ASSIGNMENT-1

1.Write a Python program to calculate the area of a rectangle given its length and width..?

```
length = float(input("Length: "))
width = float(input("Width: "))
area = length * width
print("Area:", area)
```

2.Write a program to convert miles to kilometers..?

```
miles = float(input("Enter distance in miles: "))
conversion_factor = 1.60934
kilometers = miles * conversion_factor
print(f"{miles} miles is equal to {kilometers} kilometers.")
```

3.Write a function to check if a given string is a palindrome.

```
def is_palindrome(s):
    s = s.lower()
    return s == s[::-1]
input_string = input("Enter a string: ")
if is_palindrome(input_string):
    print("It's a palindrome!")
else:
    print("It's not a palindrome.")
```

4.Write a Python program to find the second largest element in a list.

```
numbers = [int(x) for x in input().split()]
numbers.sort()
print(numbers[-2])
```

5.Explain what indentation means in Python.

Indentation in Python is like the way you use paragraphs in an essay - it shows which lines of code belong together and how they are related.

6.Write a program to perform set difference operation.

```
set1 = {1, 2, 3, 4, 5}
set2 = {3, 4, 5, 6, 7}
difference_set = set1 - set2
print("Set Difference:", difference_set)
```

7.Write a Python program to print numbers from 1 to 10 using a while loop.

```
num = 1
while num <= 10:
    print(num)
    num += 1
```

8.Write a program to calculate the factorial of a number using a while loop.

```
num = int(input())
fact = 1
while num > 1:
    fact *= num
    num -= 1
print(fact)
```

9.Write a Python program to check if a number is positive, negative, or zero using if-elif-else statements.

```
num = float(input())
if num > 0:
   print("Positive")
elif num < 0:
   print("Negative")
else:
   print("Zero")
```

10. Write a program to determine the largest among three numbers using conditional Statements.

```
num1 = float(input())
num2 = float(input())
num3 = float(input())
if num1 >= num2 and num1 >= num3:
   print(num1)
elif num2 >= num1 and num2 >= num3:
   print(num2)
else:
   print(num3)
```

11.Write a Python program to create a numpy array filled with ones of given shape.

```
import numpy as np
shape = tuple(map(int, input().split()))
ones_array = np.ones(shape)
print(ones_array)
```

12.Write a program to create a 2D numpy array initialized with random integers.

```
import numpy as np
rows, cols = map(int, input().split())
random_array = np.random.randint(1, 10, size=(rows, cols))
print(random_array)
```

13.Write a Python program to generate an array of evenly spaced numbers over a specified range using linspace… ?

```
import numpy as np
start, end, num_points = map(float, input().split())
result_array = np.linspace(start, end, num_points)
print(result_array)
```

14.Write a program to generate an array of 10 equally spaced values between 1 and 100 using linspace.

```
import numpy as np
result_array = np.linspace(1, 100, 10)
print(result_array)
```

15.Write a Python program to create an array containing even numbers from 2 to 20 using arange.. ?

```
import numpy as np
even_array = np.arange(2, 21, 2)
print(even_array)
```

16.Write a program to create an array containing numbers from 1 to 10 with a step size of 0.5 using arange

```
import numpy as np

result_array = np.arange(1, 11, 0.5)

print(result_array)
```