UCSB CS8   **CS8 F18 Mirza**

Gauchospace   **Gradescope**   **Piazza**

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EXAM: e01: Midterm Exam

ready?	date	points
true	Thu 10/25 09:30AM	100

You may not collaborate on this exam with anyone. If you need to use the restroom, you must leave your cell phone with the exam proctor before leaving the room.

- Write your name at the top of this page **AND EVERY ODD NUMBERED PAGE.**
- Double check that you turned in ALL pages; look for "End of Exam" on the last page.
- This exam is **closed book, closed notes**, **closed mouth, cell phone off.**
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes.
- This sheet will be collected with the exam, and might not be returned.
- Please write your name on your notes sheet.

NOTE: All references to **Python** on this exam mean **Python 3**, so you should answer accordingly.

1. Assume the following assignment statements have been entered at the Python prompt:

[handwritten annotations: 0, 1, 2, 3, 4 labeling the movie list items]

```python
movies =["101 Dalmatians", "Harry Potter", "The Borrowers", "Stranger Things", "Interstellar "]
person = 'Hobbit'
year = 2018
aliens = True
```

Indicate the value of each of these expressions:

	Expression	Result		Expression	Result
(2 pts)	movies[1]	"Harry Potter"	(2 pts)	len(person)	6
(2 pts)	year==2050	False	(2 pts)	len(movies)	5
(2 pts)	year % 2	0	(2 pts)	type(movies)	list
(2 pts)	person*2 *included*	"HobitHobit"	(2 pts)	movies[4] + person	—
(2 pts)	person[0:2] *excluded*	"Ho"	(2 pts)	type(person)	str
(2 pts)	person > movies[2]	False	(2 pts)	year > 2017	True
(2 pts)	person[-1]	't'	(4 pts)	movies[1][0:6]	"Harry _"

2. (5 pts) A complete Python program that prints out the following message is a very short program indeed:

```
I'm a coder!
```

Please write that entire program in the space below.

[handwritten answer] Print (" I'm a coder ")

3. (5 pts) Consider the following definition of the function `silly()`

```python
def silly(name):
    print("Hi", name + name[-1]*5, "!!!")
    print("I meant hi", name[0]+name[1]*6 + name[2:])
    print("Sorry I have a cold", name[2].upper()+name[1:])
```

What is the output of typing the following command on the Python shell?

```
>>>silly("Harry")
```
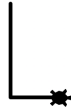*[handwritten: → function call]*

[handwritten answer] Hi Harryyyyy !!!

4. (20 pts) Use the turtle module to write the definition of the function drawL that takes three parameters: a turtle object t, width and height. The function should use the turtle object t to draw an L shape with the given width and height. Additionally, the function should restore the turtle to its original position before the L was drawn.

Assume that `fred` is a turtle object that is created using the following code.

```
import turtle
fred = turtle.Turtle()
fred.shape("turtle")
fred.width(4)
```

When the function `drawL` is called as shown on the left column, it produces the output on the right.

Call A	Output A	Call B	Output B	Call C	Output C
drawL(fred, 50, 100)		drawL(fred, 100, 50)		drawL(fred, 20, 100)	

In the above figure the turtle shows the initial position of the turtle before the L was drawn, which should be the final postion of the turtle after L is drawn.

See lecture code

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5. (15 pts) Write a function called `quadratic` that takes four parameters: `a`, `b`, `c` and `x`, that are values of parameters in the quadratic expression: `a*x^2+b*x+c`. Your function should evaluate the expression `a*x^2+b*x+c` and return its value. If any of the parameters is not an integer, it should return 0.

Below is the expected output from calling the function in the Python shell with different parameters `a, b, c, x`

```
>>>quadratic(4, 2, 10, 3)
52

>>>quadratic(3, 4, 5, 1)
12

>>>quadratic(0, 0, 5, 1)
5

>>>quadratic(4, "two", 10, 3)
0

>>>quadratic(4, "two", [10], 3)
0
```

See lecture code

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6. (5 pts) Write two test functions using the pytest framework that test your implementation of the `quadratic` function in the previous question.

See lecture code

7. Given the code on the left column, write the output on the right column. The first one has been done for you as an example

	Code	Output
| | ```
x = 3
print(x)
``` | 3 |
| (4 pts) | ```
x = 3
y = x
x = 2*x
print(x, y)
``` | 6  3 |
| (4 pts) | ```
def return_dbl(x):
    return 2*x

y=return_dbl(2)
print(y)
``` | 4 |
| (4 pts) | ```
def print_dbl(x):
    print(2*x)

y=print_dbl(2)
print(y)
``` *returns None* | 4 None |
| (4 pts) | ```
def changeMe(x):
    x=5

y=10
changeMe(y)
print(y)
``` *Does not return a value* *x is a copy of y* | 10 |
| (4 pts) | ```
def threetimes(x):
    return 3*x

y=threetimes("two")
print(y)
``` | twotwotwo |

End of Exam