### 6.1 Homework-2

1. Discuss Homework-2 problems.

### 6.2 Dynamic Programming

1. You are given $n$ types of coin denominations of values $v_{1}<v_{2}<\ldots<v_{n}$ (all integers). Assume $v_{1}=1$, so you can always make change for any amount of money $C$. Give an algorithm that makes change for an amount of money $C$ with as few coins as possible.
2. You have a set of $n$ integers each in the range $0, \ldots, K$. Partition these integers into two subsets such that you minimize $\left|S_{1}-S_{2}\right|$, where $S_{1}$ and $S_{2}$ denote the sums of the elements in each of the two subsets.
3. Consider a row of $n$ coins of values $v_{1}, \ldots, v_{n}$, where $n$ is even. We play a game against an opponent by alternating turns. In each turn, a player selects either the first or last coin from the row, removes it permanently, and receives the value of the coin. Determine the maximum possible amount of money we can definitely win if we move first.
