Quiz 3

Problem: Given an array A containing an even number of integers, find a partition of A into two subsets A_1 and A_2 of the same size and with the minimum difference of $|sum(A_1) - sum(A_2)|$. Note that $sum(B)$ is the summation of all values in an array or set B.

+ Input: An array A containing an even number of integers.

+ Output: The membership index of each integer in A. For example, 1 means it belong to subset A1, and 2 means it belong to subset A2.

Answer the following questions.

1. (i) How would you solve this problem for an exact solution? And (ii) how would you use Greedy approach to solve it?
2. Write pseudo-code for your answers.
3. Do your answers correctly find the best partition, i.e., with the smallest difference?
4. Time and space complexity of your answer(s).