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

```
Length = float(input(“Enter the length of the rectangle:”))
Width = float(input(“Enter the width of the rectangle:”))
{
area=length*width
}
print(“The area of the rectangle is:”,area)
```

2.Write a program to convert miles to kilometers.

```
miles = float(input("Please enter miles:"))

kilometers = miles * 1.6

print(kilometers, " Kilometers” )
```

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

```
def isPalindrome(s):

    return s == s[::-1]

# Driver code

s = "malayalam"

ans = isPalindrome(s)

if ans:

    print("Yes")

else:

    print("No")
```

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

```
list1=[10,20,30,40,50]

list2=list(set(list1))

list2.sort()

print("second largest element:",list2[-2])
```

5.Explain what indentation means in Python.

In Python, indentation is used to define the structure and hierarchy of code blocks. Unlike many other programming languages that use braces **{}** or keywords like begin and end to denote blocks of code, Python relies on indentation to indicate the grouping of statements.

6.Write a program to perform set difference operation.

```
A={1,2,3,5,7,9}

B={2,4,6,7,9,0}

print('Different of A and B:',A&B)
```

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

```
i=1

while(I<=10):

{

    print(i)

}
```

```
i+= 1
```

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

```
print(“Enter the number:”)

Num = int(input())

fact=1

i=1

While I<=num:

fact=fact*I

i=i+1

print("\nFactorial =", fact)
```

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

```
Number = float(input(“Enter a number:”))

if Number>0:
{
    print(“The entered number is +ve”)
}elif Number<0:
{
    print(“The entered number is -ve”)
}else:
{
    print(“The entered number is zero”)
}
```

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

```
a,b,c=2,34,4
If a>b and a>c:
print(f”Maximum is {a}”)
elif b>c and b>a:
print(f”Maximum is {b}”)
elif c>a and c>b:
print(f”Maximum is {c}”)
else:
print(a)
```

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

```
import numpy as np
array=np.ones(shape)
shape=(3,4)
print(array)
```

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

```
import numpy as np
def create_array(shape,low,high):
array = np.random.randint(size=shape, low, high)
shape=(3,4)
low=1
high=10
print(array)
```

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

```
import numpy as np
sequence=np.linspace(start,stop,num)
start=0
stop=5
num=1
print(sequence)
```

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

```
import numpy as np
equal_space_of_array=np.linspace(start, stop, num)
start=1
stop=100
num=10
print(equal_space_of_array)
```

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

```
import numpy as np
even_number_array=np.arange(start, stop, num)
start=2
stop=21
num=2
print(even_number_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 is np
array_step=np.arange(1,10.5,0.5)
print(array_step)
```