Slime Boss

Filename: `slime`

Sharon the Slayer returns with an all new challenge! This time, he must slay the Slime Boss. The Slime Boss has a special power: every time it is killed, it splits into two slimes, each having half of its health (rounded down). These slimes will continue to split when they are killed in the same way, until the slime has zero health, at which point it will stop splitting. Sharon must slay all slimes. Therefore, while there are slimes alive, Sharon will pick one and attack it. The attacked slime will split (if it can), and all slimes still alive will attack Sharon and deal damage equal to the sum of their health. Determine the minimum damage Sharon will take while fighting the boss, if he kills the slimes in an optimal order.

The Problem:

Find the minimum damage Sharon will take.

The Input:

The input begins with a single, positive integer, t, representing the number of fights. Then, t lines follow, each with a single integer, h ($1 \leq h \leq 50{,}000$), representing the Slime Boss' health.

The Output:

For each fight, print a single line containing "`Fight #`*i*`:` *x*" where *i* is the fight number in the input (starting with 1), and *x* is the minimum amount of damage Sharon will take.

Sample Input:

```
2
4
7
```

Sample Output:

```
Fight #1: 16
Fight #2: 21
```