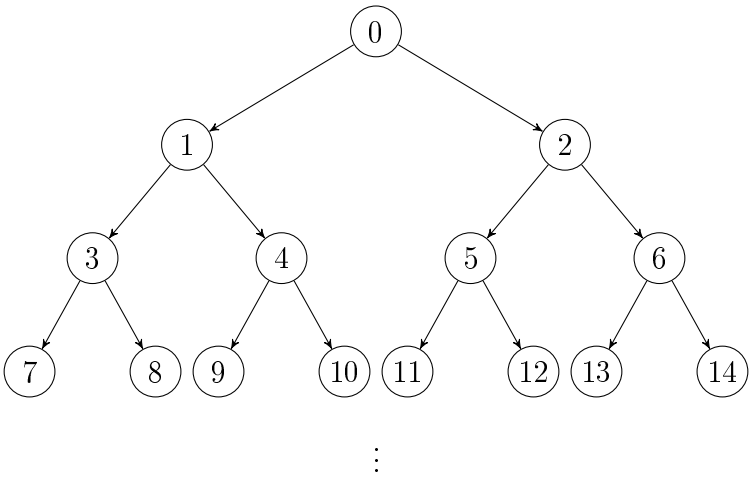
Honour and glory problem #1

Find an example of a family $\{A_i\}_{i \in I}$ where I is the set of infinite sequences of 0s and 1s (e.g. $111\cdots \in I$ and $010101\cdots \in I$ but $0123\ldots \notin I$) satisfying the following conditions:

- each A_i is an infinite subset of $\mathbb{N}$;
- $A_i \cap A_j$ is finite for any two distinct indices i and j;
- $\bigcup_{i \in I} A_i = \mathbb{N}$.

Hint 1: Instead of thinking of the natural numbers as being arranged in a line, think of them as being arranged in a tree structure like so:



Hint 2: Think of infinite binary sequences as a series of instructions for moving through the tree (e.g. interpret $01100\ldots$ as moving left, then right twice, then left twice etc.).