

1) Python program to calculate the area of a rectangle:

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

2) Program to convert miles to kilometers:

```
miles = float(input("Enter distance in miles: "))
kilometers = miles * 1.60934
print("Distance in kilometers:", kilometers)
```

3) Function to check if a given string

```
def is_palindrome(s):
    return s == s[::-1]
is_palindrome("nau uan")
```

4) Python program to find second largest number in the list:

```
def second_largest(lst):
    sorted_list = sorted(lst)
    return sorted_list[-2]
second_largest([1,2,5,3,7,6,9])
```

5) **Indentation in Python:** Indentation refers to the spaces or tabs at the beginning of a line of code that determine its grouping and structure. In Python, indentation is crucial for indicating blocks of code, such as those within loops, conditionals, and functions.

6) Program to perform set difference operation:

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

7) program to print numbers from 1 to 10 using while loop:

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

8) Program to find factorial of a given number:

```
num = int(input("Enter a number: "))
factorial = 1
while num > 0:
    factorial *= num
    num -= 1
print("Factorial:", factorial)
```

9) Python program to check if a number is positive, negative, or zero:

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

10) Program to determine the largest among three numbers:

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))
num3 = float(input("Enter third number: "))
largest = max(num1, num2, num3)
print("Largest number:", largest)
```

11) Python program to create a numpy array filled with ones of given shape:

```
import numpy as np
shape = (2, 3)
arr = np.ones(shape)
print(arr)
```

12) Program to create a 2D numpy array initialized with random integers:

```
import numpy as np
shape = (3, 3)
arr = np.random.randint(0, 10, shape)
print(arr)
```

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

```
import numpy as np
arr = np.linspace(1, 10, num=5)
print(arr)
```

14) Python program to create an array containing even numbers from 2 to 20 using arange:

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

15) Program to 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, 11, step=0.5)
print(arr)
```