

## DSA Assignment

Boyapati Sai Venkat

AP19110010174

1st-year CSE-E.

## ***DSA Assignment :***

### ***Operations on Array***

1. Write a menu-driven C Program to implement the following operations (in the form of function) on an array.
  - a. Create an array and store N number of integers into it.
  - b. Display the content of the array.
  - c. Insert an element at a given location
  - d. Insert an element after a given number in the array.
  - e. Delete an element from a given location f. Delete a given integer.
  - g. Reverse the contents of the array.
  - h. Sum of all elements present in the array
  - i. Print all the even number and odd number separately

## Solution :

```
#include<stdio.h>
int i;

void create(int arr[],int n)
{
    //int i;
    printf("Enter elements to store in array:\n" );
    for(i=0;i<n;i++)
    {
        scanf("%d",&arr[i]);
    }
    printf("\n");
}

void display(int arr[], int n)
{
    create(arr,n);
    //int i;
    printf("The elements stored in the array:\n");
    for(i=0;i<n;i++)
    {
        printf("%d\t",arr[i]);
    }
    printf("\n");
}

int sum(int arr[],int n)
{
    create(arr,n);
    int sum=0;
```

```
for(i=0;i<n;i++)
{
    sum=sum+arr[i];
}
return sum;
}
```

```
void reverse(int arr[],int n)
{
    create(arr,n);
    // int i;
    printf("reverse of that array");
    for(i=n-1;i>=0;i--)
    {
        printf("%d\t",arr[i]);
    }
    printf("\n");
}
```

```
void even_odd(int arr[],int n)
{
    create(arr,n);
    int even[100],odd[100];
    int j,k;
    printf("\n");
    j=0,k=0;
    for(i=0;i<n;i++)
    {
        if(arr[i]%2==0)
        {
            even[j]=arr[i];
            j++;
        }
    }
}
```

```
    }
    else
    {
        odd[k]=arr[i];
        k++;
    }
}
printf("\n");
printf("\n even num\n");
for(i=0;i<j;i++)
{
    printf("%d\t",even[i]);
}
printf("\n");
printf("\n odd num\n");
for(i=0;i<k;i++)
{
    printf("%d\t",odd[i]);
}
printf("\n");
}
```

```
void Insert_after_ele(int arr[],int n)
{
    create();
    int pos=-1;
    int ele,num;
    printf("Enter the number after which element to be inserted\n");
    scanf("%d",&num);
    for(i=0;i<n;i++)
    {
        if(arr[i]==num)
        {
```

```
        pos=i+1;
        break;
    }
}
if(pos==-1)
{
    printf("The number is not found in the given array");
}
printf("The number is present at the location %d",pos);
printf("\nEnter the element need to be inserted");
scanf("%d",& ele);
for(i=n-1;i>=pos;i--)
{
    arr[i+1]=arr[i];
}
arr[pos]=ele;
n=n+1;
display();
}
```

```
void delete_pos(int arr[],int n)
{
    int c,position;
    printf("\nEnter the location where you want to delete element from: ");
    scanf("%d",&position);

    if(position >= n+1)
        printf("\nDeletion not possible\n");
    else
    {
        for(c = position-1; c < n-1; c++)
```

```
        arr[c] = arr[c+1];
    }
    printf("\n\nResultant array is: ");
    for(c = 0; c < n-1; c++)
        printf("%d ", arr[c]);

    printf("\n\n\t\t\tdeletion at location is done!!\n\n\n");
}

void insert_pos(int arr[],int n)
{
    int pos;
    int ele;
    printf("\ninserting element at a specified position\n");
    printf("\nEnter pos to enter element\n");
    scanf("%d",&pos);
    printf("\nEnter element to store in position %d\n",pos);
    scanf("%d",&ele);
    arr[pos]=ele;
    for(i=0;i<n;i++)
    {
        printf("%d\t",arr[i]);
    }
}

void delete_num(int arr[],int n)
{
    int element,found=0,pos;
    printf("Enter the element to be deleted\n");
    scanf("%d", &element);

    for (i = 0; i < n; i++)
```

```
{
    if (arr[i] == element)
    {
        found = 1;
        pos = i;
        break;
    }
}

if (found == 1)
{
    for (i = pos; i < n - 1; i++)
    {
        arr[i] = arr[i + 1];
    }

    printf("The resultant vector is \n");
    for (i = 0; i < n; i++)
    {
        printf("%d\n", arr[i]);
    }
}
else
    printf("Element %d is not found in the vector\n", element);
}


int main()
{
    int n,a,sum1;
```



```
printf("enter number of elements:");
scanf("%d",&n);
int arr[n+1];
char ch;
scanf("%c",&ch);
while(ch!='N')
{
    printf("\n Enter 1: To create a array and to store N numbers.");
    printf("\n Enter 2: To display the elements in the array.");
    printf("\n Enter 3: To insert an element in the array at a given location.");
    printf("\n Enter 4: To insert an element in the array after a given number.");
    printf("\n Enter 5: To delete an element in the array at a given location.");
    printf("\n Enter 6: To delete the given element in the array.");
    printf("\n Enter 7: To reverse the contents in the array.");
    printf("\n Enter 8: To sum all the elements in the array and display the sum.");
    printf("\n Enter 9: To printing the even numbers and odd numbers separately.");
    printf("\n Enter 0: To exit.\n");

    printf("Enter a number:\n");
    scanf("%d",&a);

    switch(a)
    {
        case 1 :  create(arr,n);
                    break;
        case 2 :  display(arr,n);
                    break;
        case 3 :  insert_pos(arr,n);
                    break;
        case 4 :  Insert_after_ele(arr,n);
                    break;
        case 5 :  delete_pos(arr,n);
```



```
        break;
    case 6 : delete_num(arr,n);
        break;
    case 7 : reverse(arr,n);
        break;
    case 8 : sum1=sum(arr,n);
        printf("sum=%d\n",sum1);
        break;
    case 9 : even_odd(arr,n);
        break;
    case 0 : exit(0);
        break;

    }
}

return 0;
}
```