

SPRING 2020 - COMP 141

FINAL EXAM PRACTICE PROBLEMS

Use the following line of code to answer questions 1-6.

```
lst1 = [1, 3, 5, 7, 9, 11]
```

1. What is the `len(lst1)`?
 - a. 6
 - b. 7
 - c. 8
 - d. 5
2. What is the `sum(lst1)`?
 - a. 6
 - b. 12
 - c. 36
 - d. 11
3. What is the `max(lst1)`?
 - a. 11
 - b. 1
 - c. 5
 - d. 9
 - e. 36
4. What is the index of the maximum value in `lst1`?
 - a. 0
 - b. 4
 - c. 5
 - d. 6
5. What is the value of `lst1` after the following line of code is run?
`lst1.remove(3)`
 - a. [1, 3, 5, 7, 9, 11]
 - b. [1, 5, 7, 9, 11]
 - c. [1, 3, 5, 9, 11]
 - d. [1, 3, 5]
6. What is the value of `lst1` after the following line of code is run (use the original `lst1`)?
`lst1.insert(2, 4)`
 - a. [1, 3, 5, 7, 2, 9, 11]
 - b. [1, 3, 2, 5, 7, 9, 11]
 - c. [1, 3, 4, 5, 7, 9, 11]
 - d. [1, 3, 5, 7, 4, 9, 11]

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7. What is displayed when the following program is run?

```
list = 6 * [0]
x = list[5]
print("Done")
```

- a. [0,0,0,0,0,0]
- b. 0
- c. "Done"
- d. An error occurs.

8. What would be displayed by the following code?

```
list1 = [1, 3]
list2 = list1
list1[0] = 4
print(list2)
```

- a. [1, 3]
- b. [4, 3]
- c. [1, 4]
- d. [1, 3, 4]

9. What will be displayed by the following code?

```
myList = [1, 2, 3, 4, 5, 6]
for i in range(0, len(myList)-1):
    myList[i] = myList[i+1]
print(myList)
```

- a. [2, 3, 4, 5, 6, 1]
- b. [6, 1, 2, 3, 4, 5]
- c. [2, 3, 4, 5, 6, 6]
- d. [1, 1, 2, 3, 4, 5]

10. Which method would you use to remove an element from a specific index in a list?

- a. del statement
- b. remove method
- c. index method
- d. slice method

11. Assume `x = [[1, 2], [3, 4, 5], [5, 6, 5, 9]]`, what are `len(x[0])`, `len(x[1])`, and `len(x[2])`?

- a. 2, 3, and 3
- b. 2, 3, and 4
- c. 3, 3, and 3
- d. 1, 2, and 3

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12. What will be displayed by the following code?

```
matrix = [[1, 2, 3, 4],
          [4, 5, 6, 7],
          [8, 9, 10, 11],
          [12, 13, 14, 15]]

for i in range(0, len(matrix)):
    print(matrix[i][2], end = " ")
```

- a. 1 2 3 4
- b. 4 5 6 7
- c. 1 4 8 12
- d. 2 5 9 13
- e. 3 6 10 14

13. What is the value of the variable `string1` after the execution of the following code?

```
string1 = 'Hello'
string1 += ' world'
```

14. What would be the value of the variable `list1` after the execution of the following code?

```
list1 = [2, 4, 6, 8, 10]
list1[3] = 1
```

15. What will be displayed by the following program?

```
values = [[3, 24, 1, 19], [33, 5, 9, 2]]
v = values[0][0]
r = 0
c = 0
for row in range(0, len(values)):
    for column in range(0, len(values[row])):
        if v > values[row][column]:
            v = values[row][column]
            r = row
            c = column
print(v, r, c)
```

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16. What will be displayed by the following code?

```
m = [[1, 2, 3], [4, 5, 6], [7, 8, 9], [10, 11, 12]]
print(m[2][1])
```

17. What will be displayed by the following code?

```
m = [[1, 2, 3], [4, 5, 6], [7, 8, 9], [10, 11, 12]]

for x in range(len(m)):
    print(x)
```

18. Write a function called **getClickRowCol** that takes in a parameter called **pixels** that corresponds to the number of pixels per grid size there are for both the row and columns, and the function waits for a click and then returns the row and column of the click location. (For example, if pixels was equal to 100 and x = 270 and y = 112, then row = 1 and column = 2.)

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19. Write a function called **remove_odds** that takes in a list of numbers (L) and returns the list with all the odd numbers removed. You may choose to modify L itself, or create a new list and return that.

Example: `remove_odds([1, 2, 3, 4, 5, 6])` returns `[2, 4, 6]`

20. Write a function **paired_sums** that takes in a list and returns a list of the sums of consecutive pairs of values in the list.

Example: `paired_sums([2, 3, 5, 1, 6])` returns `[5, 8, 6, 7]`

21. Write a function called **count_nums** that takes in a list of integers and returns a list containing the counts of each number in the list from 0 to 9. You can assume that all values in the list are between 0 and 9.

Hint: You should create a new list called `counts` that has all 0s and is of length 10. Then if you encounter a 5 in the list, `counts[5] += 1`.

Example: `count_nums ([4, 3, 6, 2, 7, 9, 2, 9, 0, 0, 2, 6, 6])`
returns `[2, 0, 3, 1, 1, 0, 3, 1, 0, 2]`

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22. Write a function called `max_sum_column` that takes in a 2-D list and returns the index and sum of the column with the maximum sum.

Example: `max_sum_column([[5, 2, 8, 4], [-9, 0, 4, 1], [5, 6, 4, 8]])`
returns 2, 16

23. Write a function called `print_largest_in_row` that prints the largest number in each row of a matrix.

Example: `print_largest_in_row([[5, 2, 8, 4], [-9, 10, 4, 1], [5, 6, 4, 7]])`
prints 8, 10, 7