Challenge: The Rod Cutting Problem

In this lesson, you will solve another famous dynamic programming challenge, the rod cutting problem.

We'll cover the following

Problem statement

You are given a rod of length `n` meters. You want to sell the rod and earn revenue. You can cut the rod into multiple smaller pieces of sizes 1 through n and sell them too. You are given the price of each size of the rod. Since you want to earn more, you will have to look for the optimal cuts on the rod that would earn the most revenue.

Input

Your function would get as input `n`, the original length of the rod. You can cut the rod into different pieces of sizes $1, 2$, up to n. The price for each of these pieces is given in a list of size n called `prices`.

```
n = 4
prices = [2,3,7,8]
```

Output

Your function should return the optimal amount of revenue you can get out of the rod provided `n` and `prices`.

```
n = 4
prices = [2,3,7,8]
```

```
rodCutting(n, prices) = 9
```

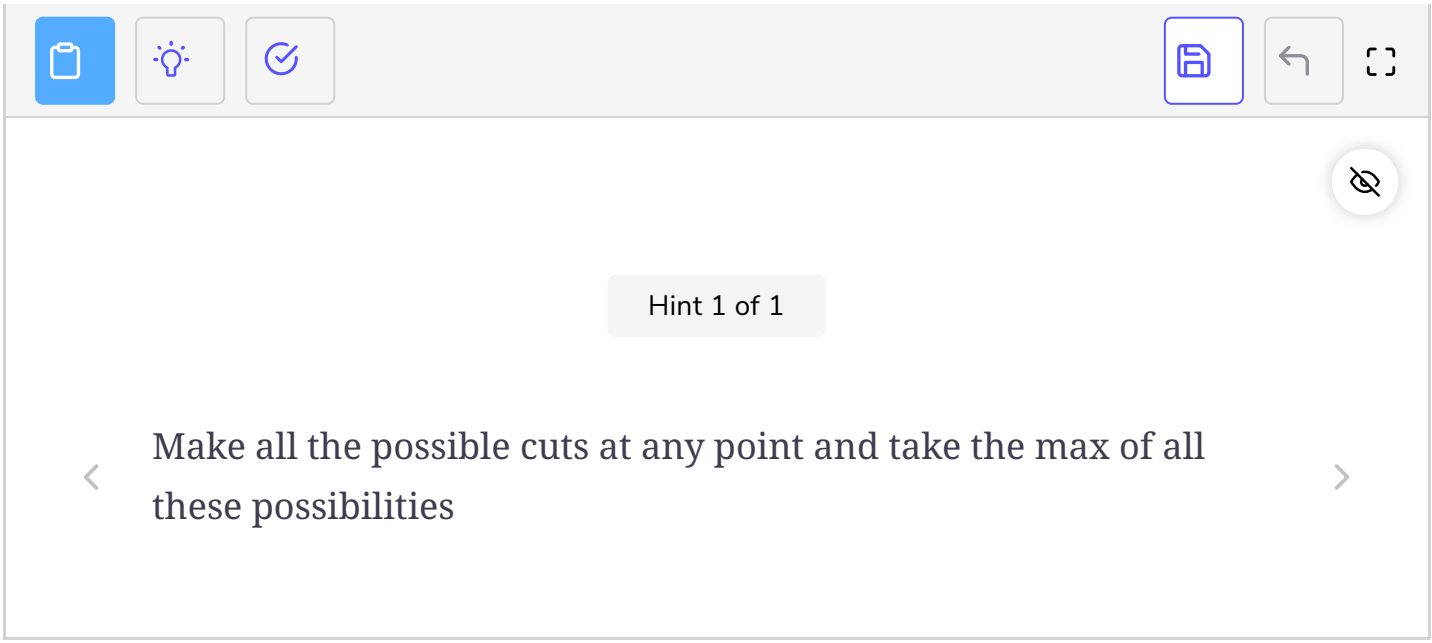
Coding challenge

You may write either a bottom-up or a top-down dynamic programming algorithm. If you plan to write a recursive algorithm first, you may check its correctness by setting the `stressTesting` variable to `False`.

Think carefully about the problem. Think about strategies to memoize or tabularize the problem, and then write the code. Best of luck!

```
def rodCutting(n, prices):
  # write your code here
  return 0

stressTesting = True
```



In the next lesson, we will review some solutions to this problem.