**Assignment 2 - Computational problem solving**

**1.Prompts Used**

* "How to find missing numbers in an array from 1 to n in C#"
* "Sort array by parity in C#"
* "Two sum logic using dictionary in C#"
* "Find maximum product of three numbers in an array"
* "Convert decimal to binary in C#"
* "Binary search to find minimum in rotated sorted array"
* "Check if a number is a palindrome in C#"
* "Iterative Fibonacci number generation in C#"

**2. Responses Received**

* Copilot suggested using in-place negative marking to find missing numbers efficiently in O(n) time.
* For sorting by parity, it recommended a two-pointer approach to swap odd and even numbers.
* For the Two Sum problem, Copilot provided a dictionary-based solution to check for complements.
* For maximum product of three numbers, it recommended sorting and checking both ends of the array.
* Decimal to binary conversion used a while loop and modulo to build the binary string.
* For finding minimum in a rotated array, it gave a binary search approach comparing mid to right.
* To check if a number is a palindrome, it advised reversing the number and comparing with the original.
* For Fibonacci, Copilot suggested using a for loop to iteratively calculate the value, avoiding recursion.

**3. Implementation Details**

* + I implemented all eight functions using the logic generated by Copilot as a starting point.
  + I followed the instructions to not change any method names or parameter types from the original template.
  + Copilot helped guide the core logic structure, especially for algorithms and edge case thinking.
  + Each function was tested using both the given input in Main () and additional test cases to confirm general correctness.

**4. Adjustments Made**

* + Simplified and cleaned Copilot's output for clarity and readability.
  + Added custom edge case handling for empty arrays, null values, and small-sized inputs.
  + Replaced placeholder comments with real logic and meaningful explanatory comments.
  + Ensured each method worked not just for the sample input but for a wide range of possible inputs.
  + Verified that no part of the original template structure was modified, only logic was added where instructed.