

solve **four** of the following programming exercises using c programming language:

1. **(duplicate elimination)** write a program to find the elements that are common to both arrays while eliminating duplicates.
Hint: Write a function called `duplicate_elimination()` that takes two arrays as input and returns an array of elements that are common to both arrays without duplicates.
2. **(union)** write a program to find the elements that are in either array or both arrays. It is denoted by $A \cup B$, where A and B are the two arrays.
Hint: Write a function called `union()` that takes two arrays as input and returns an array of elements that are in either array or both arrays.
3. **(subtraction)** write a program to find the difference between two arrays. The difference between two arrays is the array of elements that are in the first array but not in the second array. It is denoted by $A - B$, where A and B are the two arrays.
Hint: Write a function called `difference()` that takes two arrays as input and returns an array of elements that are in the first array but not in the second set.
4. **(smallest element not in array)** write a program to find the smallest positive integer that is not in the array.
Hint: Write a function called `smallest_element_not_in_array()` that takes an array as input and returns the smallest element that is not in the array.
5. **(maximum gap)** write a program to find the maximum gap between any two elements in the array.
Hint: Write a function called `maximum_gap()` that takes an array as input and returns the maximum gap between any two elements in the array.