Step-1

Let us consider the following vectors

$A=\begin{bmatrix}1 & 0\\0 & 1\end{bmatrix}$, $b=\begin{bmatrix}1\\-1\end{bmatrix}$, and $c=\begin{bmatrix}1\\1\end{bmatrix}$

Therefore, the corresponding primal of the LPP is as follows

Minimize: x_1+x_2

Subject to following constraints, along with non-negativity constraints

$x_1 \geq 1$
$x_2 \geq -1$

Step-2

Solving the above constraints, we get the following vector

$x_1 = 1$
$x_2 = 0$

Therefore, the feasible vector is

$\boxed{x^{*} = [1 \quad 0]^{T}}$

Step-3

Now, the corresponding dual of the LPP is as follows

Maximize: $y_1 - y_2$

Subject to following constraints, along with non-negativity constraints

$y_1 \leq 1$
$y_2 \leq 1$

Step-4

Solving the above constraints, we get the following vector

$y_1 = 1$
$y_2 = 0$

Therefore, the feasible vector is

$$\boxed{y^* = [1 \quad 0]}$$

Step-5

Let us calculate the following terms,

$$\begin{aligned} cx &= \begin{bmatrix} 1 \\ 1 \end{bmatrix} [1 \quad 0] \\ &= 1 \end{aligned}$$

And

$$\begin{aligned} yb &= [1 \quad 0] \begin{bmatrix} 1 \\ -1 \end{bmatrix} \\ &= 1 - 0 \\ &= 1 \end{aligned}$$

Now, $cx = yb$, thus the value of vectors *x* and *y* are optimal.

Since, the second inequality in both $Ax^* \geq b$ and $y^* A \leq c$ are strict, so the second components of y^* and x^* are zero