Binary Search Function

```
#include<stdio.h>
//Function Declaration
int Binary_Search(int[],int,int);
void Bubble_Sort(int[],int);
void Display(int[],int);
#define TRUE 1
#define FALSE 0

int main()
{
	int num = 0,value,Ret;
	printf("Enter how many element you want = ");
	scanf("%d",&num);
	//Filter
	if(num<=0)
	{
		printf("Invalid Size\n");
		return -1;
	}
	int arr[num]; //array creation

	//Accept Value
	for(int i=0;i<num;i++)
	{
		printf("Enter Number = ");
		scanf("%d",&arr[i]);
	}
```

```
	//Display Array
	printf("Array = ");
	for(int i=0;i<num;i++)
	{
		printf("%d ",arr[i]);
	}

	//Accepting Value to Search
	printf("\nEnter Value to search = ");
	scanf("%d",&value);

	//Function Call to Binary Search
	Ret = Binary_Search(arr,num,value);

	if(Ret == TRUE)
	{
		printf("Value Found\n");
	}
	else
	{
		printf("Value not found");
	}

	return 0;
}
```

```
void Bubble_Sort(int arr[],int num)
{
	int temp,flag;
	for(int i=0;i<num-1;i++)  //Loop for Passes i.e. N-1
	{
		flag = 0;
		for(int j=0;j<num-i-1;j++) //Loop for Comparision
		{
			if(arr[j] > arr[j+1])
			{
				//Swapping logic
				temp		= arr[j];
				arr[j]		= arr[j+1];
				arr[j+1]	= temp;
				flag = 1;
			}
		}
		if(flag==0)
		{
			break;
		}
	}
	return;
}
```

```
int Binary_Search(int arr[],int size,int value)
{
	printf("\nBefore Sort = ");
	Display(arr,size);
	Bubble_Sort(arr,size);
	printf("\nAfter Sort = ");
	Display(arr,size);

	//initilization of low, high and mid
	int low = 0,high = size-1, mid = 0;

	//binary search logic start from here
	while(low<=high)
	{
		mid = (low+high)/2;

		if(value == arr[mid])
		{
			return TRUE;
		}
		else if(value > arr[mid])
		{
			low = mid+1;
		}
		else if(value < arr[mid])
		{
			high = mid-1;
		}
	}
	return FALSE;
}
```

```
void Display(int arr[],int num)
{
	if(num==0)
	{
		printf("Array is Empty\n");
		return;
	}
	for(int i=0;i<num;i++)
	{
		printf("arr[%d] = %d\n",i,arr[i]);
	}
	return;
}
```