

Exercises

1. Write a program to find the second largest number in a given list.
2. Write a program to find the second smallest number in a given list.
3. Write a program to count the number of even numbers in a given list.
4. Write a program to count the number of odd numbers in a given list.
5. Write a program to find the index of a given element in a list.
6. Write a program to insert an element at a specific index in a given list.
7. Write a program to remove an element from a given list by its value.
8. Write a program to remove an element from a given list by its index.
9. Write a program to check if a given list is sorted in ascending order.
10. Write a program to check if a given list is sorted in descending order.
11. Write a program to merge two given lists into a single list.
12. Write a program to copy a given list to another list.
13. Write a program to find the largest and smallest numbers in a given list.
14. Write a program to find the average of all the numbers in a given list.
15. Write a program to split a given list into two equal halves.

Exercises and Solution

1. Write a program to find the second largest number in a given list.

```
my_list = [3, 1, 4, 1, 5, 9, 2, 6, 5, 3, 5]
unique_list = list(set(my_list))
unique_list.sort()
second_largest = unique_list[-2]
print("The second largest number in the list is:", second_largest)
```

2. Write a program to find the second smallest number in a given list.

```
my_list = [3, 1, 4, 1, 5, 9, 2, 6, 5, 3, 5]
unique_list = list(set(my_list))
unique_list.sort()
second_smallest = unique_list[1]
print("The second smallest number in the list is:", second_smallest)
```

3. Write a program to count the number of even numbers in a given list.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
count = 0
for num in my_list:
    if num % 2 == 0:
        count += 1
print("The number of even numbers in the list is:", count)
```

4. Write a program to count the number of odd numbers in a given list.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
count = 0
for num in my_list:
    if num % 2 != 0:
        count += 1
print("The number of odd numbers in the list is:", count)
```

5. Write a program to find the index of a given element in a list.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
element = 5
index = my_list.index(element)
print("The index of", element, "in the list is:", index)
```

6. Write a program to insert an element at a specific index in a given list.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
element = 10
index = 4
my_list.insert(index, element)
print("The list after inserting", element, "at index", index, "is:", my_list)
```

7. Write a program to remove an element from a given list by its value.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
index = 4
del my_list[index]
print("The list after removing the element at index", index, "is:", my_list)
```

8. Write a program to remove an element from a given list by its index.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
index = 4
```

```
del my_list[index]
```

```
print("The list after removing the element at index", index, "is:", my_list)
```

9. Write a program to check if a given list is sorted in ascending order.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
if my_list == sorted(my_list):
```

```
    print("The list is sorted in ascending order")
```

```
else:
```

```
    print("The list is not sorted in ascending order")
```

10. Write a program to check if a given list is sorted in descending order.

```
my_list = [9, 8, 7, 6, 5, 4, 3, 2, 1]
```

```
if my_list == sorted(my_list, reverse=True):
```

```
    print("The list is sorted in descending order")
```

```
else:
```

```
    print("The list is not sorted in descending order")
```

11. Write a program to merge two given lists into a single list.

```
list1 = [1, 2, 3]
```

```
list2 = [4, 5, 6]
```

```
merged_list = list1 + list2
```

```
print("The merged list is:", merged_list)
```

12. Write a program to copy a given list to another list.

```
my_list = [1, 2, 3, 4, 5]
```

```
new_list = my_list.copy()
```

```
print("The new list is:", new_list)
```

13. Write a program to find the largest and smallest numbers in a given list.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
largest = max(my_list)
```

```
smallest = min(my_list)
```

```
print("The largest number in the list is:", largest)
```

```
print("The smallest number in the list is:", smallest)
```

14. Write a program to find the average of all the numbers in a given list.

```
my_list = [1, 2, 3, 4, 5]
```

```
average = sum(my_list) / len(my_list)
print("The average of the numbers in the list is:", average)
```

15. Write a program to split a given list into two equal halves.

```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
half = len(my_list) // 2
first_half = my_list[:half]
second_half = my_list[half:]
print("The first half of the list is:", first_half)
print("The second half of the list is:", second_half)
```