The specification
\[ \text{var } x : \text{nat} \quad x := -1 \]
introduces a local variable and then assigns it a value that is out of bounds. Is this specification implementable? (Proof required.)

After trying the question, scroll down to the solution.
Let the nonlocal variables be $\sigma$.

```
var x : nat  x := -1
```

\[ \equiv \exists x, x' : nat \ x' = -1 \land \sigma' = \sigma \]

local axiom $x' : nat$ conflicts with $x' = -1$

\[ \equiv \bot \]

so it is unimplementable.