

**CS 313E (Mitra)****Coin Change Problem**

You have a large number of coins of the following denominations  $\{1, 7, 13, 23\}$ . You want to hand out change for 37. What is the minimum number of coins that you can use?

Change to be given: P

Number of coins:  $\min \{C[P - 1], C[P - 7], C[P - 13], C[P - 23]\} + 1$  where  $P \geq 23$ .

Fill the table with the following parameters:  $C[P]$  = minimum number of coins for P, and  $S[P]$  = last coin used to make P.

| P  | C[P] | S[P] |
|----|------|------|
| 0  | 0    | 0    |
| 1  | 1    | 1    |
| 2  | 2    | 1    |
| 3  | 3    | 1    |
| 4  | 4    | 1    |
| 5  | 5    | 1    |
| 6  | 6    | 1    |
| 7  | 1    | 7    |
| 8  | 2    | 1    |
| 9  | 3    | 1    |
| 10 | 4    | 1    |
| 11 |      |      |
| 12 |      |      |
| 13 |      |      |
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| 35 |  |  |
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| 37 |  |  |