

Answer of Question 5

Information stored in matrices is not efficient, as for each intern it stores all the employers in the order of preference and vice versa. Rather than this, we store for each intern, the **preference number** in each cell. So, we can see what preference an employer for an intern is. We can index the array in such a way that it makes it explicit to find preference number for a particular employer. Since, indexing of array takes $O(1)$ time and, when we know the desired index to find the intern's preference i.e index corresponds to preference number, we can then find the preference in $O(1)$ time.

Same can be done for Employer array. Place the interns in cells according to their preference number.