Step-1

Let us consider the following Payoff matrix

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

Now the strategy used by both the plays must be a ***mixed strategy***, and the choice made by each player at every turn must be independent of the previous turn

Step-2

Let us consider X as a row player and Y as a column player.

To find optimum strategy, X will go for the row, with the maximum value in that row and Y will go for the column, with the minimum value in that column.

And the common value satisfying the above situation is the saddle value, which gives the optimum solution.

Step-3

Using this strategy, X will select row 2 and Y will select column 1.

$\boxed{\text{And the optimum value is 3.}}$

Step-4

Thus, the optimum strategy for x is as follows:

$$\boxed{x^* = \begin{bmatrix} 0 & 1 \end{bmatrix}}$$

Thus, the optimum strategy for y is as follows:

$$\boxed{y^* = \begin{bmatrix} 1 \\ 0 \end{bmatrix}}$$