

# Coin Changing

Coins - 1, 5, 6, 8

Total = 11

"How many minimum number of coin would you need to get \$total"

"কোন কোন row 2 বিবেচনা করে সব row নিয়ে মিনিমাম ফলাফল?"

|           | \$0 | \$1 | \$2 | \$3 | \$4 | \$5 | \$6 | \$7 | \$8 | \$9 | \$10 | \$11 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| $d_1 = 1$ | 0   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10   | 11   |
| $d_2 = 5$ | 0   | 1   | 2   | 3   | 4   | 1   | 2   | 3   | 4   | 5   | 2    | 3    |
| $d_3 = 6$ | 0   | 1   | 2   | 3   | 4   | 1   | 1   | 2   | 3   | 4   | 2    | 2    |
| $d_4 = 8$ | 0   | 1   | 2   | 3   | 4   | 1   | 1   | 2   | 1   | 2   | 2    | 2    |

number of coins

Solution (How to answer?!) )

|           | \$0 | \$1 | \$2 | \$3 | \$4 | \$5 | \$6 | \$7 | \$8 | \$9 | \$10 | \$11 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| $d_1 = 1$ | 0   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10   | 11   |
| $d_2 = 5$ | 0   | 1   | 2   | 3   | 4   | 1   | 2   | 3   | 4   | 5   | 2    | 3    |
| $d_3 = 6$ | 0   | 1   | 2   | 3   | 4   | 1   | 1   | 2   | 3   | 4   | 2    | 2    |
| $d_4 = 8$ | 0   | 1   | 2   | 3   | 4   | 1   | 1   | 2   | 1   | 2   | 2    | 2    |

number of coins

$\therefore \text{Ans} = \{5, 6\}$

Start from here  
2 আনসার মিনিমাম?  
 $\therefore$  answer!!

Code:

if  $j \geq \text{coin}[j]$

$T[i][j] = \min(T[i-1][j], 1 + T[i][j - \text{coin}[i]])$

else

$T[i][j] = T[i-1][j]$

$$C[i, j] = \min \{ C[i-1][j], 1 + C[i, j - d_i] \}$$