SPRING 2020 - COMP 141

MIDTERM 2 PRACTICE PROBLEMS

1. Which method could be used to convert a numeric value to a string?
   a. `str`
   b. `value`
   c. `num`
   d. `chr`
2. Which of the following statements are true? (circle all that are true)
   a. When you open a file for reading, if the file does not exist, an error occurs.
   b. When you open a file for writing, if the file does not exist, an error occurs.
   c. When you open a file for reading, if the file does not exist, the program will open an empty file.
   d. When you open a file for writing, if the file does not exist, a new file is created.
   e. When you open a file for writing, if the file exists, the existing file is overwritten with the new file.

3. Which method would you use to determine whether a substring is present in a string?
   a. `endswith(`*`substring`*`)`
   b. `find(`*`substring`*`)`
   c. `replace(`*`string, substring`*`)`
   d. `startswith(`*`substring`*`)`

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

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

5. What is the output for y?

```
y = 0
for i in range(1, 10):
    y += i
print(y)
```

6. What is the output for y?

```
y = 0
for i in range(2, 10, 2):
    y += i
   if y > 10:
       break
print(y)
```

7. What is the output of the following code?

```
i = 1
while i < 10:
    for j in range(i, 15, 5):
        print(i + j)
    i += 4
```

SPRING 2020 - COMP 141

MIDTERM 2 PRACTICE PROBLEMS

8. Each character in a string has a(n) _____ which specifies its position in the string.

9. Strings are _____, which means that once a string is created, it cannot be changed.

10. A(n) _____ is a span of characters that are taken from within a string.

11. To open a file scores.txt for writing, use _____.

12. To open a file scores.txt for reading, use _____.

13. To read the next line of the file from a file object infile, use _____.

14. When testing a user's input, we use a(n) _____, since the user may input the wrong type of input multiple times.

15. Given the string `s = "Programming is fun"`, answer the following questions.

    a. What is s[:2]?

    b. What is s[4:6]?

    c. What is len(s)?

    d. What is s.find('ram')?

    e. What is s.startswith('m') ?

    f. What is s.replace('fun', 'awesome')?

    g. What is s.lower()?

SPRING 2020 - COMP 141

MIDTERM 2 PRACTICE PROBLEMS

16. Given the following function:

```
def nPrint(message, n):

    while n > 0:

        print(message)

        n -= 1
```

What will be displayed by the call nPrint('a', 4)?

17. Given the following program:

```
def nPrint(message, n):
    while n > 0:
        print(message)
        n -= 1
def main():
    k = 2
    nPrint("A message", k)
    print(k)
main()
```

What is the value of k printed out in main?

18. What will be displayed by the following code?

```
def f1(x):
    x = x + 2
    return x

def main():
    x = 1
    z = f1(x)
    print(x, z)

main()
```

SPRING 2020 - COMP 141

MIDTERM 2 PRACTICE PROBLEMS

19. Write a function called **`productDigits`** that takes in a string containing letters and numbers and returns the product of all the single digits in the string. Example: string = “a2514b” returns 40 since 2*5*1*4 = 40.

20. Write a function called **`total_time`** that takes in a string in the format “Hours:Minutes:Seconds” where Hours, Minutes and Seconds can be any number of digits, and it returns the total seconds in that time.

SPRING 2020 - COMP 141

MIDTERM 2 PRACTICE PROBLEMS

21. Write a function called **`isValid`** that takes in as parameters the 3 sides of a triangle as integers, and returns `True` if the sum of any two sides is greater than the third side, and returns False otherwise.

22. Write a function called **`interleave`** that takes two string arguments, called `s1` and `s2`, and returns a new string that combines their characters in the following manner: the first character from `s1`, then the first character from `s2`, then the second character from `s1`, then the second character from `s2`, and so on.

    For example, `interleave("abc", "xyz")` would return "`axbycz`".

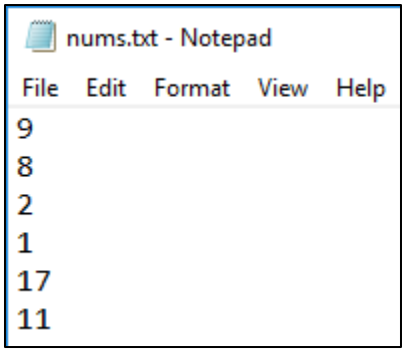
    You may assume that `s1` and `s2` have the same number of characters.

SPRING 2020 - COMP 141

MIDTERM 2 PRACTICE PROBLEMS

23. Write a function called **`sumFile`** that takes in as a parameter the name of the file, and returns the sum of the numbers in that file. (You can assume that the file will have exactly 1 number per line.)

    Ex. `sumFile("nums.txt")` returns 48 (since 9 + 8 + 2 + 1 + 17 + 11 = 48)



24. Write a function called **`consecutiveSums`** that takes in as a parameter the name of the file and **prints** the sums of consecutive numbers in that file. (You can assume that the file will have exactly 1 number per line.) **Hint:** Use the sliding window technique.

    Ex. `consecutiveSums("nums.txt")` prints `17 10 3 18 28`