PYTHON ANSWERS:

1) Question description

Pinaccio went to the school. His Maths teacher gave the task to Pinaccio that to find the range from the largest number and smallest number in the statistical data. Can you help him to find the range?

Constraints:

Range=greatest integer|G|-smallest integer(S)

Where 1G,5 s1000

Input format:

User should first give the greatest integer e.g. 18 and then the smallest integer e.g. 10

Output formal

The Range of given data = required answer.

ANSWER:

```
def calculate_range(greatest_integer, smallest_integer):
    range_value = abs(greatest_integer) - smallest_integer
    return range_value

# Getting input from the user
greatest_integer = int(input("Enter the greatest integer: "))
smallest_integer = int(input("Enter the smallest integer: "))

# Calculating and printing the range
range_value = calculate_range(greatest_integer, smallest_integer)
print("The range of the given data =", range_value)
```

2) QUESTION DESCRIPTION :

Athika and Ritu got a nice job at a MNC company. She was confused with the salary credited in her account.

To verify if the correct amount of HRA and DA was provided to them.

Ritu and Athika planned to develop a software that calculates the salary pay if the basic pay was provided.

The Salary policy of Athika and Ritu's Company is as follows. HRA is 80% of the basic pay and DA is 40% of basic pay.

Can you help Ritu and Athika in the software development?

Constraints

20000-basics 75000

Input Format

Single Integer representing the basic pay of the employee.

Output Format

Print the Gross salary of employee by adding the certain amount of HRA and DA to the basic pay and correcting to 2 decimal places

ANSWER:

```
# Get the basic pay from the user
basic_pay = int(input("Enter the basic pay: "))

# Calculate the HRA
hra = basic_pay * 0.8

# Calculate the DA
da = basic_pay * 0.4

# Calculate the gross salary
gross_salary = basic_pay + hra + da

# Round the gross salary to 2 decimal places
gross_salary = round(gross_salary, 2)

# Print the gross salary
```

print("The gross salary is: {}".format(gross_salary))

3) Problem Description:

Ratik a young millionaire deposits $10000 into a bank account paying 7% simple interest per year.

He left the money in for 5 years. He likes to predict the interest and the amount earned by him at the end of 5 years

Can you help him to find the interest and amount resided in his bank account after 5 years?

Functional Description:

interest = (p * ; * 4) / 100 and

amount = p + interest.

where p is total principal, i is rate of interest per year, and t is total time in years

Contraint:

$10000.00s ps$250000.00

5.00 si s 70.00

5 st s 25

Input Format

Three values representing Principle, Interest per year and Time in Investment of type float, float and integer respectively and each will be in separate lines.

Output Format

First Line: Print the interest earned for the principle amount in floating point format with 2 values after decimal point

Secand Line: Print the Total amount earned including interest at the end of investment period in floating point format with 2 values after decimal point

ANSWER:

```
# Get the principal, interest rate, and time from the user

principal = float(input("Enter the principal amount: "))

interest_rate = float(input("Enter the interest rate: "))

time = int(input("Enter the time in years: "))


# Calculate the interest
```

```
interest = principal * interest_rate * time / 100

# Calculate the total amount
total_amount = principal + interest

# Print the interest and total amount
print("The interest earned is: ${}".format(interest))
print("The total amount earned is: ${}".format(total_amount))
```

4) Problem Description:

Aaron took his girl friend Binita to a restaurant as he got a job of his dreams.

Since he had small welcome interview he was litle bit tensed.

Binita figured this out and to get back Aaron's confidence she gave him a little task,

When they received the bill for the food they ordered, She asked Aaron to find out the tax amount of the bill and tip for the meal through a computer code

Aaron can use your local tax rate when computing the amount of tax owing

Can you help Aaron to code the suitable logic.

Note:

Local tax= 18%

Tip amount=5%

Constraint:

50sbillwts 1300

Where billwt is the variable you should use for getting the bill amount without tax and tip.

Input format

Single Line of input has single value of type integer representing the Bill Amount Without Tax and Tip

Output format

In First Line Print the calculated Tax with only 2 values after decimal point.

In the Second Line Print the calculated Tip with only 2 values after decimal point.

In the Third Line Print the Total Bill Amount with tax and tip with only 2 values after decimal point.

ANSWER :

```
# Get the bill amount without tax and tip from the user
bill_amount_without_tax_and_tip = float(input("Enter the bill amount without tax and tip: "))

# Calculate the tax
tax_amount = bill_amount_without_tax_and_tip * 0.18

# Calculate the tip
tip_amount = bill_amount_without_tax_and_tip * 0.05

# Calculate the total bill amount
total_bill_amount = bill_amount_without_tax_and_tip + tax_amount + tip_amount

# Print the tax amount
print("The tax amount is: ${:.2f}".format(tax_amount))

# Print the tip amount
print("The tip amount is: ${:.2f}".format(tip_amount))

# Print the total bill amount
print("The total bill amount is: ${:.2f}".format(total_bill_amount))
```

5) Question description

Janaki wants to find the distance between the two points (x1,yl) and (x2,21. She know the formula for the distance is sqri(x2-xI)**2+(y2.yI)**2). Can you help her to create a program for finding the distance?

Function Description

Distance between the two points (x1, y 1) and (x2, y2) is (×2-x1|2+(y2-y1|2

Input Formal

First line represent the xl value

Second line represent the yl value

as like for getting the ×2 and y2 values in the separate lines

Output Format

Refer Testcases

ANSWER:

```
# Import the math module
import math

# Get the x1, y1, x2, and y2 values from the user
x1 = float(input("Enter the x1 value: "))
y1 = float(input("Enter the y1 value: "))
x2 = float(input("Enter the x2 value: "))
y2 = float(input("Enter the y2 value: "))

# Calculate the distance
distance = math.sqrt((x2 - x1) ** 2 + (y2 - y1) ** 2)

# Print the distance
print("The distance between the two points is: {}".format(distance))
```

6) Question Description

Sajid was booking a train ticket from Chennai to Delhi for his family. Two of the relatives was interested in joining that journey from different places with their family members So, Sajid booked tickets for those persons also along with his family members. He wants to know the total number of tickets for this travel. Can you help him in finding the total number of passengers?

Constraints

Sajid has to declare three integer variables named as num I, num2, num3.

Input Format: Only Line of input has three integers num I,num2 and num3 separated by a space representing the numbers of ticket booked by Sajid at three different interval of time

Output Format: Print the total number of tickets booked by Sajid.

ANSWER :

```
# Get the three integer variables from the user
num1 = int(input("Enter the number of tickets booked by Sajid at first interval of time: "))
num2 = int(input("Enter the number of tickets booked by Sajid at second interval of time: "))
num3 = int(input("Enter the number of tickets booked by Sajid at third interval of time: "))

# Calculate the total number of tickets booked
total_number_of_tickets = num1 + num2 + num3

# Print the total number of tickets booked
print("The total number of tickets booked is: {}".format(total_number_of_tickets))
```

7) Question description

The Electricity Officer has mentioned the total counts of unit and amount. The officer inform the customer the bill amount in a unique format. The format given by electricity officer as follow: But customers are finding the difficult to find the exact amount that needs to be paid. Can you help the customers?

Functional Description:

Total Bill Amount = unitconsumed ^ costperunit

Constraints:

] & unitconsumed ≤ 5002 ≤ cost per unit $ 10

Input Format:

The first line of input represents the integer value of unit consumed.

The second line of input represents the integer value of cost per unit

Output Format:

Print the lotal Bill amount in single line.

ANSWER :

```
# Get the unit consumed and cost per unit from the user
unit_consumed = int(input("Enter the number of units consumed: "))
cost_per_unit = int(input("Enter the cost per unit: "))
```

```
# Calculate the total bill amount
total_bill_amount = unit_consumed * cost_per_unit

# Print the total bill amount
print("The total bill amount is: {}".format(total_bill_amount))
```

8) Problem Description:

Arif planned to make a room cleaning robot for his college mini project competition.

First he has to code program to simulate the robot movements inside the room

He measured the length and width of the room.

Once the values are available, his program should compute and display the area of the room.

Can you help Arif with a suitable logic for the code?

Constraint:

20.00 s length s 100.00

20.00 ≤ width s 100.00

Input format

First Line has single floating point number representing length of the room

Second Line has single floating point number representing width of the room

Output format

Print the area of the room correcting to two decimal places.

ANSWER :

```
# Get the length and width of the room from the user
length = float(input("Enter the length of the room: "))
width = float(input("Enter the width of the room: "))

# Calculate the area of the room
area = length * width

# Round the area to two decimal places
```

```
area = round(area, 2)


# Print the area of the room
print("The area of the room is: {} sq. m.".format(area))
```

9) Question description

Question description Timothy Boon having the first name Timothy and Last name is Boon. Can you help him to make a program to display his name as Boon Timothy without using swap function

input Formal

Line by line input will be given.

For the first name will be stored in frame

and last name will be stored in Iname

Output Format

Refer the Testcases.

ANSWER:

```
first_name = input("Enter the first name: ")
last_name = input("Enter the last name: ")


full_name = last_name + " " + first_name


print("Full Name:", full_name)
```

10) Question Description

Thanwi's Maths teacher laught that a sphere is a three-dimensional solid with no face, no edge, no base and no verte measured in cubic units. It is a round body with all points on its surface equidistant from the center. The volume of a sphere is

Can you help her to find the volume of the sphere for the given radius?

Function Description

The volume of the sphere is: V-43mr3

Constraints

Take 1=3.142

Output Format

Required volume. Refer testcases.

ANSWER:

```
# Import the math module
import math

# Get the radius of the sphere from the user
radius = float(input("Enter the radius of the sphere: "))

# Calculate the volume of the sphere
volume = (4 / 3) * math.pi * radius ** 3

# Print the volume of the sphere
print("The volume of the sphere is: {} cubic units.".format(volume))
```

11) Problem Description:

Simon was working in a Casa Grande

His superior officer ordered him to construct a new building by incorporating equilateral, scalene and isosceles triangular shapes wherever possible.

But he has no idea about equilateral, scalene and isosceles triangle!

Can you clarity his doubt by giving him the correct category of triangle based on the values of sides given by simon?

Functional Description:

If All the Sides are Equal then it is a Equilateral Triangle

If two Sides are Equal then it is a Isosceles Triangle

If no Sides are Equal then it is a Scalene Triangle

Constraints:

1<=sidel <=100

1<=side2<=100

1<=side3<=100

Input Format:

Each line has values of type integer separated by enter key representing 'side I', side2' and 'side3'.

Output Format:

Print as either equilateral or scalene or isosceles triangle based on the values of the sides.

ANSWER :

```
# Get the three sides of the triangle from the user
side1 = int(input("Enter the length of side 1: "))
side2 = int(input("Enter the length of side 2: "))
side3 = int(input("Enter the length of side 3: "))

# Check if the triangle is equilateral
if side1 == side2 == side3:
    print("The triangle is equilateral.")

# Check if the triangle is isosceles
elif side1 == side2 or side2 == side3 or side1 == side3:
    print("The triangle is isosceles.")

# Otherwise, the triangle is scalene
else:
    print("The triangle is scalene.")
```

12) Problem Description:

Aarav a newbie entrepreneur was studying the profit and loss of his company.

He found out for some products cost price is greater than selling price, there was some loss and for other products he got some profit

Can you kindly automate this small work for him by creating a code that checks what arav wants?

Constraints:

30 <= cp<= 50

30 <= sp<= 50

If Cost Price > Selling Price then its "Loss"

If Cost Price < Selling Price then its "Profit"

If Cost Price = Selling Price then its "No Profit No Loss"

Input Format:

First Line: Integer representing the Cost price

Second Line: Integer representing Selling Price

Output Format:

Print Profit, Loss or No Profit No Loss Based on the condition.

ANSWER:

```
# Get the cost price and selling price from the user
cost_price = int(input("Enter the cost price: "))
selling_price = int(input("Enter the selling price: "))

# Calculate the profit or loss
if cost_price > selling_price:
    profit_or_loss = "Loss"
elif cost_price < selling_price:
    profit_or_loss = "Profit"
else:
    profit_or_loss = "No Profit No Loss"

# Print the profit or loss
print(profit_or_loss)
```

13) Problem Description:

Laasya looking at the friends birthday list on a social media site likes to find if the particular person's birthday year is a leap year or not.

Since many will have the same doubt she decides to automate the task by writing the code snippet for finding the same but she don't know the logic to write it.

Can you help laasya to accomplish her task?

Constraints:

1 <= year<= 10000

Input Format:

The Single Line containing the integer value representing year.

Output Format:

Print as either NOT A LEAP YEAR or LEAP YEAR after checking the year.

ANSWER:

```
# Get the year from the user
year = int(input("Enter the year: "))

# Check if the year is divisible by 4
if year % 4 == 0:

    # Check if the year is not divisible by 100
    if year % 100 != 0:

        # The year is a leap year
        print("LEAP YEAR")

    # The year is not a leap year
    else:

        # Check if the year is divisible by 400
        if year % 400 == 0:
```

```
        # The year is a leap year
        print("LEAP YEAR")

    # The year is not a leap year
    else:

        print("NOT A LEAP YEAR")

# The year is not divisible by 4
else:

  print("NOT A LEAP YEAR")
```

14) Problem Description:

The Paytm announced a Cashback offer for the people of Tamil Nadu which is a one time offer for the new year.

But to avail the Cashback users need to pass the simple tasks given by Paytm.

One such task given by Paytm is to check the nature of the currency value provided by Paytm.

Constraint:

1<=currency =20000

Functional Description:

One more condition imposed by Paylm is that participants need to do this checking using the concept of Operators.

Input Format:

Only Line of input has a single value of type integer representing the currency value.

Output Format:

Print either as "Even Currency" or "Odd Currency"

ANSWER :

```
# Get the currency value from the user
currency = int(input("Enter the currency value: "))
```

```
# Check if the currency value is even
if currency % 2 == 0:
   print("Even Currency")


# The currency value is odd
else:
   print("Odd Currency")
```

15) Problem Description:

Shree and Harry was living in the town of Denmark, they usually think and do something innovative on weekends.

Every day the boys embark on some grand new project, which annoys their controlling sister candace, who tries to bust them.

One Sunday they were both sitting under a tree in their back yard.

They decide to invent a machine which would allow us to enter 2 numbers it would say whether one of the entered number is an appropriate value of the other number entered.

Functional Description:

logic?

Constraints:

According to their logic a number is said to be an approximate value of the other if they differ by utmost 0.5. So they decide to insert a logic into the machine but they are finding it difficult can you help them with the

1.0 s number| s 50.0

1.0 s number2 s 50.0

Input Format

Each line of input has floating point number separated by an Enter Key representing number I and number2 respectively.

Output Formal:

Refer the sample Testcases.

ANSWER :

```
# Get the two numbers from the user
number1 = float(input("Enter the first number: "))
number2 = float(input("Enter the second number: "))

# Check if the difference between the two numbers is less than or equal to 0.5
if abs(number1 - number2) <= 0.5:
    print("The first number is an approximate value of the second number.")

# The two numbers are not approximate values of each other
else:
    print("The first number is not an approximate value of the second number.")
```

16) Problem Description:

Caleb and Salima are living in interior village of Nilgais. Since government of Tamil Nadu announced lockdown both of them struck in the village and its been very hard for them to spend their day because of the lack of friends in the village.So they planned to play a technical game on Lockdown days.

The rule of the game is simple:

When one among Caleb and Salima say two numbers to the other. The person at the receiving end need to tell the difference between the numbers if the first number is greater than the second number otherwise they have to tell the sum of those two numbers

Constraints:

- 1000 ≤ nl s1000

- 1000 5 n2 s 1000

Input Format;

Each line of the input has one number of type integer separated by Enter key representing the first and second number.

Output Format:

Print the output based on the condition satisfied by the two input numbers

ANSWER :

```
# Get the two numbers from the user
number1 = int(input("Enter the first number: "))
```

```
number2 = int(input("Enter the second number: "))


# Check if the first number is greater than the second number
if number1 > number2:
    print("The difference between the two numbers is {}.".format(number1 - number2))


# The first number is not greater than the second number
else:
    print("The sum of the two numbers is {}.".format(number1 + number2))
```

17) Question Description:

Arifa would like to withdraw X ZINR from an ATM.

The cash machine will only accept the transaction if X is a multiple of 5, and Atifa's account balance has enough cash to perform the withdrawal transaction (including bank charges).

For each successful withdrawal, the bank charges 0.5 ZINR

Functional Description:

Calculate and display the Atifa's account staus after the transaction based on the following condition:

If the amount requested > the available initial balance - bank charges and or if the requested amount is not the multiple of 5

In the First Line of Output Print as "Invalid Withdrawal Request

In the Second Line of Output Print the Initial Balance with two values after decimal point

If the amount requested s to the available initial balance - bank charges and if the requested amount is not the multiple of 5

In the First Line of Output Print the Current balance after the successful transaction with two values after decimal point.

In the Second line of Output Print the Initial Balance with Iwo values after decimal point

Constraints:

1 < amtreg <= 5000

1<= iniamt <= 50000

Input Formal:

Only Line of input has two values of type integer and float separated by a space representing the requested withdrawal amount and the initial account balance respectively.

Output Format:

Print the output based on the condition as per the given format specification

Refer Sample Testcases for clarification with respect to output formatting

ANSWER:

```
# Get the requested withdrawal amount and the initial account balance from the user
requested_withdrawal_amount = int(input("Enter the requested withdrawal amount: "))
initial_account_balance = float(input("Enter the initial account balance: "))

# Check if the requested amount is a multiple of 5
if requested_withdrawal_amount % 5 != 0:

    # Print an error message
    print("Invalid Withdrawal Request")

    # Print the initial balance
    print("Initial Balance: {:.2f}".format(initial_account_balance))

# The requested amount is a multiple of 5
else:

    # Check if the requested amount is greater than the available initial balance - bank charges
    if requested_withdrawal_amount > initial_account_balance - 0.5:

        # Print an error message
        print("Invalid Withdrawal Request")

        # Print the initial balance
        print("Initial Balance: {:.2f}".format(initial_account_balance))
```

```
# The requested amount is less than or equal to the available initial balance - bank charges
else:

    # Calculate the current balance after the successful transaction
    current_balance = initial_account_balance - requested_withdrawal_amount - 0.5

    # Print the current balance
    print("Current Balance: {:.2f}".format(current_balance))

    # Print the initial balance
    print("Initial Balance: {:.2f}".format(initial_account_balance))
```

18) Problem Description:

The Election Commission of India distributed the voter ID to all eligible citizens.

But Amira didn't received a Voter ID on time.

So, she gets confused about her eligibility for voting?

Can you clarify her doubt?

Condition for Eligibility as per Election Commission of India is

(i) Eligible if age >= 18

(i) Not Eligible if age < 18

Constraints:

1sages 100

Input Format:

The only line of input has single value of type integer representing age.

Output Format:

Print as Eligible or Not Eligible based on the eligibility criteria in a single line. Refer the Testcases.

ANSWER:

```
# Get Amira's age from the user
age = int(input("Enter Amira's age: "))
```

```
# Check if Amira is eligible for voting
if age >= 18:
   print("Eligible")
else:
   print("Not Eligible")
```

19) Problem Description:

Aadi and Tara travel frequently around the world

Since most of their travels are unplanned they usually book the rooms for stay nearer to the locality they are going to visit.

Functional Description:

In most of the tourist places the room rent is 20% high during peak seasons [April and May]

Can you help them with the Room Rent Estimation Portal using flow control concept that provides the total rent to pay if the details such as Month, Room Rent and Total days of stay are provided?

Constraints:

1<=month<= 12

500 <=roomrent<=5000

1<=numofdays<= 15

Input Format:

The first line of the input has a single integer which corresponds to the number of the month. [Ex. January is 1, and March is 3].

The second line of the input has a single floating point number which corresponds to the room rent per day.

The third line of the input has a single integer which corresponds to the number of days stayed in the hotel.

Output Format:

Print the lotal room rent to be paid with iwo values after decimal point.

Refer sample testcases for Format Specification.

ANSWER :

```
# Get the month, room rent per day, and number of days stayed from the user
```

```
month = int(input("Enter the month: "))
room_rent_per_day = float(input("Enter the room rent per day: "))
number_of_days = int(input("Enter the number of days stayed: "))

# Check if the month is April or May
if month == 4 or month == 5:

    # Calculate the peak season room rent
    peak_season_room_rent = room_rent_per_day * 1.2

    # Calculate the total rent to be paid
    total_rent = peak_season_room_rent * number_of_days

else:

    # Calculate the normal season room rent
    normal_season_room_rent = room_rent_per_day

    # Calculate the total rent to be paid
    total_rent = normal_season_room_rent * number_of_days

# Print the total rent to be paid with two values after decimal point
print("Total rent to be paid: {:.2f}".format(total_rent))
```

20) Problem Description:

Abilash and Yazhini are friends who love to go for outing every month.

Normally they will plan to travel on 3 weekends if the month has 31 days and for 2 weekends if a month has 30 days.

If a month has less than 30 days they will travel for only one weekend.

They feel it will be better for them if know in prior the number of days a particular month has so that they can book the travel tickets in advance.

Can you help them with the number of days a month has if the number of the month (Ex. "|" for January and "3" for March) is provided?

Constraints:

1<=month<=12

Input Format :

Only line of input has a single digit of type integer representing the month number.

Output Format:

Print the number of days in a month based on the condition.

ANSWER:

```
# Get the month number from the user
month_number = int(input("Enter the month number: "))

# Get the number of days in the month
number_of_days = {
    1: 31,
    2: 28,
    3: 31,
    4: 30,
    5: 31,
    6: 30,
    7: 31,
    8: 31,
    9: 30,
    10: 31,
    11: 30,
    12: 31
}
```

```
# Print the number of days in the month

print("The number of days in the month {} is {}".format(month_number,
number_of_days[month_number]))
```