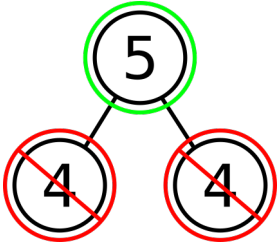


Question 1

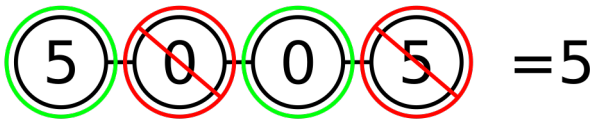
Heaviest-First



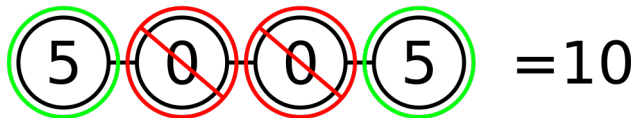
In the above diagram, the vertex with the heaviest weight of 5 is picked, and the two adjacent vertices with weights 4 are discarded. This is not the maximum independent set, since the sum is 5, instead of the set picking just the bottom two vertices with sum 8.

Even-Odd

Even-Odd



Optimal



The above diagram clearly shows that Even-Odd doesn't work.

One that does work

We can solve this using dynamic programming. If we start from one side and slowly build up, we can select the optimal set as we go. At every step we can either include a node if it's independent, or skip it in favor of the next node. This is similar to the largest subsequence problem.

TODO: flesh out

Ignore all vertices which have weights that are zero or negative.