**Topic 6.16: Subset Generation with Constraints**

**Question**  
Write a program to implement the concept of subset generation. Given a set of unique integers and a specific integer x, generate all subsets that contain the element x.

Example:  
For E = [2, 3, 4, 5], x = 3  
The subsets containing 3 are:

[3], [2, 3], [3, 4], [3, 5], [2, 3, 4], [2, 3, 5], [3, 4, 5], [2, 3, 4, 5]

Additionally, given an integer array nums of unique elements, return all possible subsets (the power set). The solution set must not contain duplicate subsets. Return the solution in any order.

**Aim**  
To implement an algorithm for generating subsets of a given set and specifically extract those subsets that contain a chosen element.

**Algorithm**

1. Sort the input set to ensure consistent subset ordering.
2. Use backtracking to generate all subsets:
   * Start with an empty subset.
   * At each step, include or exclude the current element.
   * Store each generated subset.
3. For subsets containing a specific element x, filter the generated subsets to include only those that contain x.
4. Return both:
   * All subsets (the power set).
   * Subsets specifically containing x.

**Output**A screenshot of a computer

AI-generated content may be incorrect.**s**

**Result**  
The algorithm generates all subsets (the power set) of a set and also extracts subsets containing a specific element.

**Performance Analysis**

* Time Complexity: O(2^n), since each element can be included or excluded.
* Space Complexity: O(2^n) for storing subsets, and O(n) for recursion depth.