$\{(x,y,z) \in F^3 : x+y+z=0\} = U$

Let $v_1 = (1,0,-1) \in U$
$v_2 = (0,1,-1) \in U$
$v_3 = (2,0,-2) \in U$
$v_4 = (0,2,-2) \in U$ $\Rightarrow$

$\Rightarrow \text{span}(v_1, v_2, v_3, v_4) \subseteq U$ (1)

Consider any $(x,y,z) \in U$

$(x,y,z) = (x,y,-x-y)$
$= x(1,0,-1) + y(0,1,-1)$
$= xv_1 + yv_2$

$xv_1 + yv_2 \in \text{span}(v_1, v_2) \subseteq \text{span}(v_1, v_2, v_3, v_4)$

$\Rightarrow U \subseteq \text{span}(v_1, v_2, v_3, v_4)$ (2)

(1), (2) $\Rightarrow \text{span}(v_1, v_2, v_3, v_4) = U$

(v_1, v_2 already span U, v_3, v_4 are redundant).