Q2: Let $\{x_n\}$ be an enumeration of the rationals. Define $E_n = \bigcup_{k=1}^{\infty} \left(x_k - \frac{1}{2^{k-1}n}, x_k + \frac{1}{2^{k-1}n}\right)$. We have that $m(E_n) = \frac{1}{n}$. Set $E = \bigcap E_n$. It follows from measure continuity that $m(E) = 0$. Each E_n is dense in $\mathbb{R}$ since $\mathbb{Q} \subset E_n$. Thus E^c is nowhere dense.