You are given a predicate $\text{prime}$ with domain $\text{nat}$ such that $\text{prime } n$ is $\top$ if $n$ is a prime number, and $\bot$ if it is not. You are given natural variable $n$. Write a program to assign to $n$ the smallest prime number that is bigger than or equal to the initial value of $n$. Write all specifications and refinements necessary to prove your program is correct, but you do not need to write the proof. You may ignore time.

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\begin{align*}
\text{Let} & \quad P = n' \geq n \land \text{prime } n' \land \neg \exists i : n..n' . \text{prime } i \\
\text{Then} & \quad P \iff \text{if prime } n \text{ then ok else } n := n+1. \ P \ \text{fi}
\end{align*}
\]