* COMBINATORIAL Problem:

* COIN CHANGE Problem (Number of Ways)

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Intution: (1) We need to calculate the no. of ways to form amount with provided denomination coins.

(2) Trivial case, if no denomination considered and '0' amount is to be formed so, no. of ways 1. Generally, for any case to form an amount 0, with any denomination no. of ways = 1.

(3) for any amount 'j' if denomination is price:

so: two condition arise:

(a) if denomination (price) considered:

we take the sum of ways of:

table[i-1][j] + table[i][j-price]

↑ Ways without considering the denomination

↑ ways to form j-price amount with the i^{th} denomination

so conclusively

(b) if denomination (price) not considered:

table[i-1][j]

SO:

$$table[i][j] = \begin{cases} table[i][j-1] & \{ \text{denomination not considered} \} \\ table[i][j-1] + table[i][j-price] & \end{cases}$$

* NOTE: implementation is slight different.