Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 4_MCQ

Attempt : 1
Total Mark : 15
Marks Obtained : 14

Section 1 : MCQ

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

```
def maximum(x, y):
    if x > y:
        return x
    elif x == y:
        return 'The numbers are equal'
    else:
        return y

print(maximum(2, 3))
```

Answer

3

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

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

```
def display(b, n):
    while n > 0:
        print(b,end="")
        n=n-1
display('z',3)
```

Answer

zzz

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

3. What will be the output of the following code?

```
def display(*args):
    for arg in args:
        print(arg)

display(10, 20, 30)
```

Answer

102030

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

4. How is a lambda function different from a regular named function in Python?

Answer

A lambda function does not have a name, while a regular function does

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

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

```
def is_even(number):
    if number % 2 == 0:
```

```
    return True

result = is_even(6)
print(result)
```

Answer

True

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

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

```
def C2F(c):
    return c * 9/5 + 32
print(C2F(100))
print(C2F(0))
```

Answer

212.032.0

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

7. Which of the following functions can take a lambda function as a parameter in Python?

Answer

All of the mentioned options

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

8. What is the output of the code shown below?

```
def f1(x):
    x += 1
    print(x)

global_variable = 15
f1(global_variable)
```

print("hello")

Answer

16hello

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

9. What is the output of the code shown?

```
def f1():
 global x
 x+=1
 print(x)
x=12
print("x")
```

Answer

x

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

10. What keyword is used to define a lambda function in Python?

Answer

lambda

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

11. What is the output of the following code snippet?

```
def fun(x, y=2, z=3):
   return x + y + z

result = fun(1, z=4)
print(result)
```

Answer

7

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

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

```
def cube(x):
    return x * x * x
x = cube(3)
print(x)
```

Answer

27

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

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

```
multiply = lambda x, y: x * y
print(multiply(2, 'Hello'))
```

Answer

HelloHello

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

14. What is the output of the following code snippet?

```
def my_function(x):
    x += 5
    return x

a = 10
result = my_function(a)
print(a, result)
```

Answer

10 15

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

15. What is the output of the following code snippet?

```
def add(a, b=2):
    return a - b

result = add(3)
print(result)
```

Answer

1

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

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 4_COD_Updated

Attempt : 1
Total Mark : 50
Marks Obtained : 50

Section 1 : Coding

1. Problem Statement

Sneha is building a more advanced exponential calculator. She wants to implement a program that does the following:

Calculates the result of raising a given base to a specific exponent using Python's built-in pow() function.Displays all intermediate powers from base¹ to base^exponent as a list.Calculates and displays the sum of these intermediate powers.

Help her build this program to automate her calculations.

Input Format

The input consists of line-separated two integer values representing base and exponent.

Output Format

The first line of the output prints the calculated result of raising the base to the exponent.

The second line prints a list of all powers from base^1 to base^exponent.

The third line prints the sum of all these powers.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 2
3
Output: 8
[2, 4, 8]
14

Answer

```
# You are using Python
b=int(input())
e=int(input())

res=pow(b,e)
sum=0
power_list=[pow(b,i) for i in range(1,e+1)]
for j in power_list:
    sum+=j
print(res)
print(power_list)
print(sum)
```

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

2. Problem Statement

Implement a program that needs to identify Armstrong numbers.
Armstrong numbers are special numbers that are equal to the sum of their

digits, each raised to the power of the number of digits in the number.

Write a function is_armstrong_number(number) that checks if a given number is an Armstrong number or not.

Function Signature: armstrong_number(number)

Input Format

The first line of the input consists of a single integer, n, representing the number to be checked.

Output Format

The output should consist of a single line that displays a message indicating whether the input number is an Armstrong number or not.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 153
Output: 153 is an Armstrong number.

Answer

```
def armstrong_number(number):
    num_str = str(number)
    num_digits = len(num_str)
    sum_of_powers = sum(int(digit) ** num_digits for digit in num_str)
    return sum_of_powers == number

n = int(input())

if armstrong_number(n):
    print(f"{n} is an Armstrong number.")
else:
    print(f"{n} is not an Armstrong number.")
```

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

3. Problem Statement

Sara is developing a text-processing tool that checks if a given string starts with a specific character or substring. She needs to implement a function that accepts a string and a character (or substring), and returns True if the string starts with the provided character/substring, or False otherwise.

Write a program that uses a lambda function to help Sara perform this check.

Input Format

The first line contains a string `str` representing the main string to be checked.

The second line contains a string `n`, which is the character or substring to check if the main string starts with it.

Output Format

The first line of output prints "True" if the string starts with the given character/ substring, otherwise prints "False".

Refer to the sample for the formatting specifications.

Sample Test Case

Input: Examly
e
Output: False

Answer

```
# You are using Python
x=lambda a,b:"True" if b==a[0:len(b)] else "False"
a=input()
b=input()
print(x(a,b))
```

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

4. Problem Statement

Imagine you are developing a text analysis tool for a cybersecurity company. Your task is to create a function that analyzes input strings to categorize and count the characters into four categories: uppercase letters, lowercase letters, digits, and special characters. The company needs this tool to process log files and identify potential security threats.

Function Signature: analyze_string(input_string)

Input Format

The input consists of a single string (without space), which may include uppercase letters, lowercase letters, digits, and special characters.

Output Format

The first line contains an integer representing the count of uppercase letters in the format "Uppercase letters: [count]".

The second line contains an integer representing the count of lowercase letters in the format "Lowercase letters: [count]".

The third line contains an integer representing the count of digits in the format "Digits: [count]".

The fourth line contains an integer representing the count of special characters in the format "Special characters: [count]".

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: Hello123

Output: Uppercase letters: 1
Lowercase letters: 4
Digits: 3
Special characters: 0

Answer

```
def analyze_string(input_string):
# You are using Python
    #Type your code here
    u=0
    l=0
    d=0
    sp=0
    j=list(input_string)
    for i in j:
        if(i.isupper()):
            u+=1
        elif(i.islower()):
            l+=1
        elif(i.isdigit()):
            d+=1
        else:
            sp+=1
    return u,l,d,sp

input_string = input()
uppercase_count, lowercase_count, digit_count, special_count =
analyze_string(input_string)

print("Uppercase letters:", uppercase_count)
print("Lowercase letters:", lowercase_count)
print("Digits:", digit_count)
print("Special characters:", special_count)
```

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

5. Problem Statement

Imagine you are building a messaging application, and you want to know the length of the messages sent by the users. You need to create a program that calculates the length of a message using the built-in function len().

Input Format

The input consists of a string representing the message.

Output Format

The output prints an integer representing the length of the entered message.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: hello!!
Output: 7

Answer

```
str=input()
print(len(str))
```

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

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 4_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 40

Section 1 : Coding

1. Problem Statement

Meena is analyzing a list of integers and needs to count how many numbers in the list are even and how many are odd. She decides to use lambda functions to filter the even and odd numbers from the list.

Write a program that takes a list of integers, counts the number of even and odd numbers using lambda functions, and prints the results.

Input Format

The first line contains an integer n, representing the number of integers in the list.

The second line contains n space-separated integers.

Output Format

The first line of output prints an integer representing the count of even numbers.

The second line of output prints an integer representing the count of odd numbers.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 7
12 34 56 78 98 65 23
Output: 5
2

Answer

```
# You are using Python
n=int(input())
num=list(map(int, input().split()))
even=list(filter(lambda x:x%2==0, num))
odd=list(filter(lambda x:x%2!=0, num))
c_even=len(even)
c_odd=len(odd)
print(c_even)
print(c_odd)
```

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

2. Problem Statement

Arjun is working on a mathematical tool to manipulate lists of numbers. He needs a program that reads a list of integers and generates two lists: one containing the squares of the input numbers, and another containing the cubes. Arjun wants to use lambda functions for both tasks.

Write a program that computes the square and cube of each number in the input list using lambda functions.

Input Format

The input consists of a single line of space-separated integers representing the list of input numbers.

Output Format

The first line contains a list of the squared values of the input numbers.

The second line contains a list of the cubed values of the input numbers.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 1 2 3
Output: [1, 4, 9]
[1, 8, 27]

Answer

```
# You are using Python
numbers=list(map(int, input().split()))
square=lambda x:x**2
cube=lambda x:x**3
sq_val=list(map(square,numbers))
cu_val=list(map(cube,numbers))
print(sq_val)
print(cu_val)
```

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

3. Problem Statement

Implement a program for a retail store that needs to find the highest even price in a list of product prices. Your goal is to efficiently determine the maximum even price from a series of product prices. Utilize the max() inbuilt function in the program.

For example, if the prices are 10 15 24 8 37 16, the even prices are 10 24 8 16. So, the maximum even price is 24.

Input Format

The input consists of a series of product prices separated by a space.

The prices should be entered as a space-separated string of numbers.

Output Format

If there are even prices in the input, the output prints "The maximum even price is: " followed by the maximum even price.

If there are no even prices in the input, the output prints "No even prices were found".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 10 15 24 8 37 16
Output: The maximum even price is: 24

Answer

```
# You are using Python
prices=list(map(int, input().split()))
even_prices=[]
for price in prices:
    if price%2==0:
        even_prices.append(price)

if even_prices:
    max_even_price=max(even_prices)
    print("The maximum even price is: ",max_even_price)
else:
    print("No even prices were found")
```

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

4. Problem Statement

Imagine you are tasked with developing a function for calculating the total cost of an item after applying a sales tax. The sales tax rate is equal to 0.08 and it is defined as a global variable.

The function should accept the cost of the item as a parameter, calculate the tax amount, and return the total cost.

Additionally, the program should display the item cost, sales tax rate, and total cost to the user.

Function Signature: total_cost(item_cost)

Input Format

The input consists of a single line containing a positive floating-point number representing the cost of the item.

Output Format

The output consists of three lines:

"Item Cost:" followed by the cost of the item formatted to two decimal places.

"Sales Tax Rate:" followed by the sales tax rate in percentage.

"Total Cost:" followed by the calculated total cost after applying the sales tax, formatted to two decimal places.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 50.00

Output: Item Cost: $50.00
Sales Tax Rate: 8.0%
Total Cost: $54.00

Answer

```
#
# You are using Python
```

```
SALES_TAX_RATE=0.08
def total_cost(item_cost):
        tax=item_cost*SALES_TAX_RATE
        total=item_cost+tax
        return total

item_cost=float(input())

total_cost = total_cost(item_cost)
print(f"Item Cost: ${item_cost:.2f}")
print(f"Sales Tax Rate: {SALES_TAX_RATE * 100}%")
print(f"Total Cost: ${total_cost:.2f}")
```

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

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REC_Python_Week 4_CY

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Section 1 : Coding

1. Problem Statement

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Write a program that takes a list of integers, counts the number of even and odd numbers using lambda functions, and prints the results.

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Output: 5
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Answer

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even=list(filter(lambda x:x%2==0, num))
odd=list(filter(lambda x:x%2!=0, num))
c_even=len(even)
c_odd=len(odd)
print(c_even)
print(c_odd)
```

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

2. Problem Statement

Arjun is working on a mathematical tool to manipulate lists of numbers. He needs a program that reads a list of integers and generates two lists: one containing the squares of the input numbers, and another containing the cubes. Arjun wants to use lambda functions for both tasks.

Write a program that computes the square and cube of each number in the input list using lambda functions.

Input Format

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Output Format

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The second line contains a list of the cubed values of the input numbers.

Refer to the sample output for the formatting specifications.

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Answer

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        return total

item_cost=float(input())

total_cost = total_cost(item_cost)
print(f"Item Cost: ${item_cost:.2f}")
print(f"Sales Tax Rate: {SALES_TAX_RATE * 100}%")
print(f"Total Cost: ${total_cost:.2f}")
```

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