SIA DATO $V \subset \mathbb{R}^3 \rightarrow B = \text{SPAN}\{(1,0,0),(1,1,0),(1,1,1)\}$

$v_1 \quad v_2 \quad v_3$

TROVARE LA BASE ORTONORMALE $U = \{u_1, u_2, u_3\}$ DI V USANDO GRAM-SCHMIDT.

$u_1 = v_1 = (1,0,0) \qquad \|u_1\| = \sqrt{1+0+0} = \sqrt{1} = 1$

$u_2 = v_2 - \text{PROJ}_{u_1}(v_2) = (1,1,0) - \frac{\langle (1,1,0)\cdot(1,0,0)\rangle}{1} \cdot (1,0,0) = (1,1,0) - (1,0,0)$

$= (0,1,0)$

$\|u_2\| = 1$

$u_3 = v_3 - \text{PROJ}_{u_1}(v_3) - \text{PROJ}_{u_2}(v_3) = (1,1,1) - \frac{\langle (1,1,1)\cdot(1,0,0)\rangle}{1} \cdot (1,0,0)$

$- \frac{\langle (1,1,1),(0,1,0)\rangle}{1} \cdot (0,1,0) =$

$(1,1,1) - (1,0,0) - (0,1,0) = (0,0,1)$

U ORTOGONALE $= \text{SPAN}\{(1,0,0),(0,1,0),(0,0,1)\}$ (È LA BASE CANONICA)

$u_1 \quad u_2 \quad u_3$

LA NORMA DEI 3 VETTORI u_1, u_2, u_3 È 1, QUINDI LA BASE È GIÀ ORTONORMALE