$$C_{out,i+1} = C_{out,i} + rac{C_{1,i} - C_{out,i}}{\left(1 - lpha
ight) au} \; \Delta t \; .$$

$$u C_1 = \nu C_{out} + (1 - \alpha) V \frac{dC_{out}}{dt} \Longrightarrow$$

$$\nu C_1 = \nu C_{out} + (1 - \alpha) V \frac{dC_{out}}{dt} \Longrightarrow dC_{out}$$

$$\frac{dC_{out}}{dt} = \nu C_{out} + (1 - \alpha) V \frac{dC_{out}}{dt} \Longrightarrow
\Rightarrow C_1 = C_{out} + (1 - \alpha) \tau \frac{dC_{out}}{dt} \Longrightarrow$$

 $\implies \frac{\Delta C_{out}}{\Delta t} = \frac{C_{out,i+1} - C_{out,i}}{\Delta t} = \frac{C_1 - C_{out}}{(1 - \alpha)\tau} \implies$

 $\implies C_{out,i+1} = C_{out,i} + \frac{C_1 - C_{out}}{(1-\alpha)\tau} \Delta t$