

# LAB ASSIGNMENT-5

```
/*Lab Assignment-5 17-03-2021 Tathagata Ghosh*/

/*Q1. Write a C program to add two numbers using pointers.*/
#include<stdio.h>

int main()
{
    int a , b ;
    printf("Enter 2 numbers : ");
    scanf("%d %d", &a , &b );

    int *aptr = &a ;//pointer to variable a
    int *bptr = &b ;//pointer to variable b
    int sum = 0 ;
    int *sptr = &sum ;//pointer to variable sum

    *sptr = *aptr + *bptr ;//using dereferencing storing the sum of a and b

    printf("%d + %d = %d\n", *aptr , *bptr , *sptr );
    return 0;
}
```

OUTPUT :

Enter 2 numbers : 1 1

1 + 1 = 2

```
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/*Q2. Write a C program to swap two numbers using pointers.*/
#include<stdio.h>

void swap( int *a , int *b )
{
    *a = *a + *b ;
    *b = *a - *b ;
    *a = *a - *b ;
    return;
}

int main()
{
    int a , b ;
    printf("Enter 2 numbers : ");
```

```

scanf("%d %d", &a , &b );

int *aptr = &a ;
int *bptr = &b ;

printf("%d & %d before swapping.\n", *aptr , *bptr );

swap( aptr , bptr );

printf("%d & %d after swapping.\n", *aptr , *bptr );

return 0;
}

```

OUTPUT :

Enter 2 numbers : 9 6

9 & 6 before swapping.

6 & 9 after swapping.

```

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/*Q3. Write a C program to sort an array of ten integer values in ascending order. Your function header for sorting should be sortvalue(int *p, int n). */

#include<stdio.h>

void swap( int *a , int *b )
{
    *a = *a + *b ;
    *b = *a - *b ;
    *a = *a - *b ;
    return;
}

void sortvalue(int *p , int n)
{
    for(int i = 0 ; i < n-1 ; i++ )
    {
        for(int j = 0 ; j < (n - i - 1) ; j++ )
        {
            if(*( p + j ) > *( p + j + 1 ))
            {
                swap((p+j),(p+j+1));
            }
        }
    }
}

```

```

    }
    return ;
}

int main()
{
    int n ;
    printf("Enter the number of elements of the array : ");
    scanf("%d", &n );

    int a[n];
    printf("Enter the elements of the array : \n");
    for(int i = 0 ; i < n ; i++ )
    {
        scanf("%d" , (a+i) );
    }

    sortvalue( a , n );

    printf("Enter the elements of the array after sorting in ascending order : \n");
    for(int i = 0 ; i < n ; i++ )
    {
        printf("%d\n" , *(a+i) );
    }
    return 0 ;
}

```

OUTPUT :

Enter the number of elements of the array : 10

Enter the elements of the array :

58

45

19

74

65

26

86

34

49

82

Enter the elements of the array after sorting in ascending order :

19  
26  
34  
45  
49  
58  
65  
74  
82

86

```
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/*Q4. Write a C program to accept five integer values from keyboard using pointer. Write a function to print the elements of the array in reverse order.*/

#include<stdio.h>

int main()
{
    int a[5];
    printf("Enter 5 numbers :\n");
    int i ;
    for( i = 0 ; i < 5 ; i++ )
    {
        scanf("%d" , ( a + i ) );
    }
    printf("The elements of the array in the reverse order :\n");
    for( i-- ; i >= 0 ; i-- )
    {
        printf("%d\n", *( a + i ));
    }
    return 0 ;
}
```

OUTPUT :

Enter 5 numbers :

5

9

7

6

1

The elements of the array in the reverse order :

1

6

7

9

5

```
/*Lab Assignment-5 17-03-2021 Tathagata Ghosh*/
```

```
/*Q5. Suppose the following strings are to be sorted (containing a maximum of 12 characters):
```

```
PACIFIC, ATLANTIC, INDIAN, CARIBBEAN, BLACK, RED, NORTH, BALTIC, CASPIAN. Write a C program to sort the above strings into alphabetical order using an array of pointers. */
```

```
#include<stdio.h>
```

```
#include<stdlib.h>
```

```
#include<string.h>
```

```
void sort(char *a[] , int n )
```

```
{
```

```
    for(int i = 0 ; i < (n - 1) ; i++)
```

```
    {
```

```
        for( int j = 0 ; j < (n - i - 1) ; j++ )
```

```
        {
```

```
            if(strcmp( a[j] , a[j+1] ) > 0 )
```

```
            {
```

```
                char *t = a[j] ;
```

```
                a[j] = a[j+1] ;
```

```
                a[j+1] = t ;
```

```
            }
```

```
        }
```

```
    }
```

```
    return;
```

```
}
```

```
int main()
```

```
{
```

```
    int n ;
```

```
    printf("Enter the number of strings : ");
```

```

scanf("%d", &n );
char *a[n];
for (int i = 0 ; i < n ; i++)
{
    a[i] = (char*)malloc(12*sizeof(char));
}
printf("Enter the strings at max of length of 12 characters each : ");
for( int i = 0 ; i < n ; i++ )
{
    scanf("%s",a[i]);
}
sort( a , n );
printf("Words after sorting lexicographically : \n");

for( int i = 0 ; i < n ; i++ )
{
    puts(a[i]);
}
return 0;
}

```

OUTPUT :

Enter the number of strings : 9

Enter the strings at max of length of 12 characters each : PACIFIC

ATLANTIC

INDIAN

CARIBBEAN

BLACK

RED

NORTH

BALTIC

CASPIAN

Words after sorting lexicographically :

ATLANTIC

BALTIC

BLACK

CARIBBEAN

CASPIAN

INDIAN

NORTH

PACIFIC

RED

GitHub Repository : <https://github.com/Tathagata-Ghosh-Developer/Lab-Assignments>