Q.5 Given a sorted array of positive integers, design an algorithm and implement it using a program to find three indices i, j, k such that arr[i] + arr[j] = arr[k].

SOURCE CODE:

```c
#include<stdio.h>
void triplets(int arr[],int n){
    for(int k=n-1;k>=2;k--){
        int low=0,high=k-1;
        int sum;
        while(low<high){
            sum=arr[low]+arr[high];
            if(sum==arr[k]){
                printf("%d %d %d\n",low,high,k);
                low++;
                high--;
            } }
            if(sum>arr[k]){
                high--;
            }else{
                low++;
            } }
    }
}
int main(){
    int n;
    printf("Enter n:");
    scanf("%d",&n);
    int arr[n];
    printf("Enter array elements:");
    for(int i=0;i<n;i++){
        scanf("%d",&arr[i]);
    }
    triplets(arr,n);
}
```

OUTPUT:

```
(base) PS C:\Deepanshu C> cd "c:\Deepanshu C\DAA\" ; if ($?) { gcc triplets.c -o triplets } ; if ($?) { .\triplets }
Enter n:5
Enter array elements:1 2 3 4 5
0 3 4
1 2 4
0 2 3
0 1 2
(base) PS C:\Deepanshu C\DAA> cd "c:\Deepanshu C\DAA\" ; if ($?) { gcc triplets.c -o triplets } ; if ($?) { .\triplets }
Enter n:4
Enter array elements:3 4 7 10
0 2 3
0 1 2
```

Q.6 Given an array of nonnegative integers, design an algorithm and a program to count the number of pairs of integers such that their difference is equal to a given key, K.

SOURCE CODE:

```c
#include<stdio.h>
void difference(int arr[],int n,int key){
    int low=0,high=1;
    int diff;
    while(high<n){
        diff=arr[high]-arr[low];
        if(diff==key){
            printf("%d %d\n",high,low);
            low++;high++;
        }
        if(diff<key){
            high++;
        }else{
            low++;
        }  }
}
int main(){
    int n,key;
    printf("Enter n:");
    scanf("%d",&n);
    int arr[n];
    printf("Enter array elements:");
    for(int i=0;i<n;i++){
        scanf("%d",&arr[i]);  }
    printf("Enter key:");
    scanf("%d",&key);
    difference(arr,n,key);
}
```

OUTPUT:

```
(base) PS C:\Deepanshu C\DAA> gcc difference.c
(base) PS C:\Deepanshu C\DAA> ./a.exe
Enter n:5
Enter array elements:1 2 3 4 5
Enter key:2
2 0
4 2
(base) PS C:\Deepanshu C\DAA> ./a.exe
Enter n:6
Enter array elements:10 20 30 40 50 70
Enter key:30
3 0
5 3
```