A proof for

Proposition 1 *Any regular UU ring is reduced.*

exists in [1], Theorem 4.1, as (5) $\Rightarrow$ (6) $\Rightarrow$ (3)) but it is rather complicated: if the ring R is not reduced , then there exists a corner eRe which is isomorphic to some matrix ring (by an old result of Levitzki, see [2], Th. 2.1), but eRe is UU while no matrix ring is UU, a contradiction.

Question. Find a direct (elementary) proof for the proposition above.

References

[1] P. Danchev, T. Y. Lam *Rings with unipotent units*. Publ. Math. Debrecen **88** (3-4) (2016), 449-466.

[2] J. Levitzki *On the structure of algebraic algebras and related rings*. Trans. Amer. Math. Soc. **74** (1953), 384-409.