Algebra for an endofunctor

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For a category $\mathcal{C}$ and and endofunctor F, and **algebra** of F is an object X in $\mathcal{C}$ together with a morphism $\alpha : F(X) \to X$.

A morphism between two algebras (X, α) and (Y, β) of F is a morphism $m : X \to Y$ in $\mathcal{C}$ such that the following square commutes:

$$
\begin{array}{ccc}
F(X) & \xrightarrow{F(m)} & F(Y) \\
\alpha \downarrow & & \downarrow \beta \\
X & \xrightarrow{\quad m \quad} & Y
\end{array}
$$