Rajalakshmi Engineering College

Name: Ashwin C
Email: 240701058@rajalakshmi.edu.in
Roll no:
Phone: 9940303740
Branch: REC
Department: I CSE FA
Batch: 2028
Degree: B.E - CSE

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_MCQ

Attempt : 1
Total Mark : 20
Marks Obtained : 18

Section 1 : MCQ

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

Answer

finally

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

2. 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***

3. 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***

4. 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***

5. 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***

6. 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***

7. 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, 0)2) f.rlines()

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

8. 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***

9. 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***

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

Answer

To handle exceptions during code execution

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

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

Answer

error

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

12. 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***

13. 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***

14. How do you rename a file?

Answer

os.rename(existing_name, new_name)

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

15. 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***

16. 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***

17. 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***

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

Answer

raise Exception()

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

19. 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***

20. 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***

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_COD

Attempt : 1
Total Mark : 50
Marks Obtained : 48.5

Section 1 : Coding

1. 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

```
# You are using Python

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***

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

```
# You are using Python
def calculate_average():
    try:
        n = int(input())
        if n <= 0:
            print("Error: The length of the list must be a non-negative integer.")
            return
    except ValueError:
        print("Error: You must enter a numeric value.")
        return

    numbers = []
```

```
    for _ in range(n):
        try:
            num = int(input())
            numbers.append(num)
        except ValueError:
            print("Error: You must enter a numeric value.")
            return

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

calculate_average()
```

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

You are using Python

```
class NotEligibleToVote(Exception):
    pass

def check_voting_eligibility(age):
    if age < 18:
        raise NotEligibleToVote

try:
    age = int(input())

    if age < 1 or age > 100:
        raise ValueError("Age must be between 1 and 100.")

    check_voting_eligibility(age)
    print("Eligible to vote")

except NotEligibleToVote:
    print("Not eligible to vote")

except ValueError:
    print("Invalid input")
```

Status : Partially correct ***Marks : 8.5/10***

4. 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

```
# You are using Python
def calculate_total_cost(price, quantity):
    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")

    return total_cost

try:
    price = float(input())
    quantity = int(input())
    total_cost = calculate_total_cost(price, quantity)
```

```
    print(f"{total_cost:.1f}")
except ValueError as e:
    print(e)
except RuntimeError as e:
    print(e)
```

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

5. 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

```
# You are using Python
def save_string_to_file(filename, input_string):
    with open(filename, 'w') as file:
        file.write(input_string)

def read_string_from_file(filename):
    with open(filename, 'r') as file:
        return file.readline().strip()

filename = 'text_file.txt'
input_string = input()
save_string_to_file(filename, input_string)

original_string = read_string_from_file(filename)
upper_case_string = original_string.upper()
lower_case_string = original_string.lower()

print(f"Original String: {original_string}")
print(f"Upper-Case String: {upper_case_string}")
print(f"Lower-Case String: {lower_case_string}")
```

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

Write a program to read the Register Number and Mobile Number of a student. Create user-defined exception and handle the following:

If the Register Number does not contain exactly 9 characters in the specified format(2 numbers followed by 3 characters followed by 4 numbers) or if the Mobile Number does not contain exactly 10 characters, throw an IllegalArgumentException. If the Mobile Number contains any character other than a digit, raise a NumberFormatException.If the Register Number contains any character other than digits and alphabets, throw a NoSuchElementException.If they are valid, print the message ‘valid’ or else print an Invalid message.

Input Format

The first line of the input consists of a string representing the Register number.

The second line of the input consists of a string representing the Mobile number.

Output Format

The output should display any one of the following messages:

If both numbers are valid, print "Valid".

If an exception is raised, print "Invalid with exception message: ", followed by the specific exception message.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 19ABC1001
9949596920

Output: Valid

Answer

```
# You are using Python
class IllegalArgumentException(Exception):
    pass

class NumberFormatException(Exception):
    pass

class NoSuchElementException(Exception):
    pass

def validate_register_number(register_number):
    if len(register_number) != 9:
        raise IllegalArgumentException("Register Number should have exactly 9 characters.")
    if not (register_number[:2].isdigit() and
            register_number[2:5].isalpha() and
            register_number[5:].isdigit()):
        raise IllegalArgumentException("Register Number should have the format: 2 numbers, 3 characters, and 4 numbers.")
    if not register_number.isalnum():
```

```
        raise NoSuchElementException("Register Number should only contain
alphanumeric characters.")

def validate_mobile_number(mobile_number):
    if len(mobile_number) != 10:
        raise IllegalArgumentException("Mobile Number should have exactly 10
characters.")
    if not mobile_number.isdigit():
        raise NumberFormatException("Mobile Number should only contain digits.")

def main():
    register_number = input().strip()
    mobile_number = input().strip()

    try:
        validate_register_number(register_number)
        validate_mobile_number(mobile_number)
        print("Valid")
    except (IllegalArgumentException, NumberFormatException,
NoSuchElementException) as e:
        print(f"Invalid with exception message: {e}")

main()
```

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

2. Problem Statement

In the enchanted realm of Academia, you, the Academic Alchemist, are bestowed with a magical quill and a parchment to weave the grades of aspiring students into a tapestry of academic brilliance.

The mission is to craft a Python program that empowers faculty members to enter student grades for any two subjects, stores these magical grades in a mystical file, and then, with a wave of your virtual wand, calculates the GPA to unveil the true essence of academic achievement.

Input Format

The input format is a string representing the student's name, any two subjects, and corresponding grades.

After entering grades, they can type 'done' when prompted for the student's name.

Output Format

The output should display the (average of grades) calculated GPA with a precision of two decimal places.

The magical grades will be saved in a mystical file named "magical_grades.txt".

Refer to the sample output for format specifications.

Sample Test Case

Input: Alice
Math
95
English
88
done

Output: 91.50

Answer

```
# You are using Python
def calculate_gpa(grades):
    return sum(grades) / len(grades)

def main():
    grades = []
    filename = "magical_grades.txt"

    while True:
        student_name = input().strip()
        if student_name.lower() == 'done':
            break

        subject1 = input().strip()
        grade1 = float(input().format(subject1))

        subject2 = input().strip()
```

```
        grade2 = float(input().format(subject2))

        # Validate grades
        if not (0 <= grade1 <= 100) or not (0 <= grade2 <= 100):
            print("Grades must be between 0 and 100.")
            continue

        grades.append((student_name, subject1, grade1))
        grades.append((student_name, subject2, grade2))

    # Save grades to file
    with open(filename, 'w') as file:
        for entry in grades:
            file.write(f"{entry[0]}, {entry[1]}, {entry[2]}\n")

    # Calculate GPA
    if grades:
        gpa = calculate_gpa([entry[2] for entry in grades])
        print(f"{gpa:.2f}")

main()
```

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

3. 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

```
# You are using Python


from datetime import datetime

def validate_time(time_str):
    return datetime.strptime(time_str, '%Y-%m-%d %H:%M:%S')

try:
    start_time = input().strip()
    end_time = input().strip()

    # Try to parse both times
    start_dt = validate_time(start_time)
    end_dt = validate_time(end_time)

    # If both are valid, print them
    print(start_time, end_time)

except ValueError:
    print("Event time is not in the format")
```

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

4. 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

```
# You are using Python

class PasswordException(Exception):
    pass

def validate_password(password):
    special_chars = set("!@#$%^&*")

    if not (10 <= len(password) <= 20):
        raise PasswordException("Should be a minimum of 10 characters and a
maximum of 20 characters")

    if not any(char.isdigit() for char in password):
        raise PasswordException("Should contain at least one digit")

    if not any(char in special_chars for char in password):
        raise PasswordException("It should contain at least one special character")

    print("Valid Password")

# Reading inputs
name = input().strip()
mobile = input().strip()
username = input().strip()
password = input().strip()

# Validating password
try:
    validate_password(password)
except PasswordException 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 : 18.5

Section 1 : Coding

1. 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

```
# You are using Python

filename = input().strip()
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***

2. 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

```
# You are using Python
class StudentDatabase:
    MAX_CAPACITY = 30

    def __init__(self):
        self.students = {}

    def add_student(self, student_id, student_name):
        if len(self.students) >= self.MAX_CAPACITY:
            raise RuntimeError("Student database is full.")
        if student_id in self.students:
            raise ValueError("Student ID already exists.")
        self.students[student_id] = student_name

def main():
    n = int(input())
    database = StudentDatabase()

    for _ in range(n):
        student_info = input().split()
        student_id = int(student_info[0])
        student_name = " ".join(student_info[1:])

        try:
            database.add_student(student_id, student_name)
            print(f"Student with ID {student_id} added to the database.")
        except ValueError as e:
            print(f"Exception caught. Error: {e}")
        except RuntimeError as e:
            print(f"Exception caught. Error: {e}")
            break
```

main()

Status : Partially correct ***Marks : 8.5/10***

3. 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

```
# You are using Python

try:
    with open("user_input.txt", "r") as file:
```

```
        line = file.readline().strip()

    values = line.split()
    numbers = []

    for value in values:
        try:
            numbers.append(float(value))
        except ValueError:
            print("Invalid data in the input.")
            break
    else:
        average = sum(numbers) / len(numbers)
        print(f"Average of the numbers is: {average:.2f}")

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

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