



Lab Manual

Practical and Skills Development

CERTIFICATE

THE ASSIGNMENT ENTERED IN THIS REPORT HAVE BEEN
SATISFACTORILY PERFORMED BY

Registration No	:25BCY10120
Name of Student	:TULSI SHARMA
Course Name	: Introduction to Problem Solving and Programming
Course Code	: CSE1021
School Name	: SCAI
Slot	: B11+B12+B13
Class ID	: BL2025260100796
Semester	: FALL 2025/26

Course Faculty Name : Dr. Hemraj S. Lamkuche

Signature:tulsi

Practical Index

S. No.	Title of Practical	Date of Submission	Signature of Faculty
1	TO FIND THE UNIQUE DISTINCT FACTORS OF A NUMBER	9NOV (SUNDAY)	
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Practical No: 1

Date: __9NOVEMBER__

TITLE: Write a function `count_distinct_prime_factors(n)` that returns how many unique prime factors a number has.

AIM/OBJECTIVE(s): To define a function which can calculate the different prime factors of a number.

METHODOLOGY & TOOL USED: If after dividing a number we get zero will take it in set of factors and then print it.

BRIEF DESCRIPTION: If after dividing a number we get zero will take it in set of factors and then print it. After that we will add one in the `i` and will keep going, also will calculate the execution time and memory usage.

RESULTS ACHIEVED:

code:

```
import time
```

```
import sys
```

```
import math
```

```
def distinct_prime_factors(n):
```

```
    factors = set()
```

```
i = 2
while i * i <= n:
    while n % i == 0:
        factors.add(i)
        n //= i
    i += 1
if n > 1:
    factors.add(n)
return factors

number = int(input("Enter a number: "))

start_time = time.time()
factors = distinct_prime_factors(number)
end_time = time.time()

print(f"\nThe number {number} has {len(factors)} distinct prime factors: {factors}")
print(f"Execution time: {end_time - start_time:.6f} seconds")
print(f"Memory utilization: {sys.getsizeof(factors)} bytes")
```

DIFFICULTY FACED BY STUDENT: made mistakes in first few tries due to the range of n .

SKILLS ACHIEVED: Now i can calculate a number prime factors using python.

Practical No: 2

Date: _____

TITLE:

AIM/OBJECTIVE(s):

METHODOLOGY & TOOL USED:

BRIEF DESCRIPTION:

RESULTS ACHIEVED:

DIFFICULTY FACED BY STUDENT:

SKILLS ACHIEVED: