

Name: _____

CS21 Lab 10 Written Part – Due: Monday, April 27, 11:59 PM.
Upload directly to Gradescope.

Program 1

```
1 def main():
2     text = "Rain"
3     show(text, 0)
4
5 def show(phrase, index):
6     if index == len(phrase):
7         print("!")
8         # Draw stack HERE
9         return
10    else:
11        print(phrase[index])
12        show(phrase, index + 1)
13        return
14
15 main()
```

DRAW STACK HERE

1. What is the base case?
2. What is the recursive case?
3. Below, give the output that would be produced by running the whole program to completion:

Program 2

```
1 def main():
2     v = mystery(2, 3)
3     print(v)
4
5 def mystery(a, b):
6     if b == 0:
7         # Draw stack HERE
8         return a
9     else:
10        r = 1
11        p = mystery(a, b - 1)
12        r = r + p
13        return r
14
15 main()
```

DRAW STACK HERE

1. What is the base case?
2. What is the recursive case?
3. Below, give the output that would be produced by running the whole program to completion:

Program 3

```
1 def main():
2     ans = helper([-2, 5, 3, -4], 0)
3     print(ans)
4
5 def helper(lst, index):
6     if index == len(lst):
7         # Draw stack HERE
8         return 0
9
10    r = helper(lst, index + 1)
11
12    if lst[index] < 0:
13        r = r + 1
14
15    return r
16
17 main()
```

DRAW STACK HERE

1. What is the base case?
2. What is the recursive case?
3. Below, give the output that would be produced by running the whole program to completion: