Ajani Mnyandu: SEA4001W Exercise 5

Since $1 - k\Delta t$ must remain non-negative to prevent negative concentrations, it follows that $1 + k\Delta t$ must be positive for the implicit Euler backward scheme to ensure non-negative C^{n+1} values. Since $k\Delta t$ cannot be negative due to physical limitations it follows that $C^{n+1} = \frac{C^n}{1+k\Delta t}$ is always positive for all values of n.