Assignment 1

September 7, 2024

[6]:
```python
# Write a program to calculate the distance between two points

import math

x1 = int(input("Enter x coordinate of point 1: "))
y1 = int(input("Enter y coordinate of point 1: "))
x2 = int(input("Enter x coordinate of point 2: "))
y2 = int(input("Enter y coordinate of point 2: "))

dist = math.sqrt((abs(x1 - x2) **2) + (abs(y1 - y2) **2))
print(f'Distance between ({x1}, {y1}) and ({x2}, {y2}) is: {dist}')
```

```
Enter x coordinate of point 1: 3
Enter y coordinate of point 1: 2
Enter x coordinate of point 2: 9
Enter y coordinate of point 2: 7
Distance between (3, 2) and (9, 7) is: 7.810249675906654
```

[8]:
```python
# Write a program to calculate the area of a triangle using Heron's formula

import math

a = int(input("Enter length of side 1: "))
b = int(input("Enter length of side 2: "))
c = int(input("Enter length of side 3: "))

s = (a + b + c)/2

area = math.sqrt(s * (s-a) * (s-b) * (s-c))
print(f'Area of triangle with sides {a}, {b} and {c} is: {area}')
```

```
Enter length of side 1: 14
Enter length of side 2: 14
Enter length of side 3: 10
Area of triangle with sides 14, 14 and 10 is: 65.3834841531101
```

[14]:
```python
'''Write a program to calculate the bill amount for an item given its quantity␣
 ↪sold, value, discount, and tax.
```

```
Given a string s = "1234" and an integer n = 5678, concatenate them as a single␣
 ↪string and then convert the
result back to an integer.
What is the final integer value?
'''

print("*** PART1 - Write a program to calculate the bill amount for an item␣
 ↪given its quantity sold, value, discount, and tax. ***")
quan = int(input("\nEnter the quantity sold: "))
val = float(input("Enter the value: "))
discount = float(input("Enter the discount percentage: "))
tax = float(input("Enter the tax: "))

amt = quan*val*(100-discount)/100

amt_after_tax = amt *(100+tax)/100

print("Amount to be after discount and tax is: ", amt_after_tax)



print("\n\n\n*** PART2 - Given a string s = '1234' and an integer n = 5678,␣
 ↪concatenate them as a single string and then convert the result back to an␣
 ↪integer. What is the final integer value? ***")
s = "1234"
n = 5678

c1 = s + str(n)
print("\nValue after combining s and n as string: ", c1)
print("Datatype of the above value: ", type(c1))

c2 = int(c1)
print("After converting this to int, value = ", c2, " and Datatype = ",␣
 ↪type(c2))
```

```
*** PART1 - Write a program to calculate the bill amount for an item given its
quantity sold, value, discount, and tax. ***

Enter the quantity sold: 80
Enter the value: 100
Enter the discount percentage: 10
Enter the tax: 14
Amount to be after discount and tax is:  8208.0



*** PART2 - Given a string s = '1234' and an integer n = 5678, concatenate them
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as a single string and then convert the result back to an integer. What is the final integer value? ***

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Value after combining s and n as string:  12345678
Datatype of the above value:  <class 'str'>
After converting this to int, value =  12345678  and Datatype =  <class 'int'>
```

[17]:
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'''
Given two variables, a = 7 and b = 3, write a Python code snippet to swap their␣
 ↪values without using a temporary variable.
What will be the values of a and b after the swap?
'''

a = 7
b = 3
print("Original value of a: ", a)
print("Original value of b: ", b)

a = a + b
b = a - b
a = a - b
print("New value of a: ", a)
print("New value of b: ", b)
```

```
Original value of a:  7
Original value of b:  3
New value of a:  3
New value of b:  7
```

[18]:
```
'''
Given a list of numbers = [10, 20, 30, 40, 50],
write a Python code snippet to calculate the average of these numbers using␣
 ↪arithmetic operators.
'''

ls = [10, 20, 30, 40, 50]

sum = 0
for i in ls:
    sum += i
avg = sum/len(ls)
print("Average of elements of list ", ls, "is: ", avg)
```

```
Average of elements of list  [10, 20, 30, 40, 50] is:  30.0
```

[28]:
```
# Write a simple basic calculator program in python

a = int(input("Enter first number: "))
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b = int(input("Enter second number: "))

def add(x, y):
    print("Sum: ", x+y)

def diff(x, y):
    print("Diff: ", x-y)

def mult(x, y):
    print("Mult: ", x*y)

def div(x, y):
    print("Div: ", x/y)

def mod(x, y):
    print("Mod: ", x%y)

def floor(x, y):
    print("Floor: ", x//y)

def power(x, y):
    print("Power: ", a**b)

inp = 1
while(1 <= inp <= 7):
    print("\n\n********************\nPress 1 for Addition")
    print("Press 2 for Difference")
    print("Press 3 for Multiplication")
    print("Press 4 for Division")
    print("Press 5 for Modulus")
    print("Press 6 for Floor")
    print("Press 7 for Power")
    inp = int(input("Choose the operation between 1 to 7 (Press any other␣
 ↪number to exit): "))

    if inp == 1:
        add(a, b)
    elif inp == 2:
        diff(a, b)
    elif inp == 3:
        mult(a, b)
    elif inp == 4:
        div(a, b)
    elif inp == 5:
        mod(a, b)
    elif inp == 6:
        floor(a, b)
```

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    elif inp == 7:
        power(a, b)
    else:
        print("\nWrong Operation Entered! Exitting the Program !!")
```

```
Enter first number: 2
Enter second number: 3


********************
Press 1 for Addition
Press 2 for Difference
Press 3 for Multiplication
Press 4 for Division
Press 5 for Modulus
Press 6 for Floor
Press 7 for Power
Choose the operation between 1 to 7 (Press any other number to exit): 1
Sum:  5


********************
Press 1 for Addition
Press 2 for Difference
Press 3 for Multiplication
Press 4 for Division
Press 5 for Modulus
Press 6 for Floor
Press 7 for Power
Choose the operation between 1 to 7 (Press any other number to exit): 5
Mod:  2


********************
Press 1 for Addition
Press 2 for Difference
Press 3 for Multiplication
Press 4 for Division
Press 5 for Modulus
Press 6 for Floor
Press 7 for Power
Choose the operation between 1 to 7 (Press any other number to exit): 7
Power:  8


********************
Press 1 for Addition
Press 2 for Difference
```

```
Press 3 for Multiplication
Press 4 for Division
Press 5 for Modulus
Press 6 for Floor
Press 7 for Power
Choose the operation between 1 to 7 (Press any other number to exit): -1

Wrong Operation Entered! Exitting the Program !!
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