Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_MCQ

Attempt : 1
Total Mark : 20
Marks Obtained : 19

Section 1 : MCQ

1. Fill the code to in order to read file from the current position.

Assuming exp.txt file has following 3 lines, consider current file position is beginning of 2nd line

Meri,25

John,21

Raj,20

Ouptput:

['John,21\n','Raj,20\n']

```
f = open("exp.txt", "w+")
_____(1)
print _____(2)
```

Answer

1) f.seek(0, 1)2) f.readlines()

Status : Correct ***Marks : 1/1***

2. What happens if an exception is not caught in the except clause?

Answer

The program will display a traceback error and stop execution

Status : Correct ***Marks : 1/1***

3. Fill in the code in order to get the following output:

Output:

Name of the file: ex.txt

```
fo = open(_____(1), "wb")
print("Name of the file: ",_____)(2)
```

Answer

1) "ex.txt"2) fo.name

Status : Correct ***Marks : 1/1***

4. What is the output of the following code?

```
try:
    x = "hello" + 5
except TypeError:
    print("Type Error occurred")
finally:
    print("This will always execute")
```

Answer

Type Error occurredThis will always execute

Status : Correct ***Marks : 1/1***

5. What is the output of the following code?

```
try:
    x = 1 / 0
except ZeroDivisionError:
    print("Caught division by zero error")
finally:
    print("Executed")
```

Answer

Caught division by zero errorExecuted

Status : Correct ***Marks : 1/1***

6. Match the following:

a) f.seek(5,1) i) Move file pointer five characters behind from the current position

b) f.seek(-5,1) ii) Move file pointer to the end of a file

c) f.seek(0,2) iii) Move file pointer five characters ahead from the current position

d) f.seek(0) iv) Move file pointer to the beginning of a file

Answer

a-iii, b-i, c-ii, d-iv

Status : Correct ***Marks : 1/1***

7. Which clause is used to clean up resources, such as closing files in Python?

Answer

finally

Status : Correct ***Marks : 1/1***

8. What is the difference between r+ and w+ modes?

Answer

in r+ the pointer is initially placed at the beginning of the file and the pointer is at the end for w+

Status : Correct ***Marks : 1/1***

9. How do you create a user-defined exception in Python?

Answer

By creating a new class that inherits from the Exception class

Status : Correct ***Marks : 1/1***

10. What is the correct way to raise an exception in Python?

Answer

raise Exception()

Status : Correct ***Marks : 1/1***

11. How do you rename a file?

Answer

os.rename(existing_name, new_name)

Status : Correct ***Marks : 1/1***

12. What is the default value of reference_point in the following code?

file_object.seek(offset [,reference_point])

Answer

0

Status : Correct ***Marks : 1/1***

13. Which of the following is true about the finally block in Python?

Answer

The finally block is always executed, regardless of whether an exception occurs or not

Status : Correct ***Marks : 1/1***

14. Fill in the blanks in the following code of writing data in binary files.

```
import _____ (1)
rec=[]
while True:
    rn=int(input("Enter"))
    nm=input("Enter")
    temp=[rn, nm]
    rec.append(temp)
    ch=input("Enter choice (y/N)")
    if ch.upper=="N":
        break
f.open("stud.dat","_____")(2)
_____.dump(rec,f)(3)
_____.close()(4)
```

Answer

(pickle,wb,pickle,f)

Status : Correct ***Marks : 1/1***

15. What is the purpose of the except clause in Python?

Answer

To handle exceptions during code execution

Status : Correct ***Marks : 1/1***

16. Which of the following is true about

fp.seek(10,1)

Answer

Move file pointer ten characters ahead from the current position

Status : Correct ***Marks : 1/1***

17. What will be the output of the following Python code?

```
# Predefined lines to simulate the file content
lines = [
    "This is 1st line",
    "This is 2nd line",
    "This is 3rd line",
    "This is 4th line",
    "This is 5th line"
]

print("Name of the file: foo.txt")

# Print the first 5 lines from the predefined list
for index in range(5):
    line = lines[index]
    print("Line No %d - %s" % (index + 1, line.strip()))
```

Answer

Displays Output

Status : Correct ***Marks : 1/1***

18. What is the output of the following code?

```
class MyError(Exception):
    pass

try:
    raise MyError("Something went wrong")
except MyError as e:
```

```
    print(e)
```

Answer

Something went wrong

Status : Correct ***Marks : 1/1***

19. What happens if no arguments are passed to the seek function?

Answer

error

Status : Wrong ***Marks : 0/1***

20. What will be the output of the following Python code?

```
f = None
for i in range (5):
    with open("data.txt", "w") as f:
        if i > 2:
            break
print(f.closed)
```

Answer

True

Status : Correct ***Marks : 1/1***

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_COD

Attempt : 1
Total Mark : 50
Marks Obtained : 50

Section 1 : Coding

1. Problem Statement

A retail store requires a program to calculate the total cost of purchasing a product based on its price and quantity. The program performs validation to ensure valid inputs and handles specific error conditions using exceptions:

Price Validation: If the price is zero or less, raise a ValueError with the message: "Invalid Price".Quantity Validation: If the quantity is zero or less, raise a ValueError with the message: "Invalid Quantity".Cost Threshold: If the total cost exceeds 1000, raise RuntimeError with the message: "Excessive Cost".

Input Format

The first line of input consists of a double value, representing the price of a product.

The second line consists of an integer, representing the quantity of the product.

Output Format

If the calculation is successful, print the total cost rounded to one decimal place.

If the price is zero or less prints "Invalid Price".

If the quantity is zero or less prints "Invalid Quantity".

If the total cost exceeds 1000, prints "Excessive Cost".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 20.0
5
Output: 100.0

Answer

```
try:
    price = float(input())
    quantity = int(input())

    if price <= 0:
        raise ValueError("Invalid Price")

    if quantity <= 0:
        raise ValueError("Invalid Quantity")

    total_cost = price * quantity

    if total_cost > 1000:
        raise RuntimeError("Excessive Cost")

    print(round(total_cost, 1))

except ValueError as ve:
    print(ve)
```

```
except RuntimeError as re:
    print(re)
```

Status : Correct **Marks : 10/10**

2. Problem Statement

Write a program that calculates the average of a list of integers. The program prompts the user to enter the length of the list (n) and each element of the list. It performs error handling to ensure that the length of the list is a non-negative integer and that each input element is a numeric value.

Input Format

The first line of the input is an integer n, representing the length of the list as a positive integer.

The second line of the input consists of an element of the list as an integer, separated by a new line.

Output Format

If the length of the list is not a positive integer or zero, the output displays "Error: The length of the list must be a non-negative integer."

If a non-numeric value is entered for the length of the list, the output displays "Error: You must enter a numeric value."

If a non-numeric value is entered for a list element, the output displays "Error: You must enter a numeric value."

If the inputs are valid, the program calculates and prints the average of the provided list of integers with two decimal places: "The average is: [average]".

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: -2
1
2
Output: Error: The length of the list must be a non-negative integer.

Answer

```
try:
    n_input = input()
    if not n_input.lstrip('-').isdigit():
        raise ValueError("Error: You must enter a numeric value.")
    n = int(n_input)

    if n <= 0:
        raise ValueError("Error: The length of the list must be a non-negative
integer.")

    numbers = []
    for _ in range(n):
        element = input()
        if not element.lstrip('-').isdigit():
            raise ValueError("Error: You must enter a numeric value.")
        numbers.append(int(element))

    avg = sum(numbers) / n
    print(f"The average is: {avg:.2f}")

except ValueError as ve:
    print(ve)
```

Status : Correct ***Marks : 10/10***

3. Problem Statement

In a voting system, a person must be at least 18 years old to be eligible to vote. If a user enters an age below 18, the system should raise a user-defined exception indicating that they are not eligible to vote.

Input Format

The input contains a positive integer representing age.

Output Format

If the age is less than 18, the output displays "Not eligible to vote".

Otherwise, the output displays "Eligible to vote".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 18
Output: Eligible to vote

Answer

```
class NotEligibleToVote(Exception):
    pass

try:
    age = int(input())

    if age < 18:
        raise NotEligibleToVote("Not eligible to vote")
    else:
        print("Eligible to vote")

except NotEligibleToVote as e:
    print(e)
```

Status : Correct ***Marks : 10/10***

4. Problem Statement

Tara is a content manager who needs to perform case conversions for various pieces of text and save the results in a structured manner.

She requires a program to take a user's input string, save it in a file, and then retrieve and display the string in both upper-case and lower-case

versions. Help her achieve this task efficiently.

File Name: text_file.txt

Input Format

The input consists of a single line containing a string provided by the user.

Output Format

The first line displays the original string read from the file in the format: "Original String: {original_string}".

The second line displays the upper-case version of the original string in the format: "Upper-Case String: {upper_case_string}".

The third line displays the lower-case version of the original string in the format: "Lower-Case String: {lower_case_string}".

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: #SpecialSymBoLs1234

Output: Original String: #SpecialSymBoLs1234
Upper-Case String: #SPECIALSYMBOLS1234
Lower-Case String: #specialsymbols1234

Answer

```
user_input = input()

with open("text_file.txt", "w") as file:
    file.write(user_input)

with open("text_file.txt", "r") as file:
    original_string = file.read()

print(f"Original String: {original_string}")
print(f"Upper-Case String: {original_string.upper()}")
print(f"Lower-Case String: {original_string.lower()}")
```

Status : Correct *Marks : 10/10*

5. Problem Statement

Sophie enjoys playing with words and wants to count the number of words in a sentence. She inputs a sentence, saves it to a file, and then reads it from the file to count the words.

Write a program to determine the number of words in the input sentence.

File Name: sentence_file.txt

Input Format

The input consists of a single line of text containing words separated by spaces.

Output Format

The output displays the count of words in the sentence.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: Four Words In This Sentence
Output: 5

Answer

```
sentence = input()

with open("sentence_file.txt", "w") as file:
    file.write(sentence)

with open("sentence_file.txt", "r") as file:
    content = file.read()

word_count = len(content.split())

print(word_count)
```

Status : Correct *Marks : 10/10*

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 40

Section 1 : Coding

1. Problem Statement

Alex is creating an account and needs to set up a password. The program prompts Alex to enter their name, mobile number, chosen username, and desired password. Password validation criteria include:

Length between 10 and 20 characters.At least one digit.At least one special character from !@#$%^&* set. Display "Valid Password" if criteria are met; otherwise, raise an exception with an appropriate error message.

Input Format

The first line of the input consists of the name as a string.

The second line of the input consists of the mobile number as a string.

The third line of the input consists of the username as a string.

The fourth line of the input consists of the password as a string.

Output Format

If the password is valid (meets all the criteria), it will print "Valid Password"

If the password is weak (fails any one or more criteria), it will print an error message accordingly.

Refer to the sample outputs for the formatting specifications.

Sample Test Case

Input: John
9874563210
john
john1#nhoj
Output: Valid Password

Answer

```
name = input()
mobile = input()
username = input()
password = input()

special_chars = set('!@#$%^&*')

try:
    if not (10 <= len(password) <= 20):
        raise Exception("Should be a minimum of 10 characters and a maximum of
20 characters")
    if not any(char.isdigit() for char in password):
        raise Exception("Should contain at least one digit")
    if not any(char in special_chars for char in password):
        raise Exception("It should contain at least one special character")
    print("Valid Password")
except Exception as e:
    print(e)
```

Status : Correct *Marks : 10/10*

2. Problem Statement

Bob, a data analyst, requires a program to automate the process of analyzing character frequency in a given text. This program should allow the user to input a string, calculate the frequency of each character within the text, save these character frequencies to a file named "char_frequency.txt," and display the results.

Input Format

The input consists of the string.

Output Format

The first line prints "Character Frequencies:".

The following lines print the character frequency in the format: "X: Y" where X is the character and Y is the count.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: aaabbbccc
Output: Character Frequencies:
a: 3
b: 3
c: 3

Answer

```
from collections import OrderedDict

def analyze_char_frequency(text):
    freq = OrderedDict()

    for char in text:
        if char in freq:
```

```
            freq[char] += 1
        else:
            freq[char] = 1

    with open("char_frequency.txt", "w") as file:
        file.write("Character Frequencies:\n")
        for char, count in freq.items():
            file.write(f"{char}: {count} ")

    print("Character Frequencies:")
    for char, count in freq.items():
        print(f"{char}: {count}", end=' ')
    print()

input_text = input().strip()
analyze_char_frequency(input_text)
```

Status : Correct **Marks : 10/10**

3. Problem Statement

Implement a program that checks whether a set of three input values can form the sides of a valid triangle. The program defines a function is_valid_triangle that takes three side lengths as arguments and raises a ValueError if any side length is not a positive value. It then checks whether the sum of any two sides is greater than the third side to determine the validity of the triangle.

Input Format

The first line of input consists of an integer A, representing side1.

The second line of input consists of an integer B, representing side2.

The third line of input consists of an integer C, representing side3.

Output Format

The output prints either "It's a valid triangle" if the input side lengths form a valid triangle,

or "It's not a valid triangle" if they do not.

If there is a ValueError, it should print "ValueError: <error_message>".

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 3
4
5
Output: It's a valid triangle

Answer

```
def is_valid_triangle(a, b, c):
    if a <= 0 or b <= 0 or c <= 0:
        raise ValueError("Side lengths must be positive")

    if a + b > c and a + c > b and b + c > a:
        return True
    else:
        return False

try:
    side1 = int(input().strip())
    side2 = int(input().strip())
    side3 = int(input().strip())

    if is_valid_triangle(side1, side2, side3):
        print("It's a valid triangle")
    else:
        print("It's not a valid triangle")

except ValueError as ve:
    print(f"ValueError: {ve}")
```

Status : Correct ***Marks : 10/10***

4. Problem Statement

Write a program to obtain the start time and end time for the stage event show. If the user enters a different format other than specified, an exception occurs and the program is interrupted. To avoid that, handle the exception and prompt the user to enter the right format as specified.

Start time and end time should be in the format 'YYYY-MM-DD HH:MM:SS'If the input is in the above format, print the start time and end time.If the input does not follow the above format, print "Event time is not in the format "

Input Format

The first line of input consists of the start time of the event.

The second line of the input consists of the end time of the event.

Output Format

If the input is in the given format, print the start time and end time.

If the input does not follow the given format, print "Event time is not in the format".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 2022-01-12 06:10:00
2022-02-12 10:10:12
Output: 2022-01-12 06:10:00
2022-02-12 10:10:12

Answer

```
from datetime import datetime

def parse_event_time(time_str):
    try:
        return datetime.strptime(time_str, '%Y-%m-%d %H:%M:%S')
    except ValueError:
        raise ValueError("Event time is not in the format")
```

```
try:
    start_time_input = input().strip()
    end_time_input = input().strip()

    start_time = parse_event_time(start_time_input)
    end_time = parse_event_time(end_time_input)

    print(start_time_input, end_time_input)

except ValueError as e:
    print(e)
```

Status : Correct ***Marks : 10/10***

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_PAH

Attempt : 1
Total Mark : 30
Marks Obtained : 16

Section 1 : Coding

1. Problem Statement

Peter manages a student database and needs a program to add students. For each student, Alex inputs their ID and name. The program checks for duplicate IDs and ensures the database isn't full.

If a duplicate or a full database is detected, an appropriate error message is displayed. Otherwise, the student is added, and a confirmation message is shown. The database has a maximum capacity of 30 students, and each student must have a unique ID.

Input Format

The first line contains an integer n, representing the number of students to be added to the school database.

The next n lines each contain two space-separated values, representing the student's ID (integer) and the student's name (string).

Output Format

The output will depend on the actions performed in the code.

If a student is added to the database, the output will display: "Student with ID [ID number] added to the database."

If there is an exception due to a duplicate student ID, the output will display: "Exception caught. Error: Student ID already exists."

If there is an exception due to the database being full, the output will display: "Exception caught. Error: Student database is full."

Refer to the sample outputs for the formatting specifications.

Sample Test Case

Input: 3
16 Sam
87 Sabari
43 Dani

Output: Student with ID 16 added to the database.
Student with ID 87 added to the database.
Student with ID 43 added to the database.

Answer

```
MAX_CAPACITY = 30

n = int(input())

student_db = {}

for _ in range(n):
    entry=input().split()
    student_id=int(entry[0])
```

```
    student_name=entry[1]

    try:
        if len(student_db) >= MAX_CAPACITY:
            raise Exception("Student database is full.")

        if student_id in student_db:
            raise Exception("Student ID already exists.")

        student_db[student_id] = student_name
        print(f"Student with ID {student_id} added to the database.")

    except Exception as e:
        print(f"Exception caught. Error: {e}")
```

Status : Partially correct ***Marks : 6/10***

2. Problem Statement

Reeta is playing with numbers. Reeta wants to have a file containing a list of numbers, and she needs to find the average of those numbers. Write a program to read the numbers from the file, calculate the average, and display it.

File Name: user_input.txt

Input Format

The input file will contain a single line of space-separated numbers (as a string).

These numbers may be integers or decimals.

Output Format

If all inputs are valid numbers, the output should print: "Average of the numbers is: X.XX" (where X.XX is the computed average rounded to two decimal places)

If the input contains invalid data, print: "Invalid data in the input."

Refer to the sample output for format specifications.

Sample Test Case

Input: 1 2 3 4 5
Output: Average of the numbers is: 3.00

Answer

```
def calculate_average(file_name):
    """
    Calculate the average of numbers in a file.

    Args:
    file_name (str): The name of the file containing numbers.

    Returns:
    None
    """
    try:
        # Open the file in read mode
        with open(file_name, 'r') as file:
            # Read the line of numbers
            numbers_str = file.read().split()

            # Initialize a list to store valid numbers
            numbers = []

            # Iterate over each number string
            for num_str in numbers_str:
                try:
                    # Attempt to convert the string to a float
                    num = float(num_str)
                    # If successful, add the number to the list
                    numbers.append(num)
                except ValueError:
                    # If not successful, print an error message and return
                    print("Invalid data in the input.")
                    return

            # Calculate the average
            average = sum(numbers) / len(numbers)
```

```
        # Print the average rounded to two decimal places
        print(f"Average of the numbers is: {average:.2f}")

    except FileNotFoundError:
        print("File not found.")

# Example usage
calculate_average('user_input.txt')
```

Status : Wrong **Marks : 0/10**

3. Problem Statement

John is a data analyst who often works with text files. He needs a program that can analyze the contents of a text file and count the number of times a specific character appears in the file.

John wants a simple program that allows him to specify a file and a character to count within that file.

Input Format

The first line of input consists of the file's name to be analyzed.

The second line of the input consists of the string they want to write within the file.

The third line of the input consists of a character to count within the file.

Output Format

If the character is found, the output displays "The character 'X' appears {Y} times in the file." where X is the character and Y i the count,

If the character does not appear in the file, the output displays "Character not found."

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: test.txt
This is a test file to check the character count.
e
Output: The character 'e' appears 5 times in the file.

Answer

```
filename=input()
content=input()
char_to_count=input()
with open(filename,"w")as file:
    file.write(content)
with open(filename,"r")as file:
    data=file.read()
count=data.lower().count(char_to_count.lower())
if count>0:
    print(f"The character '{char_to_count}' appears {count} times in the file.")
else:
    print("Character not found in the file.")
```

Status : Correct ***Marks : 10/10***