

CS230 Quiz 1 Guide (2/15/2024)

Topics

- Assignment statements, math operators, input(), print(), data types (float, int, str, boolean), and functions (round).
- Augmented assignments such as +=, *=
- Formatting values with the format() function, such as format(number, "5.2f"), or with f-strings as covered in class
- Conditions and Decisions (if, if..else, if..elif..else, and nested ifs), conditions with and, or, not, comparison operators (==, <=, >=, !=, <, >)
- Loops: while-loops and for-loops
 - Compute totals or count values using loops
 - Validation: accept only certain input values, simplifying checks using .upper(), .lower()
- String basics (indexing and slicing),
 - string methods will not be used extensively

Overview

- Quiz will consist of about 5 very short questions and about 3 longer (but not long 😊) programming problems.
- May use **one sheet (both sides) of notes** for reference during the exam and no other reference. You may use paper as needed to work on drafts for your answers.
- You can take the quiz **on paper** or in **lockdown browser**. The lockdown browser runs from BrightSpace, limits what you do on the computer to just entering text into BrightSpace. You need to download it from [here](#) and set it up before the quiz.
 - You **will not have access to a Python editor or environment**.
 - A sample lockdown browser **practice test will be** available for you to try the working in the lockdown browser on the course Assignments page ahead of time.
- Partial credit will be given

Practice questions (solutions follow on page 4)

1. What is printed by the following? Show your work for partial credit.

```
a = 'muffin'
b = 17
c = 3.9

print ('1 -->', int(c), round(c))
print ('2 -->', a[0], a[-1])
print ('3 -->', b//4, b % 4)
print ('4 -->', a[:3], a[3:], a[1:4])
print ('5 -->', format(c, "5.3f"))
print ('6 -->', a.isalpha())
```

2. What is printed by the following? Show your work for partial credit.

```
for num in range (5, 10):
    if (num % 2 == 0 or num * 2 > 30):
        print (1)
    elif (num < 7 or num > 9):
        print (2)
    else:
        print(3)
```

3. In the code in the box below a portion is blacked out. Write code filling in the missing (blacked-out) part, so that the code prints out the shown part of string `astring`, surrounded by underscores, printing `_day_`

```
astring = "Monday"
b = 
print(b)
```

`_day_`

4. In the code in the box below a portion is blacked out. Write code filling in the missing (blacked-out) part, so that the code prints out output shown below

```
for i in range (17, 23):
    val = i / 100
    print ( format(val, ) )
```

0.170
0.180
0.190
0.200
0.210
0.220

5. A parking lot charges \$20 for the first three hours, and \$5 for each additional hour in the first day (4-24 hours), and \$3 for each additional hours after 24 hours. Ask the use to enter the hour and calculate the parking cost.

Sample run 1:

```
Please enter the park hours: 2
The cost for 2 hours is $20.
```

Sample run 2:

```
Please enter the park hours: 20
The cost for 20 hours is $105.
```

Sample run 3:

```
Please enter the park hours: 30
The cost for 30 hours is $143.
```

6. A parking lot charges \$15 per hour. Ask the use to enter how much money he/she wants to pay and show the number of hours the user can park and how much money left.

Sample run:

```
Please enter the money you want to pay: 100
You can park 6.0 hours with $10.0 left.
```

7. Ask the user to enter a string with length 7, keep asking the user to enter if the length is not 7. After string of size 7 is entered, print how many of the strings entered did not start with a vowel.

Sample run:

```
Please enter a string with 7 characters: abc
Please enter a string with 7 characters: crocodile
Please enter a string with 7 characters: python!
2
```

8. Print the pattern below using a single for loop or two nested for loops

```
*****
****
***
**
*
```

9. Keep asking the user to input numbers until 0 is entered and calculate the sum of even numbers.

Sample run 1:

```
Please enter a number: 50
Please enter a number: 31
Please enter a number: 20
Please enter a number: 0
```

```
You entered 3 numbers and sum of even numbers is 70.
```

Solutions to practice questions

1.

```
1 --> 3 4
2 --> m n
3 --> 4 1
4 --> muf fin uff
5 --> 3.900
6 --> True
```

2.

```
2
1
3
1
3
```

3. `'_' + astring[3:] + '_'`

4.

```
' .3f'
```

5.

```
START = 20 # $
DAY1_HOUR = 5
DAY2_HOUR = 3

hoursParked = int(input("Please enter the park hours: "))

cost = START
if 4 <= hoursParked <= 24:
    cost += DAY1_HOUR * (hoursParked - 3) # hoursParked - 3 add. hours 1st day
elif hoursParked > 24:
    day1Cost = DAY1_HOUR * (hoursParked - 24)
    afterDay1 = DAY2_HOUR * (hoursParked - 24) # hoursParked - 24 additional
    # hours beyond first day
    cost += day1Cost + afterDay1

print("The cost for", hoursParked, "hours is $" + str(cost))
```

6.

```
PER_HOUR = 15
amt = int(input("Please enter the money you want to pay: "))
hours = amt // PER_HOUR # or int(amt/PER_HOUR)
leftoverAmt = amt % PER_HOUR
print("You can park", hours, "hours with $" + str(leftoverAmt) + " left.")
```

7. `text = input("Please enter 7 characters long text")`

```
countWords = 0
# apply lower() to ensure case insensitive search
# alternatively, could check (text[0] not in 'aieouAIEOU')
if text[0].lower() not in 'aieou':
```

```

countWords = 1

while len(text) != 7:
    text = input("Please enter 7 characters long text")
    if text[0].lower() not in 'aieou':
        countWords += 1

print (countWords)

```

8.

```

#single loop
for numStars in range (5,0, -1):
    print('*'*numStars)

# alternative solution using nested loops
for numStars in range (5,0, -1):
    for stars in range (numStars): #loop prints one row
        print ("*", end = '')
    print() # to go to teh next line

```

9.

```

num = int(input ("Please enter a number:"))
count = 0 #count how many numbers other than 0 were entered
totalOfEvens = 0 # sum of even numbers

while num != 0 :
    # if num is even, increase the total by the number
    if num % 2 == 0:
        totalOfEvens += num
    count += 1
    num = int(input ("Please enter a number:"))

print("You entered", count, "numbers and sum of even numbers is ",
totalOfEvens)

```