```
/*Find equilibrium index in an array */

#include <stdio.h>
#include <stdlib.h>

int EquilibriumIndex(int *arr, int size)
{
	int index, leftSum = 0, sum = 0;

	//calculate sum of whole array
	for(index = 0 ; index < size; index++)
		sum += arr[index];

	for(index = 0; index < size; index++)
	{
		sum -= arr[index];
		if( leftSum == sum)
			return index;
		leftSum += arr[index];
	}
	return -1;
}

int main()
{
	int *arr, size;
	printf("Enter number of elements in an array\n");
	scanf("%d", &size);
	//allocate memory for array
	arr = (int *) malloc(size * sizeof(int));

	for(int index = 0; index < size; index++)
		scanf("%d", &arr[index]);
	printf("Equilibrium index = %d",
		EquilibriumIndex(arr, size));
	return 0;
}
```

Time complexity: O(n)
Space complexity: O(1)