QUESTION - 2:

Write the algorithm/function for Ternary Search.

SOLUTION :

Algorithm Ternary Search:

1. First, we compare the key with the element at mid1. If found equal, we return mid1.
2. If not, then we compare the key with the element at mid2. If found equal, we return mid2.
3. If not, then we check whether the key is less than the element at mid1. If yes, then recur to the first part.
4. If not, then we check whether the key is greater than the element at mid2. If yes, then recur to the third part.
5. If not, then we recur to the second (middle) part.

Ternary Search Function :

```
int ternarySearch(int l, int r, int key, int ar[])
{
    if (r >= l) {

        int mid1 = l + (r - l) / 3;
        int mid2 = r - (r - l) / 3;

        if (ar[mid1] == key) {
            return mid1;
        }
        if (ar[mid2] == key) {
            return mid2;
        }

        if (key < ar[mid1]) {

            // The key lies in between l and mid1
            return ternarySearch(l, mid1 - 1, key, ar);
        }
        else if (key > ar[mid2]) {

            return ternarySearch(mid2 + 1, r, key, ar);
        }
        else {

            return ternarySearch(mid1 + 1, mid2 - 1, key, ar);
        }
    }

    return -1;
}
```