Step-1

Let $\mathbf{V}$ be the subspace spanned by

$$\begin{bmatrix}1\\1\\0\end{bmatrix},\begin{bmatrix}1\\2\\0\end{bmatrix},\begin{bmatrix}1\\5\\0\end{bmatrix}.$$

The objective is to find a matrix A that has $\mathbf{V}$ as its row space, and a matrix B that has $\mathbf{V}$ as its nullspace.

For $\mathbf{V}$ to be row space,

The transpose of $\begin{bmatrix}1&1&1\\1&2&5\\0&0&0\end{bmatrix}$ is,

$$A=\begin{bmatrix}1&1&0\\1&2&0\\1&5&0\end{bmatrix}.$$

Step-2

For nullspace,

$$\begin{bmatrix}1&1&1\\1&2&5\\0&0&0\end{bmatrix}\begin{bmatrix}x_1\\x_2\\x_3\end{bmatrix}=\begin{bmatrix}0\\0\\0\end{bmatrix}$$

$$\begin{bmatrix}0&-1&-4\\1&2&5\\0&0&0\end{bmatrix}\begin{bmatrix}x_1\\x_2\\x_3\end{bmatrix}=\begin{bmatrix}0\\0\\0\end{bmatrix}\qquad R_1\to R_1-R_2.$$

$$\begin{bmatrix}0&-1&-4\\1&0&-3\\0&0&0\end{bmatrix}\begin{bmatrix}x_1\\x_2\\x_3\end{bmatrix}=\begin{bmatrix}0\\0\\0\end{bmatrix}\qquad R_2\to R_2+2R_1.$$

Then, $-x_2-4x_3=0, x_1-3x_3=0.$

$\Rightarrow x_2=-4x_3, x_1=3x_3.$

Step-3

Let x_3 be free and x_1,x_2 are pivot.

Then, $\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 3 \\ -4 \\ 1 \end{bmatrix} x_3.$

Therefore, the required matrix are $\boxed{A = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 2 & 0 \\ 1 & 5 & 0 \end{bmatrix}}$ and $\boxed{B = \begin{bmatrix} 3 \\ -4 \\ 1 \end{bmatrix}}$.