Name

## Python for Math and Stat Fall 2022 Exam 2 Version A

Assume that all necessary packages have been imported.

- 1. (20 pts) For the following 4 problems, write down what each code block would display if executed in a Jupyter cell. If the code generates an error, write Error.
  - (a) list(zip(range(9, 1, -2), range(4)))
  - (b) m, n = 2, 8
     f'm+n {m\*n}'
  - (c) for i in range(8, 10):
     for j in range(5, 7):
     print(i, j, end=' ')

```
(d) def func(n):
    print(n, end=' ')
    if n < 10:
        return n
    else:
        return func(n//10)</pre>
```

func(203)

2. (10 pts) You wish to plot the average daily temperature over several days. Write a function avgtemp (start, changes) that takes a starting temperature and a list of changes in degrees over the next few days, and displays the daily temperatures as a scatter plot. The function does not return a value.

For example, avgtemp(20, [3, 1, -5, -7, 4]) would show an initial temperature of 20, then an increase of 3, then an increase of 1, then a decrease of 5, etc., as shown below.





3. (10 pts) Your office supplies store keeps track of inventory in a file 'merchandise.csv'. The file contains a header row followed by product information, one product on each line:

```
ID,Item,Price,Count
2196,Pentel Pencils,10.79,43
1058,Post-it Pads,13.99,68
...
```

You have read in the file:

```
with open('merchandise.csv') as fp:
    lines = fp.readlines()
```

Write code to convert the information in lines into a dictionary named **merch** with each key corresponding to an item name and each value is a tuple containing the price and quantity of the product. The tuple elements should be numbers. The dictionary should look like:

```
{ 'Pentel Pencils': (10.79, 43), 'Post-it Pads': (13.99, 68), ...}
```



4. (10 pts) You're playing a game that begins with an initial score. For each move in the game, you roll a die. If the die shows 5 or 6, your score increases by that amount. If the die shows 1, 2, 3, or 4, your score decreases by that amount. For example, suppose your initial score is 7 points and your first roll is 3. Your score will decrease to 4 points. If your second roll is 6, your score then will increase to 10 points.

Write a function **score(initial)** that simulates this game starting with a score of initial points and repeatedly uses die rolls to update the score until the game ends when (a) the score reaches 20 or more points, in which case the function returns 'win', or (b) the score reaches 0 or fewer points, in which case the function returns 'lose'.

## ADDITIONAL BLANK SPACE If you write a solution here, please clearly indicate the problem number.

When done with the exam, you may hand it in. Enjoy the weekend!

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