Change Money

4/4 points (100%)

Quiz, 4 questions

✔ **Congratulations! You passed!**

<div style="border:1px solid">Next Item</div>

✔ 1 / 1
points

1.

What is the smallest amount of money for which greedy strategy fails with coin denominations of 1, 8 and 20?

```
24
```

▲

Correct Response

The optimal solution is $24 = 8 + 8 + 8$, but the greedy algorithm will suggest $24 = 20 + 1 + 1 + 1 + 1$. For all the numbers less than 24, the greedy algorithm gives correct result.

✔ 1 / 1
points

2.

What is the minimum number of coins needed to change 32 into coins with denominations 1, 8, 20?

○ 3

◯ 4

▲

Correct
$32 = 8 + 8 + 8 + 8$

○ 6

○ 5

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✔   1 / 1
points

3.

What is the running time of the dynamic programming algorithm to change m using n different coin denominations?

○ $O(nm)$

△

Correct

For each value up to m, we need to try to start changing it with each of n coin denominations, thus the running time is $O(nm)$. See the lectures for more details.

○ $O(n+m)$

○ $O(m \log n)$

✔   1 / 1
points

4.

Is it possible to change 997 using coins with denominations 2, 4 and 8?

○   No

△

Correct

Proof by contradiction. If it was possible to change 997 using only coins of denominations 2, 4 and 8, it would mean that 2 divides 997, because 2 divides 2, 4 and 8. However, 2 does not divide 997, which is a contradiction.

○   Yes

👍   👎   🚩