**SOFTWARE ENGENEERING**

**3 bca b**

**"Practical - 4"**

***BY***

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**SUBMITTED TO**

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## **QUESTION 1**

**Assignment - 2  
Write a program to print the numbers from 1 to 50 using a for loop.  
Write a program that takes an integer as input and checks if it is even or odd.  
Create a program that prints a right -angled triangle pattern of \* with a height of 5.  
Write a program that takes a number (1 -7) as input and prints the corresponding day of the week  
using a switch statement.  
Write a program t o calculate the sum of all numbers from 1 to n using a while loop.  
Write a program to check if a given number is prime or not using a for loop and if conditions.  
Write a program to reverse a given number (e.g., input: 1234, output: 4321) using a while loop.  
Write a program that takes a number as input and prints its multiplication table using a for loop.  
Write a program to calculate the factorial of a given number using a for loop.  
Generate the first n numbers of the Fibonacci sequence using a for loop.  
Write a program to input n numbers into an array and display them.  
Write a program to find the sum of all elements in a one -dimensional array.  
Write a program to find the largest element in an array.  
Implement a program to search for a specific element in an array using linea r search.  
Write a program to count the number of even and odd numbers in a one -dimensional array.  
Write a program to input a 3x3 matrix and disp lay it.  
Write a program to add two 3x3 matrices.  
Write a program to calculate and display the transpose of a 2x2 matrix.  
Write a program to calculate the sum of each row and each column in a 2x3 matrix.  
Write a program to calculate the sum of the diagonal elements of a square matrix.**

### **Code Solution**

for i in range(1, 51):  
 print(i)  
  
num = 5  
if num % 2 == 0:  
 print("Even")  
else:  
 print("Odd")  
  
for i in range(1, 6):  
 print('\*' \* i)  
  
day\_number = 3  
days = {1: "Monday", 2: "Tuesday", 3: "Wednesday", 4: "Thursday", 5: "Friday", 6: "Saturday", 7: "Sunday"}  
print(days.get(day\_number, "Invalid day"))  
  
n = 10  
total = 0  
i = 1  
while i <= n:  
 total += i  
 i += 1  
print(total)  
  
num = 7  
is\_prime = True  
if num > 1:  
 for i in range(2, int(num\*\*0.5) + 1):  
 if num % i == 0:  
 is\_prime = False  
 break  
else:  
 is\_prime = False  
print(is\_prime)  
  
num = 1234  
reversed\_num = 0  
while num != 0:  
 digit = num % 10  
 reversed\_num = reversed\_num \* 10 + digit  
 num //= 10  
print(reversed\_num)  
  
num = 5  
for i in range(1, 11):  
 print(f"{num} x {i} = {num \* i}")  
  
num = 5  
factorial = 1  
for i in range(1, num + 1):  
 factorial \*= i  
print(factorial)  
  
n = 10  
fib\_sequence = []  
a, b = 0, 1  
for \_ in range(n):  
 fib\_sequence.append(a)  
 a, b = b, a + b  
print(fib\_sequence)  
  
arr = [1, 2, 3, 4, 5]  
for element in arr:  
 print(element)  
  
arr = [1, 2, 3, 4, 5]  
total\_sum = sum(arr)  
print(total\_sum)  
  
arr = [1, 2, 3, 4, 5]  
largest = max(arr)  
print(largest)  
  
arr = [1, 2, 3, 4, 5]  
target = 3  
found = False  
for element in arr:  
 if element == target:  
 found = True  
 break  
print(found)  
  
arr = [1, 2, 3, 4, 5]  
even\_count = 0  
odd\_count = 0  
for num in arr:  
 if num % 2 == 0:  
 even\_count += 1  
 else:  
 odd\_count += 1  
print(even\_count, odd\_count)  
  
matrix = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]  
for row in matrix:  
 print(row)  
  
matrix1 = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]  
matrix2 = [[9, 8, 7], [6, 5, 4], [3, 2, 1]]  
result = [[0, 0, 0], [0, 0, 0], [0, 0, 0]]  
for i in range(3):  
 for j in range(3):  
 result[i][j] = matrix1[i][j] + matrix2[i][j]  
print(result)  
  
matrix = [[1, 2], [3, 4]]  
transpose = [[0, 0], [0, 0]]  
for i in range(2):  
 for j in range(2):  
 transpose[j][i] = matrix[i][j]  
print(transpose)  
  
matrix = [[1, 2, 3], [4, 5, 6]]  
row\_sums = [sum(row) for row in matrix]  
col\_sums = [sum(matrix[i][j] for i in range(2)) for j in range(3)]  
print(row\_sums)  
print(col\_sums)  
  
matrix = [[1, 2, 3, 4, 5], [6, 7, 8, 9, 10], [11, 12, 13, 14, 15], [16, 17, 18, 19, 20], [21, 22, 23, 24, 25]]  
diagonal\_sum = 0  
for i in range(5):  
 diagonal\_sum += matrix[i][i]  
print(diagonal\_sum)

### **FINAL Output**

