`.

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1. **Create a function called `palindrome` that takes a single word as a parameter and returns `True` if the word is a palindrome and `False` otherwise. A palindrome is a word that is spelt the same forwards and backwards. [10 marks]**

    Sample input: `racecar`
    Sample output: `True`

    Sample input: `python`
    Sample output: `False`

    Sample input: `madam`
    Sample output: `True`

    Save file as funcAssign1.py

2. **Create a function called `subtract` that takes two lists and returns a list that has all of the elements in the first that are not in the second. This function must not remove values from either of the original lists. [15 marks]**
    (note: to copy the contents of a list use `stuff = otherStuff[:]`).

    Sample input: `[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]`, `[2, 6, 8]`
    Sample output: `[1, 3, 4, 5, 7, 9, 10]`

    Save file as funcAssign2.py

3. **Create a function called `lowestCommonMultiple` that takes two integers as parameters and return the lowest common multiple of the two numbers. [20 marks]**
    Reminder: lowest common multiple is the lowest integer that is divisible by both numbers.

    Sample input: `7, 5`
    Sample output: `35`

    Save file as funcAssign3.py

4. The Fibonacci sequence is a sequence where the ith term is computed using the previous two terms such that $S_i = S_{i-1} + S_{i-2}$ and where $S_0 = 0$ and $S_1 = 1$. Write a recursive function called `fib` that takes in an integer i and computes S_i. **[25 marks]**

   Make sure you use recursion for the computation. An iterative solution will result in docked marks.

Sample input: 10
Sample output: 55

Save file as funcAssign4.py

5. In question 1, you made a function called `palindrome` that would take in a string and tell you if it's the spelt the same forwards and backwards. Rewrite this function, but this time check recursivly. **[30 marks]**

   Hint: a word is a palindrome if the first and last letters are equal and the inside of the word is also a palindrome.
   Make sure you use recursion for the computation. An iterative solution will result in docked marks.

Save file as funcAssign5.py