A normed algebra A whose radical is isomorphic to $\mathcal{C}$.

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Suppose that $A = \{\begin{pmatrix} a & b \\ 0 & c \end{pmatrix}; a, b, c \in \mathcal{C}\}$. Then A is a subalgebra of $M_2(\mathcal{C}) \simeq B(\mathcal{C}^2)$ and the only its characters are $f(\begin{pmatrix} a & b \\ 0 & c \end{pmatrix}) = a$ and $g(\begin{pmatrix} a & b \\ 0 & c \end{pmatrix})) = c$, since

$$\left\{\begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix}\right\}$$

is a basis for A. Therefore $Rad(A) = \{\begin{pmatrix} 0 & b \\ 0 & 0 \end{pmatrix}; b \in \mathcal{C}\}$ is isometrically isomorphic to $\mathcal{C}$.