

5.34. Show that, for any integer n that is a power of 2, there is an instance of the Set Cover problem (Section 5.4) with the following properties.

- i. There are n elements in the base set.
- ii. The optimal cover uses just two sets.
- iii. The greedy algorithm picks at least $(\log_2 n) - 1$ sets.

Thus the approximation ratio we derived for the greedy algorithm is tight (up to a constant factor).