

Answer 5:**Does E_x prefer I_a over I_b ?**

Construct a 2D array of size $(n \times n)$ in which store Employers at "i" index and Interns at "j" index. Store the preference number of interns for their specific Employers in 2D array at index $[i][j]$. So to answer this question. We will compare value stored at index position $[E_x][I_a]$ and at index position $[E_x][I_b]$.

Order of complexity: $O(1)$ because accessing the array element is $O(1)$.

Does I_x prefer E_y over E_z ?

To answer this question, we will use the same technique we used above but we will just switch the positions i.e. Interns will represent the rows ('i' index) and Employers will represent the columns ('j' index). And store the preference number at $[i][j]$. To Answer this question we will again read the value at index $[I_x][E_y]$ and $[I_x][E_z]$ and compare them.

Order of Complexity: $O(1)$.