Problem1: You are given a list of customer IDs with duplicates. Remove the duplicates.

customer_ids = [101, 102, 103, 101, 104, 102]

```
#get the list of input of numbers
num=int(input("Enter the number of elemnts in the list: "))

#creating list for storing the input values
cus_id=[]
for i in range(num):
  cus_id.append(int(input(f"Enter the elements {i + 1}: ")))

print(f"The Elements in the list are :{cus_id}")

#creating an empty list for storing the unique elemnts
unique_elements=[]
for id in customer_id:
  if id not in unique_elements:
    unique_elements.append(id)
print(f"The Elements after deleting the duplicate elements
{unique_elements}")
```

```
Enter the number of elemnts in the list: 6
Enter the elements 1: 101
Enter the elements 2: 102
Enter the elements 3: 103
Enter the elements 4: 101
Enter the elements 5: 104
Enter the elements 6: 102
The Elements in the list are :[101, 102, 103, 101, 104, 102]
The Elements after deleting the duplicate elements [101, 102, 103,
104]
```

Problem2: Two stores have customer records. Find customers who shopped at both stores.

store1_customers = {"Alice", "Bob", "Charlie", "David"}

store2_customers = {"Eve", "Bob", "David", "Frank"}

```
store1_customers = {"Alice", "Bob", "Charlie", "David"}
print(f"The customers in store 1 :{store1_customers}")
store2_customers = {"Eve", "Bob", "David", "Frank"}
print(f"The customers in store 2 :{store2_customers}")

common_cust=store1_customers.intersection(store2_customers)
print(f"The common customers in store1 and store2 are: {common_cust}")
```

```
The customers in store 1 :{'Charlie', 'David', 'Alice', 'Bob'}
The customers in store 2 :{'David', 'Eve', 'Frank', 'Bob'}
The common customers in store1 and store2 are: {'David', 'Bob'}
```

Problem3: Find customers who bought a product but never returned. all_customers = {"John", "Mary", "Steve", "Ana"} returned_customers = {"Mary", "Ana"}

```
all_customers = {"John", "Mary", "Steve", "Ana"}
print(f"The All customers are: {all_customers}")
returned_customers = {"Mary", "Ana"}
print(f"The Returned customers are:{returned_customers}")

not_returned_customer=all_customers.difference(returned_customers)
print(f"The customers who bought a product but never returned are: 
{not_returned_customer}")
```

```
The All customers are: {'Mary', 'Steve', 'John', 'Ana'}
The Returned customers are:{'Mary', 'Ana'}
The customers who bought a product but never returned are: {'Steve', 
'John'}
```

Check for Duplicate Words in a Sentence

Problem4: Check whether a sentence has duplicate words.

sentence = "the sky is blue and the grass is green"

Output:

Has duplicates: True

```
def has_duplicate_words(sentence):
  """Checks if a sentence contains duplicate words.

  Args:
    sentence: The sentence to check.

  Returns:
    True if the sentence contains duplicate words, False otherwise.
  """
  words = sentence.lower().split()  # Convert to lowercase and split 
into words
  return len(words) != len(set(words))  # Compare lengths of list and 
set

# Example usage:
sentence = "The sky is blue and the grass is green"
print(sentence)
result = has_duplicate_words(sentence)
print(result)  # Output: True

sentence2 = "Each word is unique"
print(sentence2)
result2 = has_duplicate_words(sentence2)
print(result2)  # Output: False
```

```
The sky is blue and the grass is green
True
Each word is unique
False
```

Problem5: A warehouse is supposed to have items A–E. Find out which ones are missing.

expected_items = {"A", "B", "C", "D", "E"}

available_items = {"A", "C", "E"}

```
print(f"The expected items in warehouse are: {expected_items}")
expected_items = {"A", "B", "C", "D", "E"}

print(f"The available items in warehouse are:{available_items}")
available_items = {"A", "C", "E"}

missing_items = expected_items - available_items  # difference
print(f"The missing items in the warehouse are :{missing_items}")
```

```
The expected items in warehouse are: {'A', 'B', 'C', 'D', 'E'}
The available items in warehouse are:{'A', 'E', 'C'}
The missing items in the warehouse are :{'D', 'B'}
```