Exam 2 Instructions

COP3035 – Intro to Python Programming

Instruction page – please read very carefully.

Date: Friday, June 21, 2024
Time Window: 9:00 AM - 9:00 PM

Format:
Location: This test is administered remotely; there's no need to come to the classroom.
The test will be accessible on Canvas during the designated window.
This is an open-book test. You may use textbooks, lecture notes, personal notes, formulae pages, handouts, other supplementary materials prepared in advance. These materials can be either paper or electronic format.
You might be required to write code and produce output. Ensure you have a working Python environment ready.
Individual Work: This test is meant to be completed independently. Collaboration is strictly prohibited. Do not discuss or share any details about the test or its solutions with anyone.

Submission:
Download the test and print it to answer. If you cannot print it, write your answers clearly on separate sheets of paper. (You can submit handwritten, typed, or mixed).
Clearly show and explain your work for each question, where necessary.
After completion, scan your test and submit it online via Canvas. Set aside at least 10 minutes for this process.
Use a scanning app to convert your test into a single PDF.
Ensure your submission is in the form of a single PDF file.
Clearly write your name and Z number on your test.
File Naming Convention: [Your Name] _[Z Number].pdf
While Canvas does allow multiple submissions, only the last one will be considered for grading.
Do Not share any information about the test or its solutions with others.
Exclude the instruction page from your submission.
Do not include your formula sheets in your test submission.

Note: Inquiries about test results, homework and extra credit grades must be sent to the instructors within 3 days after grades are published.

Please review these instructions thoroughly to ensure a smooth testing experience. Best of luck!

Exam 2

COP3035 – Intro to Python Programming

Name: _____

zNumber: _____

Questions

Q1. (20 points) Consider the following code and then answer the following True/False questions:

```
# Part 1
file = open('example.txt', 'w')
file.write('The early bird catches the worm\n')
file.close()

# Part 2
file = open('example.txt', 'r+')
file.write('Actions speak louder than words.')
file.close()

# Part 3
with open('example.txt', 'a+') as file:
    for line in file:
        print(line, end='')
```

1. (True/False): In Part 1, using `open('example.txt', 'w')` and writing a string to the file will erase any existing content in 'example.txt' before writing the new string.
2. (True/False): In Part 2, opening the file in 'r+' mode will append the second quote to the end of the file without overwriting existing content.
3. (True/False): In Part 3, when the file is opened in 'a+' mode, the file pointer is initially positioned at the end of the file and the for loop will not have any effect.
4. (True/False): By swapping the modes in Part 2 and Part 3 from 'r+' to 'a+' in Part 2 and using 'r+' in Part 3 for reading, both quotes will be printed.
5. (True/False): Part 3 is a safe way to open the file since the with statement creates a block that automatically closes the file after the printing operation.

Q2. (20 points) Consider the following code and then answer the question:

```
temperature = 68

if temperature < 55:
    print("It's freezing outside.")
elif temperature < 65:
    print("It's a bit chilly out.")
elif temperature < 75:
    print("It's a nice day.")
else:
    print("It's hot outside.")
```

What message does the code print if the temperature variable is set to 65? (Select the correct answer)

1. It's freezing outside.
2. It's a bit chilly out.
3. It's a nice day.
4. It's hot outside.

Q3. (20 points) How do you iterate over the second half of a list named `data_list` using a for loop? (Select the correct answer)

1. `for item in data_list[len(data_list)//2:]:`
2. `for item in data_list[:len(data_list)//2]:`
3. `for item in range(len(data_list)//2):`
4.
```
for item in data_list:
    if item == data_list[len(data_list)//2]:
        break
```

Q4. (20 points) Explain the purpose of the `zip()` function in a for loop and illustrate its use with a code example.

Q5. (20 points) Choose and solve ONLY ONE of the following exercises:

1. Write code that checks if a given year is a leap year. Print the result.
2. Convert a string into a list of its words and print the list.
3. Write a loop that prints the odd numbers between 1 and 50.
4. Given a string containing letters and numbers, write a loop that prints only the letters.
5. Create a file named `motivation.txt` and write an inspirational quote to it.

Q6. BONUS (10 points) Given a list of n tuples, write a Python script that creates a new list where each tuple is inverted. If the original tuple was (a, b), the new tuple should be (b, a). Assume each tuple contains exactly two elements.

Example Output:
```
original_list : [(1, 'a'), (2, 'b'), (3, 'c')]
inverted_list : [('a', 1), ('b', 2), ('c', 3)]
```