Data Structures and Algorithms

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Practical work n°1 : Arrays and Pointers

Exercise 1:

Change the C program below to find the sum of all elements of an array.

C program:

```
#include <stdio.h>
int  main(){
    int a[10];
    int i, n, sum=0;
    printf("\n\n Find the sum of all elements of array:\n");
    printf("-------------------------------------\n");
    printf("Input the number of elements to be stored in the array :");
    scanf("%d",&n);
    printf("Input %d elements in the array :\n",n);
       /* Input the elements of the array*/
      /* Find the sum of all array's elements*/
    printf("Sum of all elements stored in the array is : %d\n\n", sum);
    return 0;
}
```

Exercise 2:

Change the C program below to separate odd and even integers in array.

C program:

```
#include <stdio.h>
int main(){
    int arr1[10], arr2[10], arr3[10];
    int i,j=0,k=0,n;
    printf("\n\n Separate odd and even integers in array:\n");
    printf("-----------------------------------------------------\n");
    printf("Input the number of elements to be stored in the array :");
    scanf("%d",&n);
    printf("Input %d elements in the array :\n",n);
    for(i=0;i<n;i++){
         printf("element - %d : ",i);
         scanf("%d",&arr1[i]);
    }
    /* Loop to test if an element is odd or even.
    /* Range them into the two arrays: arr2 and arr3 */
    /* Print both arrays*/
    return 0;
 }
```

Exercise 3 :

Add to the below program the necessary comments to explain to user how it works.
~~Write a program doing the same things but without using array pointer.~~

```
#include<stdio.h>
  int i,l;
  int search(int ,int *,int);
int main(){
    int n,m;
    scanf("%d",&n);
    int a[n];
    for(i=0;i<n;i++){scanf("%d",&a[i]);}
    scanf("%d",&m);
    search(n,a,m);
  return 0;
}
int search(int n,int *a,int m){
  for(i=0;i<n;i++){
    if(m==a[i]){
      l=1;
      break;
    }
  }
  if(l==1){
    printf("%d is present in the array",m);
  }
  else{
    printf("%d is not present in the array",m);
  }
}
```