$$\boxed{V_2 = \left(-\frac{2}{3}, \frac{1}{3}, \frac{1}{3}\right)}$$

Step 03 $$V_3 = u_3 - \frac{\langle u_3, v_1\rangle}{\|v_1\|^2} v_1 - \frac{\langle u_3, v_2\rangle}{\|v_2\|^2} v_2$$

$$V_3 = (0,0,1) - \frac{1}{3}(1,1,1) - \frac{1/3}{2/3}\left(-\frac{2}{3}, \frac{1}{3}, \frac{1}{3}\right)$$

$$V_3 = \left(0, -\frac{1}{2}, \frac{1}{2}\right)$$

Thus $v_1 = (1,1,1)$

$v_2 = (-2/3, 1/3, 1/3)$

$v_3 = (0, -1/2, 1/2)$

- Orthogonal basis.

The norm of these vectors are.

$$\|v_1\| = \sqrt{3}, \quad \|v_2\| = \frac{\sqrt{6}}{3}, \quad \|v_3\| = \frac{1}{\sqrt{2}}$$

Orthonormal basis are

$$a_1 = \frac{v_1}{\|v_1\|} = \frac{(1,1,1)}{\sqrt{3}} = \left(\frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}\right)$$