

PYTHON LAB EXERCISE-3.1

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Sets and some built in functions:

```
#set  
a={2,3,5,6}  
b={4,6,8,9}  
a.add(90)  
a
```

{2, 3, 5, 6, 90}

```
: #copy  
c=b.copy()  
b  
c
```

: {4, 6, 8, 9}

```
#union  
a.union(b)
```

{2, 3, 4, 5, 6, 8, 9, 90}

```
#intersection  
a.intersection(b)
```

{6}

```
#difference  
a.difference(b)
```

```
{2, 3, 5, 90}
```

```
b.difference(a)
```

```
{4, 8, 9}
```

```
: #symmetric difference(elements alone in a and b not in both)  
a.symmetric_difference(b)
```

```
: {2, 3, 4, 5, 8, 9, 90}
```

```
#discard(or remove)  
a.discard(5)  
a
```

```
{2, 3, 6, 90}
```

```
: #update(can append multiple values)  
a.update([50,70])  
a
```

```
: {2, 3, 6, 50, 50.7, 70, 90}
```

```
: #updates in set and result goes to a set the diffrence set becomes a set  
z={3,5,7,8,9,34}  
x={3,6,7,45,2}  
z.difference_update(x)  
z
```

```
: {5, 8, 9, 34}
```

```
#disjoint(no common elements,duplicates not allowed)
a={3,4,6,7}
b={1,2,8,9}
a.isdisjoint(b)
```

True

```
#subset
a={1,4,5,6}
b={1,3,4,5,6}
b.issubset(a)
```

False

```
#superset(all elements of b should be there in a)
a.issuperset(b)
```

False

Code: List operations using elif

```

def list_operations():
    user_input = input("Enter elements of the list separated by spaces: ")
    my_list = user_input.split()

    while True:
        print("\n--- List Operations ---")
        print("1. Insert an element")
        print("2. Delete an element")
        print("3. Find an element")
        print("4. Display list")
        print("5. Exit")

        choice = int(input("Enter the choice: "))

        if choice == 1:
            element = input("Enter the element to insert: ")
            my_list.append(element)
            print(f'{element} added to the list.')

        elif choice == 2:
            element = input("Enter the element to delete: ")
            if element in my_list:
                my_list.remove(element)
                print(f'{element} deleted from the list.')
            else:
                print(f'{element} not found in the list.')

        elif choice == 3:
            element = input("Enter the element to find: ")
            if element in my_list:
                idx = my_list.index(element)
                print(f'{element} found at index {idx}.')
            else:
                print(f'{element} not found in the list.')

        elif choice == 4:
            print("Current List:", my_list)

        elif choice == 5:
            print("Exiting program. Goodbye!")
            break

        else:
            print("Invalid choice. Please select 1-5.")

list_operations()

```

Output:

```
Enter elements of the list separated by spaces: 3 5 67 89 4 3
--- List Operations ---
1. Insert an element
2. Delete an element
3. Find an element
4. Display list
5. Exit
Enter the choice: 1
Enter the element to insert: 23
'23' added to the list.

--- List Operations ---
1. Insert an element
2. Delete an element
3. Find an element
4. Display list
5. Exit
Enter the choice: 5
Exiting program. Goodbye!
```

Code: List operations with match case

```

def list_operations():
    user_input = input("Enter elements of the list separated by spaces: ")
    my_list = user_input.split()

    while True:
        print("\n--- List Operations ---")
        print("1. Insert an element")
        print("2. Delete an element")
        print("3. Find an element")
        print("4. Display list")
        print("5. Exit")

        choice = input("Enter the choice: ")

        match choice:
            case "1":
                element = input("Enter the element to insert: ")
                my_list.append(element)
                print(f'{element} added to the list.')

            case "2":
                element = input("Enter the element to delete: ")
                if element in my_list:
                    my_list.remove(element)
                    print(f'{element} deleted from the list.')
                else:
                    print(f'{element} not found in the list.')

            case "3":
                element = input("Enter the element to find: ")
                if element in my_list:
                    idx = my_list.index(element)
                    print(f'{element} found at index {idx}.')
                else:
                    print(f'{element} not found in the list.')

            case "4":
                print("Current List:", my_list)

            case "5":
                print("Exiting program. Goodbye!")
                break

            case _:
                print("Invalid choice. Please select 1-5.")

list_operations()

```

Output:

```
Enter elements of the list separated by spaces: 45 67 8 9 3 2

--- List Operations ---
1. Insert an element
2. Delete an element
3. Find an element
4. Display list
5. Exit
Enter the choice: 3
Enter the element to find: 67
'67' found at index 1.

--- List Operations ---
1. Insert an element
2. Delete an element
3. Find an element
4. Display list
5. Exit
Enter the choice: 2
Enter the element to delete: 2
'2' deleted from the list.

--- List Operations ---
1. Insert an element
2. Delete an element
3. Find an element
4. Display list
5. Exit
Enter the choice: 5
Exiting program. Goodbye!
```
