Exercise 3  Let $A$ be the language containing only the single string $s$, where

$$s = \begin{cases} 
0 & \text{if God does not exist;} \\
1 & \text{if God does exist.}
\end{cases}$$

Is $A$ decidable? Why or why not?

Proof  Yes, $A$ is decidable. We have two cases.

- Assume that Goddoesnotexist. Then $A = \{0\}$. Hence, $A$ is decidable.
- Assume that Godexist. Then $A = \{1\}$. Hence, $A$ is decidable.

Actually, $A$ is always a finite language, so it must be decidable.