Practical 1

|  |  |
| --- | --- |
| Name | Shubham Kumar |
| Roll No. | A082 |
| SAP ID | 70362019444 |

Topic:

Introduction to Numpy in Python: Use of

1. Arrays
2. Array Manipulation
3. Combining/Concatenation and Splitting/Slicing
4. Operations and Comparisons

Problem Statement:

1. To find first ‘n’ Fibonacci numbers using the given formula-

fn = [αn – βn]/ 5

where, α= 1+ 5 , β = 1- 5

2 2

1. To compute the covariance matrix of two given NumPy arrays.

Prior Practice:

1. Create Array
2. Check dimension, byte size, data type
3. Reshape and Slice array
4. Find min, max, sum and axis
5. Operations: Addition, subtraction, multiplication, division
6. Special operations: square root, standard deviation, vertical stacking, horizontal stacking
7. Trigonometric operations: sin(x), cos(x), ex, ln(x), log(x)

**Code:**

import math  
  
num = int(input("Enter a number: "))  
alpha = (1 + math.sqrt(5))/2  
beta = (1 - math.sqrt(5))/2  
for i in range(num):  
 fn = ((alpha\*\*i) - (beta\*\*i))/math.sqrt(5)  
 print(round(fn))

**Output:**

Graphical user interface, text, application

Description automatically generated