qn.3 -> 3. Find the count of occurrence of each city in the dataset and create a dictionary such that the keys are the unique city names, and the values are their count of occurrence.

```python
def count_city_occurrences(file_path):

    city_count = {}

    with open(file_path, 'r') as file:

        next(file)  #Skip the header line

        for line in file:

            city = line.strip().split(',')[0]   #each city is
extracted

            if city in city_count:

                city_count[city] += 1

            else:

                city_count[city] = 1

    return city_count

print('Here are the cities with their occurances')

file_path = 'LabAssignment_Day1/Dataset_Day1.csv'

city_counts = count_city_occurrences(file_path)

print(city_counts)
```

```
Here are the cities with their occurances
{'"Agartala"': 1, '"Ahmedabad"': 43, '"AJMER"': 2, '"ALIGARH"': 4,
'"AMBALA"': 11, '"AMRITSAR"': 39, '"BAGHPAT"': 1, '"Bangalore"': 37,
'"Bhopal"': 26, '"Bhubaneswar"': 13, '"Chandigarh"': 29, '"Chennai"':
36, '"Dehradun"': 17, '"Delhi and NCR"': 432, '"GUNTUR"': 4,
'"Guwahati"': 5, '"Hyderabad"': 83, '"INDORE"': 4, '"Jabalpur"': 38,
'"Jaipur"': 74, '"JALANDHAR"': 29, '"JAMMU"': 2, '"JODHPUR"': 12,
'"Kanpur"': 46, '"Kolkata"': 39, '"KOTA"': 2, '"Lucknow"': 39,
'"Meerut"': 45, '"MORADABAD"': 7, '"Mumbai"': 70, '"Nagpur"': 88,
'"NELLORE"': 4, '"Patna"': 35, '"PONDICHERRY"': 5, '"Prayagraj"': 34,
'"Pune"': 65, '"RAIPUR"': 6, '"Ranchi"': 12, '"SAHARANPUR"': 1,
'"Shillong"': 2, '"SILIGURI"': 3, '"TRICHY"': 1, '"VADODARA"': 6,
'"VARANASI"': 18, '"VIJYAWADA"': 1, '"Visakhapatnam"': 28}
```

1.Write a Python program to check if a given number is prime or not.

```python
def is_prime(number):
    if number <= 1:
        return False
    for i in range(2, int(number ** 0.5) + 1):
        if number % i == 0:
            return False
    return True

# Test the function
num = int(input("Enter a number: "))
if is_prime(num):
    print(f"{num} is a prime number.")
else:
    print(f"{num} is not a prime number.")

Enter a number:  2

2 is a prime number.
```

4. Create a set of all the cities with at-least one Apollo hospital.

```python
def cities_with_apollo(file_path):

    apollo_cities = set()

    with open(file_path, 'r') as file:

        next(file)  #Skip the header line

        for line in file:

            parts = line.strip().split(',')

            city, hospital = parts[0], parts[1]  #Extract cityName and hospitalName

            if "Apollo" in hospital:

                apollo_cities.add(city)

    return apollo_cities

print('Below are the set of cities')

file_path = 'LabAssignment_Day1/Dataset_Day1.csv'  #Path to file

apollo_hospital_cities = cities_with_apollo(file_path)

print(apollo_hospital_cities)   #Print
```

```
Below are the set of cities
{'"Ahmedabad"', '"Kanpur"', '"Delhi and NCR"', '"Jaipur"',
'"Bangalore"'}
```

1. Write a function to input a number below 50 and print it's factorial.

```python
def factorial(n):
    if n < 0:
        return "Factorial is not defined for negative numbers"
    elif n == 0 or n == 1:
        return 1
    else:
        fact = 1
        for i in range(2, n + 1):
            fact *= i
        return fact

def main():
    while True:
        try:
            number = int(input("Enter a number below 50: "))
            if number >= 50:
                print("Number should be below 50. Please try again.")
            else:
                break
        except ValueError:
            print("Invalid input. Please enter a valid number.")

    result = factorial(number)
    print(f"The factorial of {number} is {result}")

if __name__ == "__main__":
    main()

Enter a number below 50:  20

The factorial of 20 is 2432902008176640000
```