

Name: Ali hassan

Assignment: Pf lab assignment

Submitted to: Prof.Ak shahid

Reg.no: Sp20-bse-013

Section: A

Exercise 1: Consider the following array of integers:

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| **Array of integers, named ‘num’** | | | | | | | | | |
| **2** | 6 | -4 | 8 | 10 | -12 | 14 | 16 | 18 | 20 |
| **num[0]** | num[1] | num[2] | num[3] | num[4] | num[5] | num[6] | num[7] | num[8] | num[9] |

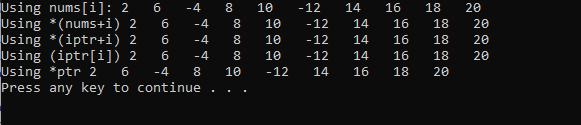
Implement the following pointer notations to traverse and display the given array ‘num’.

* Printing array using num[i] notation.
* Printing array using ptr[i] notation.
* Printing array using \*(num+i) notation.
* Printing array using \*(ptr+i) notation.
* Printing array using \*ptr notation.

Program:

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| //REG.NO=sp20-bse-013  #include<stdio.h>  #include<stdlib.h>  **int** **main**(){  **int** nums[**10**]={**2**,**6**,-**4**,**8**,**10**,-**12**,**14**,**16**,**18**,**20**};  printf("Using nums[i]:");  **for**(**int** i=**0**;i<**10**;i++){  printf(" %d ",nums[i]);  }  printf("**\n**Using \*(nums+i)");  **for**(**int** i=**0**;i<**10**;i++){  printf(" %d ",\*(nums+i));  }  printf("**\n**Using \*(iptr+i)");  **int** \*iptr=nums;  **for**(**int** i=**0**;i<**10**;i++){  printf(" %d ",\*(iptr+i));  }  printf("**\n**Using (iptr[i])");  **for**(**int** i=**0**;i<**10**;i++){  printf(" %d ",iptr[i]);  }  printf("**\n**Using \*ptr");  **for**(**int** i=**0**;i<**10**;i++){  printf(" %d ",\*iptr);  \*iptr++;  }  printf("**\n**");  system("pause");  } |

Output:



Exercise 2:

**Program Name:** Searching an array

**Program Purpose:** Passing array to function

**Problem Statement:** An array is initialized with ten numbers. Sort this array using user defined function sorting(). Then, a number is entered through the keyboard by the user, which should be searched in the array using user defined function search(). Print whether the number to be searched is present in the array or not, and if it is present, display the number of times it appears in the array.

Sample output

The array is: 22 5 3 7 34 5 99 3 1 3

The sorted array is : 1 3 3 3 5 5 7 22 34 99

Enter the number for searching: 3

The element 3 is found 3 times in the array.

Code:

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| //Reg.sp20-bse-013  #include<stdio.h>  #include<stdlib.h>  **void** **swap**(**int** \*a,**int** \*b); //function prototypes  **void** **sort**(**int** arr[],**int** n);  **int** **searcharray**(**int** arr[],**int** n,**int** searchnum);  **void** **printarray**(**int** arr[],**int** n);  **int** **main**(){  **int** arr[]={**9**,**8**,**5**,**6**,**5**,**4**,**3**,**2**,**1**,**0**};  **int** number=**0**;  **int** n=**sizeof**(arr)/**sizeof**(arr[**0**]);//getting size of the array  printf("The array before sorting is **\n**");  printarray(arr,n);  printf("**\n**");  sort(arr,**10**);  printf("The array after sorting is **\n**");  printarray(arr,n);  printf("**\n**");  printf("Enter a number to search:");  scanf("%d",&number);  searcharray(arr,n,number);  system("pause");  }  **void** **swap**(**int** \*a,**int** \*b){  **int** temp;  temp=\*a;  \*a=\*b;  \*b=temp;}  **void** **printarray**(**int** arr[],**int** n){  printf("**\t**");  **for**(**int** i=**0**;i<n;i++){  printf("%d",arr[i]);  printf(" ");  }  }  **void** **sort**(**int** arr[],**int** n){  **int** i,j;  **for**(i=**0**;i<n-**1**;i++){  **for**(j=**0**;j<n-i-**1**;j++){//second loop for comparisons  **if**(arr[j]>arr[j+**1**]){  swap(&arr[j],&arr[j+**1**]);//swapping  }}}  }  **int** **searcharray**(**int** arr[],**int** n,**int** searchnum){  **int** times=**0**;  **for**(**int** i=**0**;i<n;i++){  **if**(arr[i]==searchnum){  times++;//incrementing the number of occurences  }  }  printf("The element %d is found %d times in the array.**\n**",searchnum,times);  } |

Output:

