REPORT

PYTHON ASSIGNMENT

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Python_assignment_1 :
https://github.com/immanishkr/python_assignment.git

#Assignment 1: Exercises on Operators, Strings, and Lists

#Part 1: Operators

#Exercise 1: Arithmetic Operators

#Write a Python program to perform the following operations:

1. Add, subtract, multiply, and divide two numbers (input by the user).

2. Use the modulus operator to find the remainder of their division.

3. Use the exponentiation operator to raise the first number to the power of the second number.

4. Perform floor division on the two numbers.

 # Add, subtract, multiply, and divide two numbers (input by the user).

#Answer

```
# Get user input for two numbers
n1 = float(input("Enter the first number: "))
n2 = float(input("Enter the second number: "))

#Perform calculations
add = n1 + n2
sub = n1 - n2
multi = n1 * n2
```

```
#division by zero
if n2 != 0:
    division = n1 / n2
else:
    division = "undefined (cannot divide by zero)"

# Display results
print(f"\nAddition: {n1} + {n2} = {add}")
print(f"Subtraction: {n1} - {n2} = {sub}")
print(f"Multiplication: {n1} * {n2} = {multi}")
print(f"Division: {n1} / {n2} = {division}")

# OUTPUT
```

Enter the first number: 45
Enter the second number: 65

Addition: 45.0 + 65.0 = 110.0
Subtraction: 45.0 - 65.0 = -20.0
Multiplication: 45.0 * 65.0 = 2925.0
Division: 45.0 / 65.0 = 0.6923076923076923

#2 Use the modulus operator to find the remainder of their division.

```
# Get user input for two numbers
n1 = float(input("Enter the first number: "))
n2 = float(input("Enter the second number: "))

remainder = n1 % n2
print('Modulus',remainder)

# OUTPUT
```

Enter the first number: 10
Enter the second number: 3
Modulus :1.0

#3 Use the exponentiation operator to raise the first number to the power of the second #number.

```
# Get user input for two numbers
n1 = float(input("Enter the first number: "))
n2 = float(input("Enter the second number: "))

# Perform calculations

# Exponentiation (n1 raised to the power of n2)
```

```
exponentiation = n1 ** n2


# Display results
print(f"Exponentiation: {n1} ** {n2} = {exponentiation}")


# OUTPUT
Enter the first number: 10
Enter the second number: 3
Exponentiation: 10.0 ** 3.0 = 1000.0
```

#4 Perform floor division on the two numbers.

```
# Get user input for two numbers
n1 = float(input("Enter the first number: "))
n2 = float(input("Enter the second number: "))
# Perform calculations
   floor_division = n1 // n2


# Display results
print(f"Floor Division: {n1} // {n2} = {floor_division}")
# OUTPUT
Enter the first number: 10
Enter the second number: 3
Floor Division: 10.0 // 3.0 = 3.0
```

```
# Exercise 2: Comparison Operators


# Write a Python program that asks for two numbers and checks:
# 1. If the first number is greater than the second.
#2. If the first number is equal to the second.
#3. If the first number is less than or equal to the second.


n1 = float(input("Enter the first number: "))
n2 = float(input("Enter the second number: "))


if n1 > n2:                    # checks the 1st question
   print("n1 is greater than n2")
elif n1 == n2:                  # checks the 2nd question
   print("n1 is equal to n2")
else:
   if n1 <= n2:                # checks the 3rd question
      print("n1 is lees than or equal to n2 ")


#OUTPUT
Enter the first number:  2
Enter the second number:  3
n1 is less than or equal to n2
```

```
# Exercise 3: Logical Operators

# Write a Python program that:

 # 1. Takes three boolean values (True or False) as input.

 # 2. Uses and, or, and not operators to return the result of combining them.

#Input from User(Converting String Input to Boolean)

val1 = input("Enter First Boolean Value (True/False): ").strip().capitalize() == "True"

val2 = input("Enter First Boolean Value (True/False): ").strip().capitalize() == "True"

val3 = input("Enter First Boolean Value (True/False): ").strip().capitalize() == "True"


#using and operator

and_result = val1 and val2 and val3

#using or operator

or_result = val1 or val2 or val3

#Using not operator on each value

not_val1 = not val1

not_val2 = not val2

not_val3 = not val3


#Display Results

print(f"Result Of AND Operations: {and_result}")

print(f"Result Of OR Operation: {or_result}")

print(f"Not {val1}: {not_val1}")
```

```
print(f"Not {val2}: {not_val2}")

print(f"Not {val3}: {not_val3}")


#OUTPUT


Enter First Boolean Value (True/False):  true
Enter First Boolean Value (True/False):  false
Enter First Boolean Value (True/False):  true
Result Of AND Operations: False
Result Of OR Operation: True
Not True: False
Not False: True
Not True: False
```

```
# Part 2: Strings
# Exercise 4: String Manipulation
# 1. Take a string input from the user.
# 2. Display the following:
    o The length of the string.
    o The first and last character.
    o The string in reverse order.
    o The string in uppercase and lowercase.

# The length of the string.

S=input("Enter the word =")

length=len(S)
print(length)
# OUTPUT
Enter the word = string
6

#  The first and last character.

S=input("Enter the word =")
first_char = S[0]     # First character
last_char = S[-1]     # Last character
print("First character:", first_char)
```

```
print("Last character:", last_char)

# OUTPUT

Enter the word = string
First character: s
Last character: g

# The string in reverse order.

S=input("Enter the word =")
reversed_string = S[::-1]
print(reversed_string)

# OUTPUT

Enter the word = string
Gnirts

# The string in uppercase and lowercase.

S=input("Enter the word =")
# Convert to uppercase
uppercase_string = S.upper()

# Convert to lowercase
lowercase_string = S.lower()

print("Uppercase:", uppercase_string)
print("Lowercase:", lowercase_string)

# OUTPUT

Enter the word = string
Uppercase: STRING
Lowercase: string
```

```
# Exercise 5: String Formatting

# Write a program that asks for the user's name and age, and displays the mes
sage in this format:

# taking inputs for name and age

name=input("Enter the name=")
age=int(input("Enter the age="))

# printing the result

print("Hello",name, "you are",age,"years old." )

# OUTPUT

Enter the name= manish kumar
Enter the age= 22
Hello manish kumar you are 22 years old.

# Exercise 6: Substring Search

# Write a Python program that:
# 1. Asks for a sentence input from the user.
# 2. Asks for a word to search in the sentence.
# 3. Outputs whether the word exists in the sentence and, if it does, at which p
osition (index).

# taking inputs for sentence and word

I=input("Enter the sentence=")
W=input("Enter the word=")

# determine the index of a word
position=I.index(W)

# using if-else statement to check and detemine the index of a word

if position != -1:
```

```
   print("The letter",W,"is found at index",position)
else:
   print("The letter",W,"is not found in the sentence")

# OUTPUT

Enter the sentence= hello i am manish kumar
Enter the word= manish
The letter manish is found at index 11

# Part 3: Lists

# Exercise 7: List Operations

# Write a Python program that:
 1. Creates a list of 5 numbers (input from the user).
 2. Displays the sum of all the numbers in the list.
 3. Finds the largest and smallest number in the list.

# taking inputs

a1=int(input("Enter the number="))
a2=int(input("Enter the number="))
a3=int(input("Enter the number="))
a4=int(input("Enter the number="))
a5=int(input("Enter the number="))

# creating a list

l=[a1,a2,a3,a4,a5]

# printing result of sum, max-value, min-value

print("the sum is =",sum(l))

print("the maximum value is=",max(l))

print("the minimum value is =",min(l))
```

OUTPUT

```
Enter the number= 2
Enter the number= 3
Enter the number= 4
Enter the number= 5
Enter the number= 6
the sum is = 20
the maximum value is= 6
the minimum value is = 2
```

Exercise 8: List Manipulation

```
# 1. Create a list of 5 of your favorite fruits.
# 2. Perform the following:
 o Add one more fruit to the list.
 o Remove the second fruit from the list.
 o Print the updated list.

# taking a list of 5 fruits

Fruits=['apple','mango','banana','pomegranate','guava']

# taking inputs for inserting and removing

myin=input("Enter the fruit to be inserted=")
myre=input("Enter the fruit to be removed=")

# insert and remove operations
Fruits.insert(2,myin)
Fruits.remove(myre)
# print result
print(Fruits)

#OUTPUT

Enter the fruit to be inserted= guava
Enter the fruit to be removed= mango
['apple', 'guava', 'banana', 'pomegranate', 'guava']
```

```
# Exercise 9: Sorting a List

# Write a Python program that:
# 1. Asks the user to input a list of 5 numbers.
# 2. Sorts the list in ascending order and displays it.
# 3. Sorts the list in descending order and displays it.

# taking inputs

num1=int(input("Enter the num1="))
num2=int(input("Enter the num2= "))
num3=int(input("Enter the num3="))
num4=int(input("Enter the num4="))
num5=int(input("Enter the num5="))

# making a list

l=[num1,num2,num3,num4,num5]

# sorting list in ascending order
l.sort()
print(l)
# sorting list in descending order
l.sort(reverse=True)
print(l)

# OUTPUT

Enter the num1= 5
Enter the num2=  7
Enter the num3= 8
Enter the num4= 9
Enter the num5= 3
[3, 5, 7, 8, 9]
[9, 8, 7, 5, 3]
```

Exercise 10: List Slicing

Given the list numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10], perform the following:
1. Print the first 5 elements.
2. Print the last 5 elements.
3. Print the elements from index 2 to index 7.

```
# given list
numbers=[1,2,3,4,5,6,7,8,9,10]

# printing first 5 numbers
print(numbers[:5])
# printing last 5 numbers
print(numbers[-5:])
# printing numbers between index 2-7
print(numbers[2:8])
```

OUTPUT

```
[1, 2, 3, 4, 5]
[6, 7, 8, 9, 10]
[3, 4, 5, 6, 7, 8]
```

Exercise 11: Nested List

Write a Python program that:
1. Takes input of 3 students' names and their respective scores in 3 subjects.
2. Stores them in a nested list.
3. Prints each student's name and their average score.

```
# input of 1st student

s1=input("Enter the 1st student=")
a1=int(input("Marks in physics="))
a2=int(input("Marks in chemistry="))
a3=int(input("Marks in maths="))
x=[[s1],[a1,a2,a3]]            #nested list
```

```
print(x)

# input for 2nd student

s2=input("Enter the 2nd student=")
a4=int(input("Marks in physics="))
a5=int(input("Marks in chemistry="))
a6=int(input("Marks in maths="))
x1=[[s2],[a4,a5,a6]]              #nested list
print(x1)

# input for 3rd student

s3=input("Enter the 3rd student=")
a7=int(input("Marks in physics="))
a8=int(input("Marks in chemistry="))
a9=int(input("Marks in maths="))
x3=[[s3],[a7,a8,a9]]              #nested list
print(x3)


# calculations for average score

avg=(a1+a2+a3)/3
avg1=(a4+a5+a6)/3
avg2=(a7+a8+a9)/3

# printing result

print(s1,'average score is',avg)
print(s2,'average score is',avg)
print(s3,'average score is',avg)

#OUTPUT

Enter the 1st student= aman
Marks in physics= 78
Marks in chemistry= 89
Marks in maths= 90
```

[['aman'], [78, 89, 90]]
Enter the 2nd student= manish
Marks in physics= 98
Marks in chemistry= 99
Marks in maths= 97
[['manish'], [98, 99, 97]]
Enter the 3rd student= ravi
Marks in physics= 56
Marks in chemistry= 45
Marks in maths= 67
[['ravi'], [56, 45, 67]]
aman average score is 85.66666666666667
manish average score is 85.66666666666667
ravi average score is 85.66666666666667

#OUTPUT

```
Enter the first number:  10
Enter the second number:  3
Floor Division: 10.0 // 3.0 = undefined (cannot perform floor division by zero)
```