

1. Calculate the area of a rectangle:

```
length = float(input("Enter length of the rectangle: "))
width = float(input("Enter width of the rectangle: "))
area = length * width
print("The area of rectangle is:", area)
```

2. Convert miles to kilometers:

```
m=float(input("Enter distance in miles: "))
k= m*1.60934
print("The distance in kilometers is: ",k)
```

3. Check if a string is a palindrome:

```
def is_palindrome(s):
    return s==s[::-1]
str=input("Enter a string: ")
if is_palindrome(str):
    print("The string is a palindrome.")
else:
    print("The string is not a palindrome.")
```

4. Find the second largest element in a list:

```
list = [5, 3, 8, 1, 9, 4, 7]
second_largest = sorted(list)[-2]
print("The second largest element is:", second_largest)
```

5. indentation means in Python

Indentation is used to define the structure and hierarchy of code blocks in Python, such as loops, conditional statements, and function definitions.

6. Perform set difference operation:

```
set1 = {1, 2, 3, 4, 5}
set2 = {4, 5, 6, 7, 8}
difference = set1 - set2
print("The set difference is:", difference)
```

7. Print numbers from 1 to 10 using a while loop:

```
n = 1
```

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

8. Calculate the factorial of a number using a while loop:

```
n = int(input("Enter a number: "))  
fact = 1  
while n > 0:  
    fact *= n  
    n -= 1  
print("The factorial is:", fact)
```

9. Check if a number is positive, negative, or zero using if-elif-else statements:

```
n = float(input("Enter a number: "))  
if n > 0:  
    print("The given number is positive.")  
elif n < 0:  
    print("The given number is negative.")  
else:  
    print("The given number is zero.")
```

10. Determine the largest among three numbers using conditional statements:

```
n1 = float(input("Enter the first number: "))  
n2 = float(input("Enter the second number: "))  
n3 = float(input("Enter the third number: "))  
largest_num = n1  
if n2 > largest:  
    largest = n2  
if n3 > largest:  
    largest_num = n3  
print("The largest number is:", largest_num)
```

11. Create a NumPy array filled with ones of given shape:

```
import numpy as np  
shape = tuple(map(int, input("Enter the shape of the array: ").split()))  
array_ones = np.ones(shape)  
print("Numpy array filled with ones:")  
print(array_ones)
```

12. Create a 2D NumPy array initialized with random integers:

```
import numpy as np
rows = int(input("Enter number of rows: "))
cols = int(input("Enter number of columns: "))
random_arr = np.random.randint(1, 100, size=(rows, cols))
print("2D Array initialized with random integers:")
print(random_arr)
```

13. Generate an array of evenly spaced numbers over a specified range using linspace:

```
import numpy as np
s = float(input("Enter start value: "))
e = float(input("Enter end value: "))
no_points = int(input("Enter number of points: "))
result_arr = np.linspace(s, e, no_points)
print("array of evenly spaced numbers:")
print(result_arr)
```

14. Generate an array of 10 equally spaced values between 1 and 100 using linspace:

```
import numpy as np
result_arr = np.linspace(1, 100, 10)
print("Array of 10 equally spaced numbers between 1 and 100: ")
print(result_arr)
```

15. Create an array containing even numbers from 2 to 20 using arange:

```
import numpy as np
even_arr = np.arange(2, 21, 2)
print("Array containing even numbers from 2 to 20:")
print(even_arr)
```

16. Create an array containing numbers from 1 to 10 with a step size of 0.5 using arange:

```
import numpy as np
arr = np.arange(1, 10.5, 0.5)
print("Array containing numbers from 1 to 10 with a step size of 0.5:")
print(arr)
```