Week 6: cc

2021

Name:	SRN:	Section:
	Date:	Week Number:

1	**1) Write a C program to generate Pascal triangle using two dimensional array** **Input:** Enter the n value: 4 **Output:** 1 1 1 1 2 1 1 3 3 1
	Program: **#include<stdio.h>** **#include<stdlib.h>** **int main(){** **int n_lines;** **printf("Enter the no. of lines:");** **scanf("%d",&n_lines);** **//init** **int arr[n_lines][n_lines];** **for(int i=0;i<n_lines;i++){** **for (int j = 0; j < n_lines; j++)** **{** **arr[i][j]=0;** **arr[i][0]=1;** **arr[i][i]=1;** **}** **}** **for (int i = 2; i < n_lines; i++)** **{** **for (int j = 1; j < n_lines; j++)** **{** **arr[i][j]=arr[i-1][j-1]+arr[i-1][j];**

```
    }
  }

  //printing the array
  for (int i = 0; i < n_lines; i++)
  {
    for (int j = 0; j < n_lines; j++)
    {
      printf("%d ",arr[i][j]);
    }
    printf("\n");
  }
}
```

Output Screenshot:

```
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6> .\bruh1.exe
Enter the no. of lines:10
1 0 0 0 0 0 0 0 0 0
1 1 0 0 0 0 0 0 0 0
1 2 1 0 0 0 0 0 0 0
1 3 3 1 0 0 0 0 0 0
1 4 6 4 1 0 0 0 0 0
1 5 10 10 5 1 0 0 0 0
1 6 15 20 15 6 1 0 0 0
1 7 21 35 35 21 7 1 0 0
1 8 28 56 70 56 28 8 1 0
1 9 36 84 126 126 84 36 9 1
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6>
```

2 Write a C program to read elements in a matrix and check whether the given matrix is symmetric matrix or not.

Input:

Enter the value of m

3

Enter the value of n

3

Enter elements in matrix of size 3x3:

1

	0 0 0 1 0 0 0 1 **Output:** The given matrix is Symmetric matrix: 1 0 0 0 1 0 0 0 1
	Program: **#include<stdio.h>** **#include<stdlib.h>** **#include<stdbool.h>** **int checksymmetry(int *arr,int row,int col){** **for (int i = 0; i < row; i++)** **{** **for (int j = 0; j < col; j++)** **{** **if (*((arr+i*col)+j)==*((arr+j*row)+i))return 0;** **}** **}** **return 1;** **}** **void printmat(int *arr,int row,int col){**

```
    for (int i = 0; i < row; i++)
    {
        for(int j=0;j<col;j++){
            printf("%d ",*((arr+i*col) + j));//pointer arr is first element of first cell
                                    // arr+i*col are list of all first elements
                                    //(arr+i*col)+ j for all elements

        }
        printf("\n");
    }

}
int main(){
    int row,col;
    printf("Enter dimensions(rows cols):");
    scanf("%d %d",&row,&col);

    int arr[row][col];
    for (int i=0;i<row;i++){
        for (int j=0;j<col;j++){
            printf("Enter a[%d][%d]: ",i,j);
            scanf("%d",&arr[i][j]);
        }
    }
    printf("\n\nIS SYMMETRIC: %d\n\n",checksymmetry((int *)arr,row,col));
    printmat((int *)arr,row,col);

}
```

	Output Screenshot: PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6> .\bruh2.exe Enter dimensions(rows cols):3 3 Enter a[0][0]: 1 Enter a[0][1]: 0 Enter a[0][2]: 0 Enter a[1][0]: 0 Enter a[1][1]: 1 Enter a[1][2]: 0 Enter a[2][0]: 0 Enter a[2][1]: 0 Enter a[2][2]: 1 IS SYMMETRIC: 1 1 0 0 0 1 0 0 0 1 PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6> .\bruh2.exe Enter dimensions(rows cols):2 2 Enter a[0][0]: 1 2 Enter a[0][1]: Enter a[1][0]: 3 4 Enter a[1][1]: IS SYMMETRIC: 0 1 2 3 4 PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6>
3	Write a C program to compare 2 dates and print appropriate message using structures **Input1:** Enter Date1 in the format dd/mm/yyyy 12/2/2000 Enter Date2 in the format dd/mm/yyyy

	12/2/2000 Date1=12/2/2000 Date2=12/2/2000 **Output1:** Date1 is equal to Date2 Input2: Enter Date1 in the format dd/mm/yyyy 12/3/2000 Enter Date2 in the format dd/mm/yyyy 12/3/2001 Date1=12/3/2000 Date2=12/3/2001 **Output2:** Date1 is smaller than Date2 **Input3:** Enter Date1 in the format dd/mm/yyyy 12/4/1999 Enter Date2 in the format dd/mm/yyyy 12/2/1999 Date1=12/4/1999 Date2=12/2/1999 **Output3:** Date1 is greater than Date2
	Program: **#include<stdio.h>** **#include<stdlib.h>** **struct Date{** **int day;** **int month;** **int year;** **}date1,date2;** **int main(){**

```
    printf("Enter date1 in format dd/mm/yy:");
    scanf("%d/%d/%d",&date1.day,&date1.month,&date1.year);

    printf("Enter date2 in format dd/mm/yy:");
    scanf("%d/%d/%d",&date2.day,&date2.month,&date2.year);

    printf("\nDATE1:%d/%d/%d\n",date1.day,date1.month,date1.year);
    printf("\nDATE2:%d/%d/%d\n",date2.day,date2.month,date2.year);

    int ans=(date2.year-date1.year)*365+(date2.month-date1.month)*31+(date2.day-
date1.day);

    if(ans<0)printf("Date1 is larger than date2");
    else printf("Date1 is smaller than date2");

}
```

Output Screenshot:

```
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6> .\bruh3.exe
Enter date1 in format dd/mm/yy:12/12/2001
Enter date2 in format dd/mm/yy:12/12/2002

DATE1:12/12/2001

DATE2:12/12/2002
Date1 is smaller than date2
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6> .\bruh3.exe
Enter date1 in format dd/mm/yy:13/12/2002
Enter date2 in format dd/mm/yy:12/12/2002

DATE1:13/12/2002

DATE2:12/12/2002
Date1 is larger than date2
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6>
```

4	Write a C Program to Add and subtract two Complex Numbers by Passing Structure to a Function **Input:** For 1st complex number Enter the real and imaginary parts: 5 4 For 2nd complex number Enter the real and imaginary parts: 3 2 **Output:** Sum = 8.0 + 6.0i Sub = 2.0 - 2.0i

Program:

```
#include<stdio.h>

struct complex
{
   float real;
   float imaginary;

};

int main(){
   struct complex c1,c2,sum,diff;


   printf("Enter real and imaginary:");
   scanf("%f %f",&c1.real,&c1.imaginary);
   printf("Enter real and imaginary:");
   scanf("%f %f",&c2.real,&c2.imaginary);


   sum.real=c1.real+c2.real;
   sum.imaginary=c1.imaginary+c2.imaginary;

   diff.real=c1.real-c2.real;
   diff.imaginary=c1.imaginary-c2.imaginary;

   printf("SUM = %f %f i",sum.real,sum.imaginary);
   printf("SUM = %f %f i",diff.real,diff.imaginary);

   return 0;
}
```

	Output Screenshot: PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6> cd "d:\Important Files\AYUSHSINGHPES2UG20CS081\Week6\" ; if ($?) { gcc bruh4.c -o bruh4 } ; if ($?) { .\bruh4 } Enter real and imaginary:2 3 Enter real and imaginary:-2 4 SUM = 0.000000 7.000000 DIFF = 4.000000 -1.000000 i PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week6>