National Institute of Technology, Patna

EE lab CSL (2601)

Assignment no 10

Name : **Sudhanshu Ranjan**

Batch : **2020-2024**
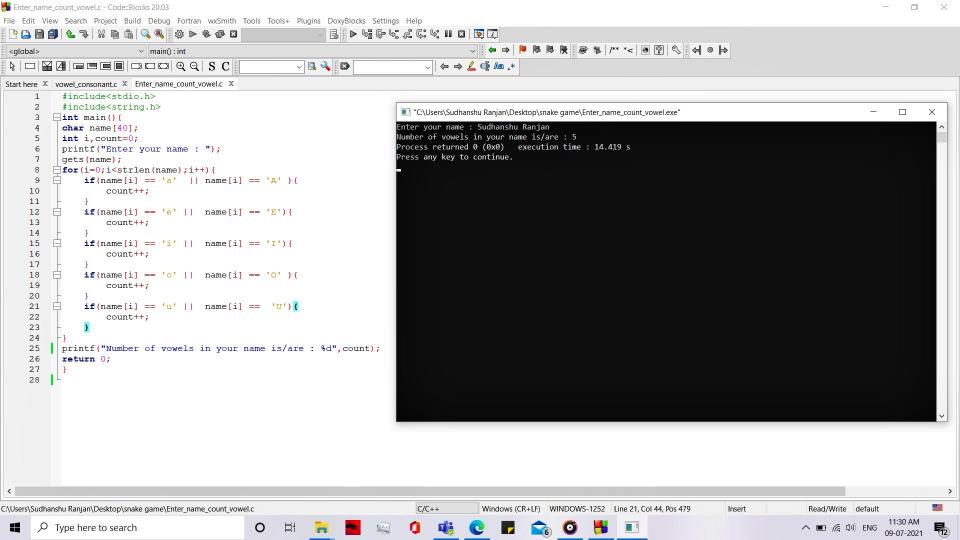
Roll no : 2002006

Class : **BTECH EE**

Instructor : Dr. Neha Mam

INDEX

Serial No.	Contents	Date	Remarks
1	WAP in C to input your name and then count and display the number of vowels present in the name.	06.07.2021	
2	WAP in C to input your name and then display the name in upper case.	06.07.2021	
3	WAP in C to check whether the given string is palindrome or not.	06.07.2021	
4	WAP in C to find the maximum element of an array using function.	06.07.2021	
5	WAP in C to search an element in an array using function.	06.07.2021	
6	WAP in C to implement bubble sort technique using function.	06.07.2021	
7	WAP in C to add two matrix using function.	06.07.2021	

Q.1. WAP in C to input your name and then count and display the number of vowels present in the name.

```c
#include <stdio.h>
#include <string.h>
int main(){

    char name[40];
    int i, count = 0;

    printf(" Enter your name :  ");
    gets(name);
    for (i=0 ; i< strlen(name) ; i++){
        if (name [i] == 'a' || name[i] == 'A'){
            count++;
        }
        if (name[i] == 'e' || name [i] == 'E'){
            count++;

        }
        if (name[i] == 'i' || name[i] == 'I'){
            count++;

        }
        if (name[i] == 'o' || name[i] == 'O'){
            count++;

        }
        if (name[i] == 'u' || name[i] == 'U'){
            count++; }}

    printf(" Number of vowels in your name is /are : %d", count);
    return 0;
}
```

```c
#include<stdio.h>
#include<string.h>
int main(){
char name[40];
int i,count=0;
printf("Enter your name : ");
gets(name);
for(i=0;i<strlen(name);i++){
    if(name[i] == 'a'  || name[i] == 'A' ){
        count++;
    }
    if(name[i] == 'e' ||  name[i] == 'E'){
        count++;
    }
    if(name[i] == 'i' ||  name[i] == 'I'){
        count++;
    }
    if(name[i] == 'o' ||  name[i] == 'O' ){
        count++;
    }
    if(name[i] == 'u' ||  name[i] ==  'U'){
        count++;
    }
}
printf("Number of vowels in your name is/are : %d",count);
return 0;
}
```

Enter your name : Sudhanshu Ranjan
Number of vowels in your name is/are : 5
Process returned 0 (0x0)   execution time : 14.419 s
Press any key to continue.

Q.2 WAP in C to input your name and then display the name in upper case.

```c
#include <string.h>
#include <stdio.h>
int main () {
char name [30];
int i;
printf ("Enter your name : ");
gets (name);
char upper [30];
printf ("your name in upper case : ");
for (i=0; i< name [i] != '\0'; i++) {
    if (name [i] <= 'z' . && name [i] >= 'a') {
        upper [i] = name [i] - 32;
        printf ("%c", upper [i] );
    }
}
return 0;
}
```

```c
#include<string.h>
#include<stdio.h>
int main(){
    char name[30];
    int i;
    printf("Enter your name : ");
    gets(name);
    char upper[30];
    printf("your name in upper case : ");
    for(i=0;i< name[i]!='\0';i++){
        if(name[i]<='z' &&  name[i]>='a'){
            upper[i] = name[i] - 32;
            printf("%c",upper[i]);
        }
    }
    return 0;
}
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Sudhanshu Ranjan> cd "c:\Users\Sudhanshu Ranjan\Desktop\snake game\" ; if ($?) { gcc lower_to_upper_case.c -o lower_to_upper_case } ; if ($?) { .\lower_to_upper_
case }
Enter your name : sudhanshuranjan
your name in upper case : SUDHANSHURANJAN
PS C:\Users\Sudhanshu Ranjan\Desktop\snake game>
```

Q.3. WAP in C to check whether the given string is palindrome or not.

```c
#include <string.h>
#include <stdio.h>
int main() {

    char string[30], reversed[30];
    int i, count = 0, temp;

    printf("Enter the string to check whether it is
        palindrome or not: ");

    gets(string);

    for(i=0; string[i] != '\0'; i++) {
        count++;
    }

    for (i=0; i < count/2; i++) {
        if ( string[i] == string[count - i - 1]) {
            temp++;
        }
    }

    if (temp == i) {
        printf("Given string is palindrome");
    }

    if (temp != i) {
        printf("Given string is not palindrome");
    }

    return 0;
}
```

File   Edit   Selection   View   Go   Run   Terminal   Help

CPH JUDGE: RESULTS

This document does not have a CPH problem associated with it.

Create Problem

How to use this extension

C lower_to_upper_case.c   C palindrome_string.c ✕

C: › Users › Sudhanshu Ranjan › Desktop › snake game › C palindrome_string.c › ...

```c
#include<string.h>
#include<stdio.h>
int main(){
    char string[30],reversed[30];
    int i,count=0,temp;
    printf("Enter the string to check whether it is palindrome of not :");
    gets(string);
    for(i=0;string[i] != '\0';i++){
        count++;
    }
    for(i=0;i<count/2;i++){
        if(string[i] == string[count-i-1]){
            temp++;
        }
    }
    if(temp==i){
        printf("Given string is palindrome");
    }
    if(temp!=i){
        printf("Given string is not  palindrome");
    }
    return 0;
}
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Sudhanshu Ranjan> cd "c:\Users\Sudhanshu Ranjan\Desktop\snake game\" ; if ($?) { gcc palindrome_string.c -o palindrome_string } ; if ($?) { .\palindrome_string }

Enter the string to check whether it is palindrome of not :madam
Given string is palindrome
PS C:\Users\Sudhanshu Ranjan\Desktop\snake game>
```

Run Testcases   ⊗ 0 ⚠ 0   Live Share

Ln 1, Col 1   Spaces: 4   UTF-8   CRLF   C   Win32

Q.4) WAP in C to find the maximum element of an array using function.

```c
#include <stdio.h>
void greatestNum (int num[], int m) {
    for (int i = 0; i<m ; ++i) {
        if ( num[0] < num[i] )
        {
            num[0] = num[i];
        }
    }
    printf("Largest is : %d", num[0]);
}

int main () {
    int m;
    printf("enter the number of elements to find
                greatest : ");
    scanf("%d", &m);
    int num[m];
    for (int i=0; i<m ; i++) {
    printf(" Enter the number %d : ", i+1);
    scanf("%d", &num[i]);
    }
    greatestNum (num, m);
    return 0;
}
```

```c
#include<stdio.h>
void greatestNum(int num[],int m){
    for(int i=0;i<m;++i){
        if(num[0]<num[i])
        {
            num[0]=num[i];
        }
    }
    printf("Largest  is : %d",num[0]);
}
int main(){
    int m;
    printf("Enter the number of elements to find greatest :");
    scanf("%d",&m);
    int num[m];
    for(int i=0;i<m;i++){
    printf("Enter the number %d : ",i+1);
    scanf("%d",&num[i]);
    }
    greatestNum(num,m);
    return 0;
}
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Sudhanshu Ranjan> cd "c:\Users\Sudhanshu Ranjan\Desktop\snake game\" ; if ($?) { gcc greatest_number_array.c -o greatest_number_array } ; if ($?) { .\greatest_number_array }
Enter the number of elements to find greatest :5
Enter the number 1 : 7
Enter the number 2 : 22
Enter the number 3 : 6
Enter the number 4 : 3
Enter the number 5 : 90
Largest is : 90
PS C:\Users\Sudhanshu Ranjan\Desktop\snake game>

Q.5) WAP in c to search an element in an array using function -

```c
#include <stdio.h>
void SearchElement (int search, int n[15]){
    int a = 0;
    for (int i = 0; i < 15; i++){
        if (n[i] == search){
            a = i+1;
        }
        else {
            a = search;
        }
    }
    if (a >= 0 && a <= 15){
        printf ("Element is found, \nlocation of the number
        in the array is %d", a);
    }
    else{
        printf ("Location of the number in the array
        is not found");
    }
}

int main (){
    int n[15] = {1,2,3,4,5,6,7,8,9,10, 11,12,13,14,15};
    int search, a = 0;
    printf ("Enter the number you want to search: \n");
    scanf ("%d", &search);
    SearchElement (search, n);
    return 0;
}
```

C lower_to_upper_case.c   C palindrome_string.c   G max_min_function.cpp   C greatest_number_array.c   C searching_element_array_function.c

C > Users > Sudhanshu Ranjan > Desktop > snake game > C searching_element_array_function.c > ...

```c
#include<stdio.h>
void SearchElement(int search,int n[15]){
    int a=0;
    for(int i = 0; i<15;i++){
        if(n[i] == search){
            a=i+1;
        }
        else{
            a = search;
        }
     }
    if(a>=0 && a<=15){
        printf("Element is found, \nLocation of the number in the array is %d ", a);
    }
     else{
        printf("Location of the number in the array is not found");
    }
}
int main(){
    int n[15] = {1,2,3,4,5,6,7,8,9,10,11,12,13,14,15};
    int search,a =0;
    printf("Enter the number you want to search : \n");
    scanf("%d",&search);
    SearchElement(search,n);
    return 0;
}
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Sudhanshu Ranjan> cd "c:\Users\Sudhanshu Ranjan\Desktop\snake game\" ; if ($?) { gcc searching_element_array_function.c -o searching_element_array_function } ; i
f ($?) { .\searching_element_array_function }
Enter the number you want to search :
17
Location of the number in the array is not found
PS C:\Users\Sudhanshu Ranjan\Desktop\snake game>

Q.6) WAP in C to implement bubble sort technique using function.

```c
#include <stdio.h>
void bubbleSort (int a[], int size) {
    int temp, i, j;
    for ( i = 0; i < size ; i++) {
        for ( j = 0; j < size-1 ; j++) {
            if ( a[j] > a[j+1]) {
                temp = a[j];
                a[j] = a[j+1];
                a[j+1] = temp;
            }
        }
    }
}

int main() {
    int a[30], n, i;
    printf ("\n Enter the size of array : ");
    scanf ("%d", &n);
    printf ("\n Enter the array elements : \n");
    for (i = 0; i < n; i++)
    scanf ("%d", &a[i]);
    printf ("\n The sorted array is \n");
    for (i = 0; i < n; i++)
    printf ("%d \t", a[i]);

    return 0;
}
```

```c
#include<stdio.h>
void bubbleSort(int a[],int size){
  int temp,i,j;
  for(i=0;i<size;i++){
   for(j=0;j<size-1;j++){
    if(a[j]>a[j+1]){
     temp=a[j];
     a[j]=a[j+1];
     a[j+1]=temp;
    }
   }
  }
}
int main(){
  int a[30],n,i;
  printf("\n Enter the size of the array : ");
  scanf("%d",&n);
  printf("\n Enter the array elements: \n");
  for(i=0;i<n;i++)
  scanf("%d",&a[i]);
  bubbleSort(a,n);
  printf("\n The sorted array is\n");
  for(i=0;i<n;i++)
  printf("%d\t",a[i]);
  return 0;
}
```

This document does not have a CPH problem associated with it.

+ Create Problem

How to use this extension

C: > Users > Sudhanshu Ranjan > Desktop > snake game > C Bubble_sort_function.c > main()

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
Enter the size of the array5

Enter the array elements:
2 6 3 9 3

The sorted array is
2      3      3      6      9
PS C:\Users\Sudhanshu Ranjan\Desktop\snake game>
```

Q.7.) WAP to find the sum of two matrices using function.

```c
#include <stdio.h>
void SumofMatrix (int a[10][10], int b[10][10], int r, int c){
    int sum[10][10];
    for (int j=0; j<r; j++) {
        for (int k=0; k<c; k++){
            sum[j][k] = a[j][k] + b[j][k];
        }
    }
    for (int i=0; i<r; i++){
        for (int j=0; j<c; j++){
            printf ("%d \t", sum[i][j]);
        }
        printf ("\n"); }
    }

int main (){
    int a[10][10], b[10][10], r, c;
    printf ("Enter the number of rows: ");
    scanf ("%d", &r);
    printf ("Enter the number of columns: ");
    scanf ("%d", &c);

    printf ("Enter the first matrix : \n");
    for (int i=0; i<r; i++){
        for (int j=0; j<c; j++){
            scanf ("%d", &a[i][j]);
        }
    }
```

```c
Printf ("Enter the second matrix: \n");
    for (int i=0; i<r; i++) {
        for (int j=0; j<c; j++) {
            Scanf ("%d", &b[i][j]);
        }
    }
Printf ("sum of the matrices A and B is : \n");
sumofMatrix (a, b, r, c);
    return 0;
}
```

```c
#include<stdio.h>
void SumofMatrix(int a[10][10],int b[10][10],int r,int c){
    int sum[10][10];
    for(int j=0;j<r;j++){
        for(int k=0;k<c;k++){
            sum[j][k] = a[j][k]+b[j][k];
        }
    }
    for(int i=0;i<r;i++){
        for(int j=0;j<c;j++){
            printf("%d\t",sum[i][j]);
        }
    printf("\n");}
}
int main(){
    int a[10][10],b[10][10],r,c;
    printf("Enter the number of rows : ");
    scanf("%d",&r);
    printf("Enter the number of columns : ");
    scanf("%d",&c);
    printf("Enter the first matrix : \n");
    for(int i=0;i<r;i++){
        for(int j=0;j<c;j++){
            scanf("%d",&a[i][j]);
            }
            }
    printf("\nEnter the second matrix : \n");
    for(int i=0;i<r;i++){
        for(int j=0;j<c;j++){
            scanf("%d",&b[i][j]);
        }
    }
    printf("Sum of the matrices A and B is : \n ");
    SumofMatrix(a,b,r,c);
    return 0;
}
```

```
Enter the number of rows : 3
Enter the number of columns : 3
Enter the first matrix :
2 3 1
1 2 3
1 2 4

Enter the second matrix :
2 3 1
1 2 3
1 2 4
Sum of the matric A and B is :
 4      6      2
2       4      6
2       4      8

Process returned 0 (0x0)   execution time : 36.552 s
Press any key to continue.
```