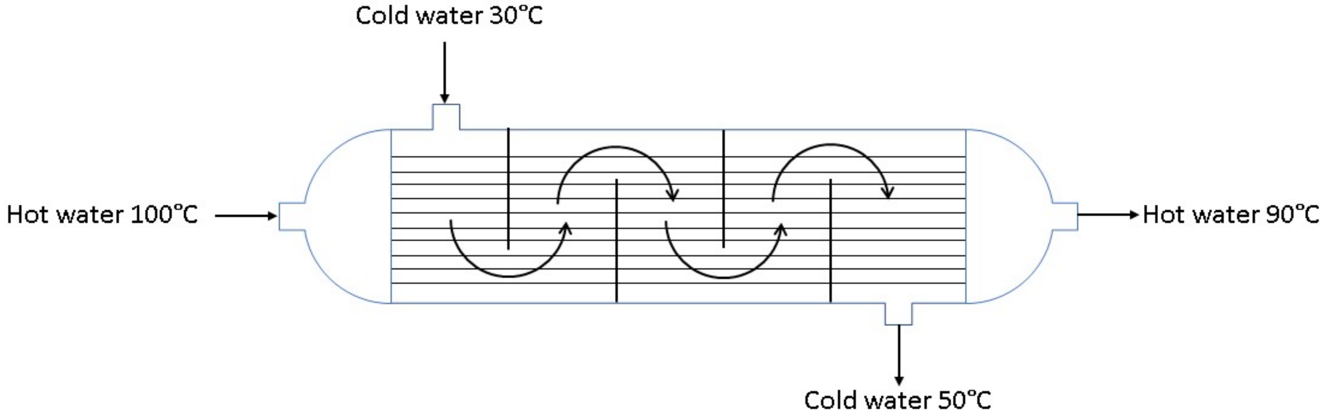
Co Current Arrangement
Shell Side Pressure drop = 0.25 bar
Tube Side Pressure drop = 0.3 bar
Global Heat Transfer Coeff = 1000 W/m2 K
No heat loss



$$LMTD_{Parallel} = \frac{(T_{Hot\ in} - T_{Cold\ in}) - (T_{Hot\ out} - T_{Cold\ out})}{\ln \frac{(T_{Hot\ in} - T_{Cold\ in})}{(T_{Hot\ out} - T_{Cold\ out})}}$$

$T_{Hot\_in} := 100\ °C$

$T_{Hot\_Out} := 90\ °C$

$T_{Cold\_in} := 30\ °C$

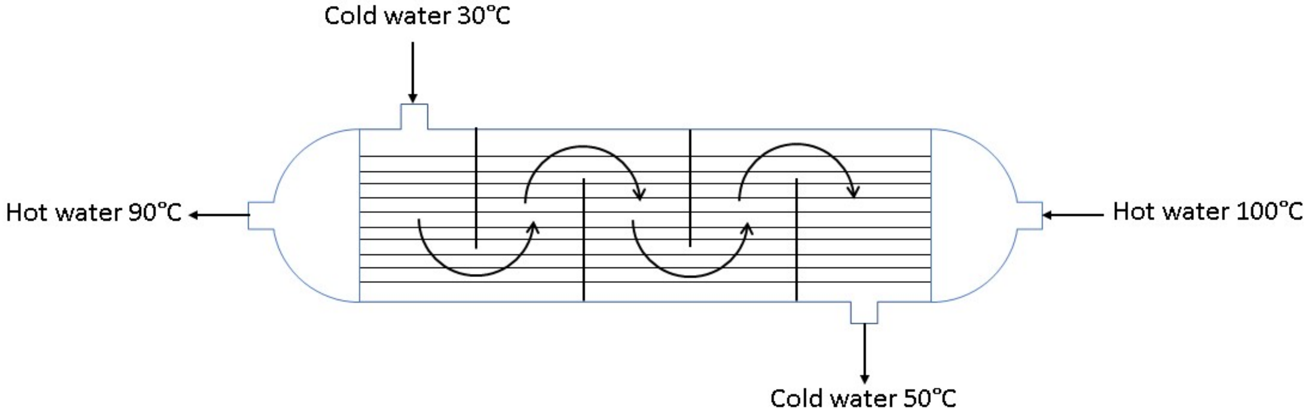
$T_{Cold\_Out} := 50\ °C$

$\Delta T_1 := T_{Hot\_in} - T_{Cold\_in} = 70\ K$

$\Delta T_2 := T_{Hot\_Out} - T_{Cold\_Out} = 40\ K$

$$LMTD_{Parallel} := \frac{\Delta T_1 - \Delta T_2}{\ln\left(\frac{\Delta T_1}{\Delta T_2}\right)} = 53.6082\ K$$

Counter Current Arrangement
Shell Side Pressure drop = 0.25 bar
Tube Side Pressure drop = 0.3 bar
Global Heat Transfer Coeff = 1000 W/m2 K
No heat loss



$$LMTD_{Counter} = \frac{(T_{Hot\ in} - T_{Cold\ out}) - (T_{Hot\ out} - T_{Cold\ in})}{\ln \frac{(T_{Hot\ in} - T_{Cold\ out})}{(T_{Hot\ out} - T_{Cold\ in})}}$$

$T_{Hot\_in} := 100\ °C$

$T_{Hot\_Out} := 90\ °C$

$T_{Cold\_in} := 30\ °C$

$T_{Cold\_Out} := 50\ °C$

$\Delta T_1 := T_{Hot\_in} - T_{Cold\_Out} = 50\ K$

$\Delta T_2 := T_{Hot\_Out} - T_{Cold\_in} = 60\ K$

$$LMTD_{Counter} := \frac{\Delta T_1 - \Delta T_2}{\ln\left(\frac{\Delta T_1}{\Delta T_2}\right)} = 54.8481\ K$$