V_1, V_2, U subspaces of V

$$V = V_1 \oplus U \text{ and } V = V_2 \oplus U \not\Longrightarrow V_1 = V_2$$

Assume $V = F^2$.

$V_1 = \{(x,0) \in F^2 : x \in F\}$

$V_2 = \{(0,y) \in F^2 : y \in F\}$

$U = \{(a,a) \in F^2 : a \in F\}$

- $\left.\begin{array}{l} V_1 + U = \{(x+a, a) \in F^2 : a, x \in F\} = F^2 \\ V_1 \cap U = \{0\} \end{array}\right\} \Rightarrow$

$\Rightarrow V_1 \oplus U = F^2$

- $\left.\begin{array}{l} V_2 + U = \{(a, y+a) \in F^2 : a, y \in F\} = F^2 \\ V_2 \cap U = \{0\} \end{array}\right\} \Rightarrow$

$\Rightarrow V_2 \oplus U = F^2$

So - $F^2 = V_1 \oplus U$ and $F^2 = V_2 \oplus U$, but $V_1 \neq V_2$.