Exercises

1. Write a program that takes a positive integer n as input and prints the first n prime numbers. A prime number is a number that is only divisible by 1 and itself.
2. Write a program that takes a string as input and prints the frequency of each character in the string.
3. Write a program that takes two integers a and b as input and computes a^b (i.e., a raised to the power of b) using a while loop.
4. Write a program that takes a list of numbers as input and prints the second smallest number in the list.
5. Write a program that takes a list of integers as input and prints the sum of all the numbers in the list.
6. Write a program that takes a list of integers as input and removes all the duplicates from the list.
7. Write a program that takes a string as input and prints the string in title case (i.e., the first letter of each word capitalized and the rest of the word in lowercase).
8. Write a program that takes a positive integer n as input and prints the Fibonacci sequence up to the nth term. The Fibonacci sequence is a series of numbers in which each number is the sum of the two preceding numbers, starting from 0 and 1.

Exercises and Solution

1. Write a program that takes a positive integer n as input and prints the first n prime numbers. A prime number is a number that is only divisible by 1 and itself.

```python
n = int(input("Enter a positive integer: "))

count = 0

num = 2

while count < n:
    for i in range(2, num):
        if num % i == 0:
            break
    else:
        print(num, end=" ")
        count += 1
    num += 1
```

2. Write a program that takes a string as input and prints the frequency of each character in the string.

```python
string = input("Enter a string: ")
```

```python
freq = {}
for ch in string:
    if ch in freq:
        freq[ch] += 1
    else:
        freq[ch] = 1
for ch, count in freq.items():
    print(ch, ":", count)
```

3. Write a program that takes two integers a and b as input and computes a^b (i.e., a raised to the power of b) using a while loop.

```python
a = int(input("Enter the base: "))
b = int(input("Enter the exponent: "))
result = 1
while b > 0:
    result *= a
    b -= 1
print("The result is:", result)
```

4. Write a program that takes a list of numbers as input and prints the second smallest number in the list.

```python
nums = [int(num) for num in input("Enter a list of numbers: ").split()]
smallest = float("inf")
second_smallest = float("inf")
for num in nums:
    if num < smallest:
        second_smallest = smallest
        smallest = num
    elif num < second_smallest:
        second_smallest = num
print("The second smallest number is:", second_smallest)
```

5. Write a program that takes a list of integers as input and prints the sum of all the numbers in the list.

```python
nums = [int(num) for num in input("Enter a list of numbers: ").split()]
sum = 0
```

```python
i = 0
while i < len(nums):
    sum += nums[i]
    i += 1
print("The sum of the numbers is:", sum)
```

6. Write a program that takes a list of integers as input and removes all the duplicates from the list.

```python
nums = [int(num) for num in input("Enter a list of numbers: ").split()]
unique_nums = []
for num in nums:
    if num not in unique_nums:
        unique_nums.append(num)
print("The list with duplicates removed is:", unique_nums)
```

7. Write a program that takes a string as input and prints the string in title case (i.e., the first letter of each word capitalized and the rest of the word in lowercase).

```python
string = input("Enter a string: ")
words = string.split()
title_case = []
for word in words:
    title_case.append(word.capitalize())
print("The string in title case is:", " ".join(title_case))
```

8. Write a program that takes a positive integer n as input and prints the Fibonacci sequence up to the nth term. The Fibonacci sequence is a series of numbers in which each number is the sum of the two preceding numbers, starting from 0 and 1.

```python
n = int(input("Enter a positive integer: "))
fibonacci = [0, 1]
while len(fibonacci) < n:
    fibonacci.append(fibonacci[-1] + fibonacci[-2])
print("
```