CSCI 1200 (B,C, E) Midterm2 Practice

By: Dr. Ming Ming Tan. Not to be sold, published, or distributed without the authors' consent.

Instructions

This exam is to be taken in silence, without notes, books, or electronic devices.
The duration of the exam is 50 minutes.
Take your time to read the statements carefully before trying to answer them.
Write your answers in the blank sheets provided.
Please write your name clearly in the answer sheets and indicate the question number for your answers clearly.
When writing code, make sure your special punctuation characters are legible, and your lowercase and uppercase letters are easy to distinguish.
Please test your code with some examples on your own!!

There are in total 10 questions. Each question contributes 3 points.

Question 1a

Consider the following function.

```
def mean_square(x,y):
  return (x**2+y**2)/2
```

What is the value of `mean_square(3,5)`?

Question 1b

Complete the following function `mean_square_root` that takes two numbers `x` and `y` and return the value $\frac{\sqrt{x^2+y^2}}{2}$.

```
def mean_square_root(x,y):



```

Question 2a

Assume an `int` variable named `num` is already initialized to some values.
Which of the following values of `num` will result in `num%5==0 or num%7==0` be evaluated to `True`?
Circle all that applies.
(a) 35
(b) 49
(c) 20
(d) 17

Question 2b

Assume an `int` variable named `num` is already initialized to some values. Write a statement that will evaluate to `true` only if `num` is even and is greater than 100.

```

```

Question 3a

Consider the following function.

```
def letterGrade(score):
    if score >= 80:
      return 'A'
    elif score >= 70:
      return 'B'
    elif score >= 60:
      return 'C'
```

```
    else
      return 'D'
```

(i) What is the value of `letterGrade(100)`?
(ii) What is the value of `letterGrade(75)`?
(iii) What is the value of `letterGrade(60)`?
(iv) What is the value of `letterGrade(4)`?

Question 3b

A **leap year** is a calendar year that contains an additional day.
A leap year is exactly divisible by 4 except for century years (years that is divisible by 100). The century year is a leap year only if it is perfectly divisible by 400.
For examples,

- 1964 is a leap year because it is divisible by 4,
- 1961 is not a leap year because it is not divisible by 4,
- 1900 is not a leap year because it is a century year and is not divisible by 400,
- 2000 is a leap year because it is a century year and is divisible by 400.

Complete the following function `isLeapYear` that takes a parameter `year` as input and return `True` if `year` is a leap year else return `False`.

```
def leap(year):
```

Question 4a

Consider the following function `foo` that takes a list `L` as input:

```
def fun1(L):
  sum_pos = 0
  number_pos = 0
  for i in range(len(L)):
    if L[i]>0:
      sum_pos = sum_pos + L[i]
      number_pos = number_pos + 1
  return sum_pos/number_pos
```

(i) What is the value of `fun1([1,2,3]`?
(ii) What is the value of `fun1([-1,-2,3]`?
(iii) What is the value of `fun1[1,2,-3]`?

Question 4b

Complete the following function `sum_neg` that takes a list `L` as input and returns the sum of the negative values of `L`. Assume elements in `L` are numbers.

```
def sum_neg(L):

```

Question 5a

The following program will not terminate. Explain why?

```
i=0
while i<100:
  print(i)
```

Question 5b

Write a program to ask user to input a new password. If user's input length is between 8 and 10 (inclusive), display "Password reset" and exit the program, otherwise, keep asking user to input a new password, until user's input length is between 8 and 10 (in which case, display "Password reset" and exit the program).