**Hands-on exercises for if statements and loop (Hands on Practise-02)**

**1. Write a Python code to display the following pattern using nested loop**

**and if statements.**

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**Solution:** Here's the Python code to display the pattern:

for i in range(1, 6):

# Print leading spaces

for j in range(5 - i):

print(" ", end="")

# Print stars and numbers

for k in range(i):

if i == 1:

print("\*", end="")

else:

print("\*", end="")

# Print the numbers

for l in range(i):

print(i, end="")

print()

**2. Write a Python code to Generate 100 random values between 0 and 9, save them in a one-dimensional numpy array, and calculate the cumulative frequency distribution of each number from 0 to 9 using if**

**statements.**

**Solution:** Here's the Python code to generate 100 random values, save them in a numpy array, and calculate the cumulative frequency distribution:

import numpy as np

# Generate 100 random values between 0 and 9

random\_values = np.random.randint(0, 10, 100)

# Initialize frequency distribution array

frequency = np.zeros(10, dtype=int)

# Calculate the cumulative frequency

for value in random\_values:

frequency[value] += 1

# Print the frequency of each number

for i in range(10):

print(f'Number {i}: {frequency[i]}')