In this project, we use Genetic Algorithm to solve Subset Sum Problem.

**Abstract**: The Subset Sum Problem(SSP) is a classical NP-complete problem in computer science. It is about to find subsets in a given number set, meanwhile number sum of the subset is equal to appointed value. In our experiment, we use Genetic Algorithm (GA) to solve the Subset Sum Problem. The GA individuals are obtained by using some rule-based permutations of the facilities, which are then improved towards the optimum by means of specially designed crossover and mutation operators.

**Problem Description**

In computer science, the Subset Sum Problem(SSP) is an important problem in complexity theory which is a classical NP-complete problem in graph theory. Subset Sum Problem is this: given a set of integers and an integer s, does any non-empty subset sum to s? For example, given the set {−6, −4, −1, 3, 10}, does any non-empty subset sum to 4? The answer is yes because the subset {−6, 10} sums to zero. The problem is [NP-complete](https://en.wikipedia.org/wiki/NP-complete), meaning roughly that while it is easy to confirm whether a proposed solution is valid, it may inherently be prohibitively difficult to determine in the first place whether any solution exists.

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Integer

4

！ **sum**

Integer

4