COMPUTER

ASSIGNMENT

NAME: DEEPTI GUPTA

SECTION: AU (1)

COURSE: BTECH.

YEAR: 1

SEMESTER: 1

BRANCH: (CSE)

UNIVERSITY ROLL NUMBER: 2315000702

CLASS ROLL NUMBER: 23

FACULTY NAME: MS. GURPREET KAUR

WEEK-1

/\*Q. 1 Write a program to accept height and base of triangle and calculate area of triangle.\*/

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int h, b;

    float area;

    printf("enter the height and base of triangle : ");

    scanf("%d %d",&h,&b);

    area=(h\*b)/2;

    printf("area of triangle : %.2f",area);

    return 0;

}\*/

/\*Q. 2 Write a program to accept radius of circle and calculate area of circle

Note: area =pi \* r2\*/

/\*#include<stdio.h>

#include<conio.h>

#include<math.h>

int main(){

    float r, area;

    printf("enter the radius : ");

    scanf("%f",&r);

    area=(3.14\*(pow(r,2)));

    printf("area of circle : %.2f",area);

    return 0;

}\*/

/\*Q. 3 Write a program to find the lowest marks of three students using conditional

operator.\*/

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int m1, m2, m3;

    printf("enter marks of sudent 1: ");

    scanf("%d",&m1);

    printf("enter marks of sudent 2: ");

    scanf("%d",&m2);

    printf("enter marks of sudent 3: ");

    scanf("%d",&m3);

    if(m1<m2 && m1<m3)

    {

        printf("student 1 have lowest marks.");

    }

    else if(m2<m1 && m2<m3)

    {

        printf("student 2 have lowest marks.");

    }

    else

    {

        printf("student 3 have lowest marks.");

    }

    return 0;

}\*/

/\*Q. 4 Write a program to Calculate Compound Interest.\*/

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int P, R, T;

    float SI;

    printf("enter the principle, rate and time: ");

    scanf("%d %d %d",&P,&R,&T);

    SI=(P\*R\*T)/100;

    printf("The value of SI: %.2f",SI);

    return 0;

}\*/

/\*Q. 5 Write a program to Calculate Cube of a Number.\*/

/\*#include<stdio.h>

#include<conio.h>

#include<math.h>

int main(){

    int n, cube;

    printf("enter the number: ");

    scanf("%d",&n);

    cube=pow(n,3);

    printf("The cube of given number is: %d",cube);

    return 0;

}\*/

WEEK-2

//Q. 1 Write a program to interchange two values by using Assignment Operator.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int a, b;

    int c;

    printf("enter the value of a:");

    scanf("%d",&a);

    printf("enter the value of b:");

    scanf("%d",&b);

    printf("value of a and b before swaping is %d and %d.\n",a,b);

    c=a;

    a=b;

    b=c;

    printf("value of a and b after swaping is %d and %d.",a,b);

    return 0;

}\*/

//Q. 2 Write a program to interchange two values by using Arithmetic Operator.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int a, b;

    printf("enter the value of a and b:");

    scanf("%d%d",&a,&b);

    printf("value of a and b before swaping is %d and %d.\n",a,b);

    a=a+b;

    b=a-b;

    a=a-b;

    printf("value of a and b after swaping is %d and %d.",a,b);

    return 0;

}\*/

//Q. 3 Write a program to interchange two values by using Bitwise Operator.

/\*#include <stdio.h>

int main() {

    int a, b;

    printf("Enter two values: ");

    scanf("%d %d", &a, &b);

    a = a ^ b;

    b = a ^ b;

    a = a ^ b;

    printf("After swapping: a = %d, b = %d\n", a, b);

    return 0;

}\*/

/\*Q. 4 Write a program to find the size of all data types (Int, Float, Char, Double, Long

Double, Short Int etc.).\*/

/\*#include <stdio.h>

int main() {

    printf("Size of char: %lu bytes\n",sizeof(char));

    printf("Size of int: %lu bytes\n", sizeof(int));

    printf("Size of float:%lu bytes\n",sizeof(float));

    printf("Size of double: %lu bytes\n",

sizeof(double));

    printf("Size of short: %lu bytes\n", sizeof(short));

    printf("Size of long: %lu bytes\n", sizeof(long));

    printf("Size of long long: %lu bytes\n", sizeof(long long));

    return 0;

}\*/

/\*Q. 5 Write a program to find out whether input number is even or odd without using

arithmetic operators.\*/

/\*#include<stdio.h>

int main(){

    int num;

    printf("enter the number:");

    scanf("%d",&num);

    if(num&1)

    {

        printf("%d is odd.\n",num);

    }

    else

    {

        printf("%d is even.",num);

    }

    return 0;

}\*/

WEEK-3

//Q. 1 Write a C program to check whether a given number is even or odd.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int n;

    scanf("%d",&n);

    if(n%2==0)

    {

        printf("even");

    }

    else

    {

        printf("odd");

    }

    return 0;

}\*/

//Q. 2 Write a C program to check whether a given number is positive or negative.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int n;

    scanf("%d",&n);

    if(n>0)

    {

        printf("positive");

    }

    else if(n==0)

    {

        printf("zero");

    }

    else{

        printf("negative");

    }

    return 0;

}\*/

//Q. 3 Write a C program to find whether a given year is a leap year or not.

/\*#include<stdio.h>

int main() {

    int year;

    char choice;

    do {

        printf("Enter a year to check if it's a leap year: ");

        scanf("%d", &year);

        if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {

            printf("%d is a leap year.\n", year);

        } else {

            printf("%d is not a leap year.\n", year);

        }

        printf("Do you want to check another year? (y/n): ");

        scanf(" %c", &choice);

    } while (choice == 'y' || choice == 'Y');

    return 0;

}\*/

//Q. 4 Write a C program to find the largest of three numbers.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int n1,n2,n3,c;

    scanf("%d %d %d",&n1,&n2,&n3);

    c=(n1<n2)? ((n1<n3)? n1:n3):((n2<n3)? n2:n3);

    printf("lowest number is %d.",c);

    return 0;

}\*/

/\*Q. 5 Write a C program to read temperature in centigrade and display a suitable

message according to the temperature state below:

a. Temp < 0 then Freezing weather

b. Temp 0-10 then Very Cold weather

c. Temp 10-20 then Cold weather

d. Temp 20-30 then Normal in Temp

e. Temp 30-40 then Its Hot

f. Temp >=40 then Its Very Hot \*/

/\*#include<stdio.h>

int main(){

    float t;

    printf("enter the temperature : ");

    scanf("%f",&t);

    if(t<0){

        printf("FREEZING WEATHER.");

    }

    else if(t>=0 && t<10){

        printf("VERY COLD WEATHER.");

    }

    else if(t>=10 && t<20){

        printf("COLD WEATHER.");

    }

    else if(t>=20 && t<30){

        printf("NORMAL IN TEMPERATURE.");

    }

    else if(t>=30 && t<40){

        printf("ITS HOT.");

    }

    else{

        printf("VERY HOT.");

    }

    return 0;

}\*/

//Q. 6 Write a C program to read any digit and display it in the word.

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter a digit : ");

    scanf("%d",&n);

    switch(n)

    {

        case 0:

        printf("zero");

        break;

        case 1:

        printf("one");

        break;

        case 2:

        printf("two");

        break;

        case 3:

        printf("three");

        break;

        case 4:

        printf("four");

        break;

        case 5:

        printf("five");

        break;

        case 6:

        printf("six");

        break;

        case 7:

        printf("seven");

        break;

        case 8:

        printf("eight");

        break;

        case 9:

        printf("nine");

        break;

    }

    return 0;

}\*/

//Q. 7 Write a C program to create a Simple Calculator using a switch case.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int n1,n2,c;

    char s;

    printf("enter the operator: ");

    scanf("%c",&s);

    printf("enter the two numbers: ");

    scanf("%d %d",&n1,&n2);

    switch(s)

    {

        case '+':

        c=n1+n2;

        printf("%d",c);

        break;

        case '-':

        c=n1-n2;

        printf("%d",c);

        break;

        case '/':

        c=n1/n2;

        printf("%d",c);

        break;

        case '\*':

        c=n1\*n2;

        printf("%d",c);

        break;

        case '%':

        c=n1%n2;

        printf("%d",c);

        break;

        default:

        printf("invalid!!");

    }

    return 0;

}\*/

/\*Q. 8 Write a C program using C Switch...Case to Calculate the Area of Rectangle/

Circle/ Triangle\*/

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int c;

    printf("hows area you want to calculate- rectangle(1)/circle(2)/triangle(3): ");

    scanf("%d",&c);

    switch (c)

    {

        float area;

        case 1:

            float length, breadth;

            printf("enter the length and breadth :");

            scanf("%f %f",&length, &breadth);

            area=length\*breadth;

            printf("area of rectangle is: %.2f",area);

            break;

        case 2:

            float radius;

            printf("enter the radius: ");

            scanf("%f",&radius);

            area=(3.14\*radius\*radius);

            printf("area of circle is: %.2f",area);

            break;

        case 3:

            float base, height;

            printf("enter the base and height: ");

            scanf("%f %f",&base,&height);

            area=(base\*height)/2;

            printf("area of triangle is: %.2f",area);

            break;

    }

    return 0;

}\*/

//H.O.T.S Questions

/\*Q. 9 Write a C program to calculate the sum and average of positive numbers. If the

user enters a negative number, the sum and average are displayed. \*/

/\*#include<stdio.h>

#include<conio.h>

int main() {

    int number;

    int sum = 0;

    printf("Please enter the 1st number or 0 to stop: ");

    scanf("%d", &number);

    int count = 0;

    while (number != 0)

    {

        sum = sum + number;

        count++;

        printf("Please enter another number or 0 to stop: ");

        scanf("%d", &number);

    }

    if  (count < 0) {

        printf("Only positive numbers\n");

    }

    if (count > 0)

    {

        printf("AVERAGE = %.2f", ((float)sum) / count);

    }

    return 0;

}\*/

//Q. 10 Write a C program to design a digital clock.

/\*#include<stdio.h>

#include<conio.h>

#include<windows.h>

int main(){

    for(int h=0; h<=24; h++)

    {

        for(int m=0; m<=60; m++)

        {

            for(int s=0; s<=60; s++)

            {

            system("cls");

            printf("%02d %02d %02d",h,m,s);

            Sleep(1000);

            }

        }

    }

    return 0;

}\*/

/\*Q. 11 Write a C program to find the sum of digits of a number until a single digit is

occurred.\*/

/\*#include<stdio.h>

int main()

{

    long int num;

    int sum = 0, rem;

    printf("Enter a number: ");

    scanf("%ld", &num);

    while(num / 10 != 0)

    {

        sum = 0;

        while(num != 0)

        {

            rem = num % 10;

            sum += rem;

            num = num / 10;

        }

        num = sum;

    }

    printf("%d", sum);

    return 0;

}\*/

WEEK-4

//Q. 1 Write a C program to print multiplication table of a number.

/\*#include<stdio.h>

int main(){

    int n,p;

    printf("enter the number whose table has to printed: ");

    scanf("%d",&n);

    for(int i=1; i<=10; i++)

    {

        p=n\*i;

        printf("%d x %d = %d\n",n,i,p);

    }

    return 0;

}\*/

//Q. 2 Write a C program to calculate factorial of a number.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int n;

    int fact=1;

    scanf("%d",&n);

    for(int i=1; i<=n; i++)

    {

        fact\*=i;

    }

    printf("%d",fact);

    return 0;

}\*/

//Q. 3 Write a C program to check whether a number is palindrome or not.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int n;

    scanf("%d",&n);

    int original=n, r, rev=0;

    while(n>0)

    {

        r=n%10;

        rev=r+rev\*10;

        n=n/10;

    }

    if(original==rev)

    {

        printf("Palindrome");

    }

    else

    {

        printf("not a palindrome");

    }

    return 0;

}\*/

//Q. 4 Write a C program to count frequency of digits in a given number.

/\*#include <stdio.h>

#include <stdlib.h>

int main(){

    long num;

    int digit,rem,count=0;

    printf("Enter the Number: ");

    scanf("%ld",&num);

    printf("Enter the digit to be counted:");

    scanf("%d",&digit);

    while(num!=0)

    {

       rem=num%10;

       if(rem==digit)

       count++;

       num=num/10;

    }

    printf("The digit %d present %d times ",digit,count);

    return 0;

}\*/

//Q. 5 Write a C program to find HCF(GCD) AND LCM of two numbers.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int n1,n2,gcd,lcm;

    scanf("%d",&n1);

    scanf("%d",&n2);

    int a=n1 , b=n2;

    while(n1!=n2)

    {

        if(n1>n2)

        {

            n1=n1-n2;

        }

        else

        {

            n2=n2-n1;

        }

    }

    gcd=n1;

    printf("%d\n",gcd);

    lcm=(a\*b)/gcd;

    printf("%d",lcm);

    return 0;

}\*/

//Q. 6 Write a C program to print all prime numbers between 1 to n.

/\*#include <stdio.h>

int main() {

    int i,j,n,flag =1;

    scanf("%d",&n);

    for(i=2;i<=n;++i){

    flag =1;

        for(j=2;j<i;++j){

            if(i%j==0){

            flag =0;

            break;

            }

        }

        if(flag==1){

        printf("%d,",i);

        }

    }

    return 0;

}\*/

//Q. 7 Write a C program to print Fibonacci series up to n terms.

/\*#include<stdio.h>

#include<conio.h>

int main(){

    int a=0,b=1,c,n;

    scanf("%d",&n);

    for(int i=1; i<=n; i++)

    {

        printf("%d ",a);

        c=a+b;

        a=b;

        b=c;

    }

    return 0;

}\*/

/\*Q. 8 Write a C program to print Armstrong numbers from 1 to n AND check a given

number is Armstrong numbers or not.\*/

/\*#include <stdio.h>

#include <math.h>

int main()

{

    int num, lastDigit, digits, sum, i, end;

    printf("Enter upper limit: ");

    scanf("%d", &end);

    for(i=1; i<=end; i++)

    {

        sum = 0;

        num = i;

        digits = (int) log10(num) + 1;

        while(num > 0)

        {

            lastDigit = num % 10;

            sum = sum + ceil(pow(lastDigit, digits));

            num = num / 10;

        }

        if(i == sum)

        {

            printf("%d, ", i);

        }

    }

    return 0;

}\*/

//H.O.T.S Questions

/\*Q. 9 Write a C program to print all Perfect numbers between 1 to n AND Check a

given number is Perfect numbers or not. \*/

/\*#include <stdio.h>

int main()

{

    int i, j, end, sum;

    // Input upper limit to print perfect number

    printf("Enter upper limit: ");

    scanf("%d", &end);

    printf("All Perfect numbers between 1 to %d:\n", end);

    // Iterate from 1 to end

    for(i=1; i<=end; i++)

    {

        sum = 0;

        // Check whether the current number i is Perfect number or not

        for(j=1; j<i; j++)

        {

            if(i % j == 0)

            {

                sum += j;

            }

        }

        // If the current number i is Perfect number

        if(sum == i)

        {

            printf("%d, ", i);

        }

    }

    return 0;

}\*/

//Q. 10 Write a C program to print all Strong Numbers between 1 to n.

/\*#include <stdio.h>

int main()

{

    int i, j, cur, lastDigit, end;

    long long fact, sum;

    // Input upper limit from user

    printf("Enter upper limit: ");

    scanf("%d", &end);

    printf("All Strong numbers between 1 to %d are:\n", end);

    // Iterate from 1 to end

    for(i=1; i<=end; i++)

    {

        // Number to check for strong number

        cur = i;

        sum = 0;

        //Find the sum of factorial of digits

        while(cur > 0)

        {

            fact = 1ll;

            lastDigit = cur % 10;

            // Find factorial of last digit of current num.

            for( j=1; j<=lastDigit; j++)

            {

                fact = fact \* j;

            }

            sum += fact;

            cur /= 10;

        }

        // Print 'i' if it is strong number

        if(sum == i)

        {

            printf("%d, ", i);

        }

    }

    return 0;

}\*/

WEEK-5

/\*a. \*\*\*

   \*\*\*

   \*\*\*

   \*\*\*

   \*\*\*

\*/

/\*#include<stdio.h>

void main(){

    int i,n,j;

    printf("Enter the number of lines:");

    scanf("%d",&n);

    for(i=1;i<=n;++i){

        for(j=1;j<=n;++j){

            printf("\*");

        }

        printf("\n");

    }

}\*/

/\*b. 12345

     12345

     12345

     12345

\*/

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter number of lines: ");

    scanf("%d",&n);

    int i,j;

    for(i=1;i<=n;i++){

        for(j=1;j<=n;j++){

            printf("%d ",j);

        }

        printf("\n");

    }

}\*/

/\*c. 1

     12

     123

     1234

\*/

/\*#include<stdio.h>

int main(){

    int i,j,n;

    printf("Enter number of lines:");

    scanf("%d",&n);

    for(i=1;i<=n;i++){

        for(j=1;j<=i;j++){

            printf("%d",j);

        }

        printf("\n");

    }

}\*/

/\*d. 1

     22

     333

     4444

\*/

/\*#include<stdio.h>

int main(){

    int i,j,n;

    printf("Enter the no. of lines:");

    scanf("%d",&n);

    for(i=1;i<=n;i++){

        for(j=1;j<=i;j++){

            printf("%d",i);

        }

        printf("\n");

    }

}\*/

/\*e.

     \*

     \*\*

     \*\*\*

     \*\*\*\*

\*/

/\*#include<stdio.h>

void main(){

    int i,n,j;

    printf("Enter the number of lines:");

    scanf("%d",&n);

    for(i=1;i<=n;++i){

        for(j=1;j<=i;++j){

            printf("\*");

        }

        printf("\n");

    }

}\*/

/\*f.    A

       AB

      ABC

     ABCD

\*/

/\*#include<stdio.h>

int main(){

    int i,j,n,k;

    printf("Enter no. of lines:");

    scanf("%d",&n);

    char ch='A';

    for(i=1;i<=n;i++){

        ch='A';

        for(j=1;j<=n-i;j++){

            printf(" ");

        }

        for(k=1;k<=i;k++){

            printf("%c",ch);

            ch++;

        }

        printf("\n");

    }

}\*/

/\*g. 1

     2 3

     4 5 6

     7 8 9 10

\*/

/\*#include<stdio.h>

int main(){

    int i,j,n,ch=1;

    printf("Enter no. of lines:");

    scanf("%d",&n);

    for(i=1;i<=n;i++){

        for(j=1;j<=i;j++){

            printf("%d ",ch);

            ch++;

        }

        printf("\n");

    }

}\*/

/\*h.

    1

    10

    101

    1010

    10101

\*/

/\*#include<stdio.h>

int main() {

    int n;

    printf("enter number of lines: ");

    scanf("%d",&n);

    for (int i = 1; i <= n; ++i) {

        for (int j = 1; j <= i; ++j) {

            printf("%d", j % 2);

        }

        printf("\n");

    }

    return 0;

}\*/

/\*i. 5

     54

     543

     5432

     54321

\*/

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter the number of lines: ");

    scanf("%d",&n);

    int a,i;

    for(a=n;a>=1;a--){

        for(i=n;i>=a;i--){

            printf("%d ",i);

        }

        printf("\n");

    }

    return 0;

}\*/

/\*j.

    54321

    5432

    543

    54

    5

\*/

/\*#include <stdio.h>

int main() {

    int n;

    printf("enter the number of lines: ");

    scanf("%d",&n);

    for (int i = 0; i < n; i++) {

        for (int j = n; j > i; j--) {

            printf("%d", j);

        }

        printf("\n");

    }

    return 0;

}\*/

/\*k.

    \*\*\*\*\*

    \*   \*

    \*   \*

    \*   \*

    \*\*\*\*\*

\*/

/\*#include <stdio.h>

int main() {

    int i, j;

    int n;

    printf("enter number of lines: ");

    scanf("%d",&n);

    for (i = 1; i <= n; i++) {

        for (j = 1; j <= n; j++) {

            if (i == 1 || i == n || j == 1 || j == n) {

                printf("\*");

            } else {

                printf(" ");

            }

        }

        printf("\n");

    }

    return 0;

}\*/

/\*l.

           \*

          \* \*

         \* \* \*

        \* \* \* \*

       \* \* \* \* \*

\*/

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter the number of line: ");

    scanf("%d",&n);

    for(int i=1; i<=n; i++)

    {

        for(int k=i; k<=n; k++)

        {

            printf(" ");

        }

        for(int j=1; j<=i; j++)

        {

            printf("\* ");

        }

        printf("\n");

    }

    return 0;

}\*/

/\*m.

        \*

       \* \*

      \* \* \*

     \* \* \* \*

    \* \* \* \* \*

     \* \* \* \*

      \* \* \*

       \* \*

        \*

\*/

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter the size:");

    scanf("%d",&n);

    for(int i=1; i<=n; i++)

    {

        for(int k=i; k<=n; k++)

        {

            printf(" ");

        }

        for(int j=1; j<=i; j++)

        {

            printf("\* ");

        }

        printf("\n");

    }

    for(int i=n-1; i>=1; i--)

    {

        for(int k=n-1; k>=i; k--)

        {

            printf(" ");

        }

        for(int j=i; j>=1; j--)

        {

            printf(" \*");

        }

        printf("\n");

    }

    return 0;

}\*/

/\*n.

    6789

     345

      12

       0

\*/

WEEK-6

/\* Q. 1 Write a menu driven program to insert and delete elements of kth position to

an array of size N.

\*/

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter the size of array: ");

    scanf("%d",&n);

    int a[n];

    for(int i=0; i<n; i++)

    {

        printf("enter value at index %d: ",i);

        scanf("%d",&a[i]);

    }

    int pos;

    printf("enter the index of the number to be deleted: ");

    scanf("%d",&pos);

    for(int j=pos; j<n; j++)

    {

        a[j]=a[j+1];

    }

    n--;

    for(int i=0; i<n; i++)

    {

        printf("%d ",a[i]);

    }

    return 0;

}\*/

/\* Q. 2 Write the program to print the biggest and smallest element in an array.

\*/

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter the size of array: ");

    scanf("%d",&n);

    int a[n];

    for(int i=0; i<n; i++)

    {

        printf("enter value of index %d: ",i);

        scanf("%d",&a[i]);

    }

    int max=a[0];

    for(int i=0; i<n; i++)

    {

        if(a[i]>max)

        {

            max=a[i];

        }

    }

    int min=a[0];

    for(int i=0; i<n; i++)

    {

        if(a[i]<min)

        {

            min=a[i];

        }

    }

    printf("minimum element: %d\n",min);

    printf("maximum element: %d",max);

    return 0;

}\*/

/\* Q. 3 Write the program to print the sum and average of an array. \*/

/\*#include<stdio.h>

int main(){

    int n, sum=0;

    printf("enter the size of array: ");

    scanf("%d",&n);

    int a[n];

    for(int i=0; i<n; i++)

    {

        printf("enter the value for index %d: ",i);

        scanf("%d",&a[i]);

    }

    for(int i=0; i<n; i++)

    {

        sum+=a[i];

    }

    float avr=sum/n;

    printf("sum of all element: %d.\n",sum);

    printf("average of all element: %.2f",avr);

    return 0;

}\*/

/\* Q. 4 Write the program to sort an array using bubble sort. \*/

/\*#include<stdio.h>

int main(){

    int n,t;

    printf("enter the size of array: ");

    scanf("%d",&n);

    int a[n];

    for(int i=0; i<n; i++)

    {

        printf("enter value for index %d: ",i);

        scanf("%d",&a[i]);

    }

    for(int i=0; i<n-1; i++)

    {

        for(int j=0; j<n-1; j++)

        {

            if(a[j]>a[j+1])

            {

                t=a[j];

                a[j]=a[j+1];

                a[j+1]=t;

            }

        }

    }

    for(int i=0; i<n; i++)

    {

        printf("%d ",a[i]);

    }

    return 0;

}\*/

/\* Q. 5 Write the program to search an element using linear search as well as binary

search. \*/

/\*#include<stdio.h>

int main(){

    int n,count=0;

    printf("enter the size of array: ");

    scanf("%d",&n);

    int a[n];

    for(int i=0; i<n; i++)

    {

        printf("enter the value for index %d: ",i);

        scanf("%d",&a[i]);

    }

    int ele;

    printf("enter the element to be search: ");

    scanf("%d",&ele);

    for(int i=0; i<n; i++)

    {

        if(a[i]==ele)

        {

            printf("element %d is found on inndex %d.",a[i],i);

            count++;

            break;

        }

    }

    if(count==0)

    {

        printf("element not found.");

    }

    return 0;

}\*/

/\* Q. 6 Take an array of 20 integer inputs from user and print the following:

a. number of positive numbers

b. number of negative numbers

c. number of odd numbers

d. number of even numbers

e. number of 0.

\*/

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter size of array: ");

    scanf("%d",&n);

    int a[n];

    int even=0, odd=0, pos=0, neg=0, zero=0;

    for(int i=0; i<n; i++)

    {

        printf("enter element on index %d:",i);

        scanf("%d",&a[i]);

    }

    for(int i=0;i<n; i++)

    {

        if(a[i]%2==0)

        {

            even++;

        }

        else

        {

            odd++;

        }

        if(a[i]>0)

        {

            pos++;

        }

        else if(a[i]<0)

        {

            neg++;

        }

        else

        {

            zero++;

        }

    }

    printf("number of positive numbers: %d\n",pos);

    printf("number of negative numbers: %d\n",neg);

    printf("number of odd numbers: %d\n",odd);

    printf("number of even: %d\n",even);

    printf("number of zero: %d",zero);

    return 0;

}\*/

/\* Q. 7 Take an array of 10 elements. Split it into middle and store the elements in

two different arrays. E.g.-

INITIAL array:

58, 24, 13, 15, 63, 9, 8, 81, 1, 78

After splitting:

58, 24, 13, 15, 63

9, 8, 81, 1, 78

\*/

/\*#include<stdio.h>

int main(){

    int n=10;

    int a[n];

    for(int i=0; i<n; i++)

    {

        printf("enter the value of index %d: ",i);

        scanf("%d",&a[i]);

    }

    int n1[5], n2[5];

    for(int i=0; i<5; i++)

    {

        n1[i]=a[i];

    }

    for(int i=5; i<10; i++)

    {

        n2[i-5]=a[i];

    }

    for(int i=0; i<10; i++)

    {

        printf("%d ",a[i]);

    }

    printf("\n");

    for(int i=0; i<5; i++)

    {

        printf("%d ",n1[i]);

    }

    printf("\n");

    for(int i=0; i<5; i++)

    {

        printf("%d ",n2[i]);

    }

    return 0;

}\*/

/\* Q. 8 Write the program to count frequency of each element in an array.\*/

/\*#include<stdio.h>

int main(){

    int n;

    printf("enter the size of array: ");

    scanf("%d",&n);

    int a[n];

    for(int i=0; i<n; i++)

    {

        printf("enter element for index %d: ",i);

        scanf("%d",&a[i]);

    }

    int item, count=0;

    printf("enter the element to count: ");

    scanf("%d",&item);

    for(int i=0; i<n; i++)

    {

        if(a[i]==item)

        {

            count++;

        }

    }

    printf("frequency of %d is %d",item,count);

    return 0;

}\*/

WEEK-7

/\* Q. 1 Write the program to print row major and column major matrix. \*/

/\*#include <stdio.h>

#include <conio.h>

int main(){

int m, n, i, j;

printf("\nEnter total number of rows?");

scanf("%d", & m);

printf("\nEnter total number of columns?");

scanf("%d", & n);

int arr[m][n];

printf("\nEnter Matrix?\n");

for (i = 0; i < m; i++) {

for (j = 0; j < n; j++) {

printf("enter value for index [%d][%d]",i,j);

scanf("%d", & arr[i][j]);

}

}

printf("\n\nRow-Major Order:\n");

for (i = 0; i < m; i++) {

for (j = 0; j < n; j++) {

printf("%d\t", arr[i][j]);

}

printf("\n");

}

printf("\n\nColumn-Major Order:\n");

for (i = 0; i < n; i++) {

for (j = 0; j < m; j++) {

printf("%d\t", arr[j][i]);

}

printf("\n");

}

return 0;

}\*/

/\* Q. 2 Write the program to print sum of a whole matrix.\*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter size of an array: ");

scanf("%d %d",&m,&n);

int arr[m][n];

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

//printf("enter value for index [%d][%d]: ",i,j);

scanf("%d",arr[i][j]);

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",arr[i][j]);

}

printf("\n");

}

int sum=0;

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

sum+=arr[i][j];

}

}

printf("sum of array: ",sum);

return 0;

}\*/

/\* Q. 3 Write a program to add and multiply two 3x3 matrices. You can use 2D array

to create a matrix. \*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter the size of array: ");

scanf("%d %d",&m,&n);

int a[m][n];

int b[m][n];

int c[m][n];

int d[m][n];

for(int i=0; i<m; i++)

{

for(int j=0; j<n;j++)

{

printf("enter the element for first array for index [%d][%d]: ",i,j);

scanf("%d",&a[i][j]);

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n;j++)

{

printf("enter the element for second array for index [%d][%d]: ",i,j);

scanf("%d",&b[i][j]);

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n;j++)

{

c[i][j]=0;

for(int k=0; k<n; k++)

{

c[i][j]+=a[i][k]\*b[k][j];

}

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

d[i][j]=a[i][j]+b[i][j];

}

}

printf("matrix 1\n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

printf("\n");

printf("matrix 2\n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",b[i][j]);

}

printf("\n");

}

printf("\n");

printf("sum of matrix\n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",d[i][j]);

}

printf("\n");

}

printf("multiplication of matrix\n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",c[i][j]);

}

printf("\n");

}

return 0;

}\*/

/\* Q. 4 Write the program to print sum of all diagonal elements, upper triangular

matrix and lower triangular matrix. \*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter the size of 2d array: ");

scanf("%d %d",&m,&n);

int a[m][n];

int sd=0, ut=0, lt=0;

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter the element for index [%d][%d]: ",i,j);

scanf("%d",&a[i][j]);

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

if(i==j)

{

sd+=a[i][j];

}

else if(j>i)

{

ut+=a[i][j];

}

else if(i>j)

{

lt+=a[i][j];

}

}

}

printf("sum of all daigonal element is: %d\n",sd);

printf("sum of upper triangle element is: %d\n",ut);

printf("sum of lower triangle element is: %d\n",lt);

return 0;

}\*/

/\* Q. 5 Write the program to find the frequency of odd and even elements in matrix. \*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter size of array: ");

scanf("%d %d",&m,&n);

int a[m][n];

int counte=0, counto=0;

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter element for index [%d][%d]: ",i,j);

scanf("%d",&a[i][j]);

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

if(a[i][j]%2==0)

{

counte++;

}

else

{

counto++;

}

}

}

printf("number of even elements: %d\n",counte);

printf("number of odd element: %d",counto);

return 0;

}\*/

/\* Q. 6 Write the program to find sum of each row and sum of each column of

matrix. \*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter the size of 2d array: ");

scanf("%d %d",&m,&n);

int a[m][n];

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter element for index [%d][%d]: ",i,j);

scanf("%d",&a[i][j]);

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

int sum=0;

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

sum+=a[i][j];

}

printf("sum of row %d is %d.\n",i,sum);

sum=0;

}

for(int j=0; j<n; j++)

{

for(int i=0; i<m; i++)

{

sum+=a[i][j];

}

printf("sum of column %d is %d.\n",j,sum);

sum=0;

}

return 0;

}\*/

/\* Q. 7 Initialize a 2D array of 3\*3 matrix. E.g.-

1 2 3

2 3 4

3 4 5

\*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter the size of 2D array: ");

scanf("%d %d",&m,&n);

int a[m][n];

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter value for index a[%d][%d]: ",i,j);

scanf("%d",&a[i][j]);

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

return 0;

}\*/

/\* Q. 8 A square matrix, one having the same number of rows and columns, is called

a diagonal matrix if it’s only non-zero elements are on the diagonal from

upper left to lower right. It is called upper triangular matrix if all elements

bellow the diagonal are zeroes, and lower triangular matrix, if all the elements

above the diagonal are zeroes. Write a program that reads a matrix and

determines if it is one of the above mentioned three special matrices. \*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter the size of array: ");

scanf("%d %d",&m,&n);

int a[m][n];

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter value for index [%d][%d]: ",i,j);

scanf("%d",&a[i][j]);

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

int flag=0, flag1=0, flag2=0;

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

if(i!=j && a[i][j]!=0 )

{

flag=1;

}

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

if(i<j && a[i][j]!=0 )

{

flag1=1;

}

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

if(i>j && a[i][j]!=0 )

{

flag2=1;

}

}

}

if(m==n)

{

printf("square matrix.\n");

}

if(flag==0)

{

printf("diagonal matrix\n");

}

else

{

printf("not a diagonal matrix\n");

}

if(flag1==0)

{

printf("lower triangle matrix\n");

}

else

{

printf("not a lower triangle matrix\n");

}

if(flag2==0)

{

printf("upper triangle matrix\n");

}

else

{

printf("not a upper triangle matrix\n");

}

return 0;

}\*/

/\* Q. 9 Write the program to check whether the matrix is sparse matrix or not.\*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter the size of array: ");

scanf("%d %d",&m,&n);

int a[m][n];

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter the value for index [%d][%d]: ",i,j);

scanf("%d",&a[i][j]);

}

}

int count=0;

int h=(m\*n)/2;

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

if(a[i][j]==0)

{

count++;

}

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",a[i][j]);

}

printf("\n");

}

if(count>h)

{

printf("sparse matrix\n.");

}

else

{

printf("not a sparse matrix\n.");

}

return 0;

}\*/

WEEK-8

/\*Q. 1 Write a C program to create, initialize and use pointers.\*/

/\*#include<stdio.h>

int main(){

int n;

printf("enter the number: \n");

scanf("%d",&n);

int \*p=&n;

printf("n=%d\n",n);

printf("p=%d\n",p);

printf("\*p=%d\n",\*p);

return 0;

}\*/

/\*Q. 2 Write a C program to add two numbers using pointers. \*/

/\*#include<stdio.h>

int main(){

int n1,n2;

printf("enter two number: ");

scanf("%d %d",&n1,&n2);

int \*p=&n1, \*q=&n2;

int c=\*p+\*q;

printf("sum=%d",c);

return 0;

}\*/

/\*Q. 3 Write a C program to swap two numbers using pointers. \*/

/\*#include<stdio.h>

int main(){

int n1,n2,temp;

printf("enter two number: ");

scanf("%d %d",&n1,&n2);

printf("number before swaping %d and %d.\n",n1,n2);

int \*p=&n1, \*q=&n2;

temp=\*p;

\*p=\*q;

\*q=temp;

printf("number after swaping %d and %d.\n",n1,n2);

return 0;

}\*/

/\*Q. 4 Write a C program to input and print array elements using pointer. \*/

/\*#include<stdio.h>

int main(){

int n;

printf("enter size of array: ");

scanf("%d",&n);

int a[n];

int \*p=&a[0];

for(int i=0; i<n; i++)

{

printf("enter value for index [%d]: ",i);

scanf("%d",p++);

}

p=a;

printf("entered array is: ");

for(int i=0; i<n; i++)

{

printf("%d ",\*(p++));

}

return 0;

}\*/

/\*Q. 5 Write a C program to copy one array to another using pointer. \*/

/\*#include<stdio.h>

int main(){

int n;

printf("enter the size of array: ");

scanf("%d",&n);

int a[n];

for(int i=0; i<n; i++)

{

printf("enter the value for index [%d]: ",i);

scanf("%d",&a[i]);

}

printf("element of new array: ");

int \*b=&a[0];

for(int i=0; i<n; i++)

{

printf("%d ",\*(b++));

}

return 0;

}\*/

/\*Q. 6 Write a C program to swap two arrays using pointers. \*/

/\*#include<stdio.h>

int main(){

int n;

printf("enter size of array: ");

scanf("%d",&n);

int a[n], b[n], \*p1, \*p2;

for(int i=0; i<n; i++)

{

printf("enter value of 1st array for index [%d]: ",i);

scanf("%d",&a[i]);

}

for(int i=0; i<n; i++)

{

printf("enter value of 2nd array for index [%d]: ",i);

scanf("%d",&b[i]);

}

printf("value of array 1 before swaping:\n");

for(int i=0; i<n; i++)

{

printf("%d ",a[i]);

}

printf("\n");

printf("value of array 2 before swaping:\n");

for(int i=0; i<n; i++)

{

printf("%d ",b[i]);

}

printf("\n");

p1=a;

p2=b;

for(int i=0; i<n; i++)

{

\*p1=\*p1+\*p2;

\*p2=\*p1-\*p2;

\*p1=\*p1-\*p2;

p1++;

p2++;

}

printf("value of array 1 after swaping:\n");

for(int i=0; i<n; i++)

{

printf("%d ",a[i]);

}

printf("\n");

printf("value of array 2 after swaping:\n");

for(int i=0; i<n; i++)

{

printf("%d ",b[i]);

}

printf("\n");

return 0;

}\*/

/\*Q. 7 Write a C program to reverse an array using pointers. \*/

/\*#include<stdio.h>

int main(){

int n;

printf("enter the size of array: ");

scanf("%d",&n);

int a[n];

for(int i=0; i<n; i++)

{

printf("enter value for index [%d]: ",i);

scanf("%d",&a[i]);

}

printf("initial array: ");

for(int i=0; i<n; i++)

{

printf("%d ",a[i]);

}

printf("\n");

int \*p1, \*p2, temp;

p1=a;

p2=a+(n-1);

while(p1<p2)

{

temp=\*p1;

\*p1=\*p2;

\*p2=temp;

p1++;

p2--;

}

printf("reverse array: ");

for(int i=0; i<n; i++)

{

printf("%d ",a[i]);

}

return 0;

}\*/

/\*Q. 8 Write a C program to add two matrix using pointers. \*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter the size of 2d array: ");

scanf("%d %d",&m,&n);

int a[m][n], b[m][n], c[m][n];

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter number of 1 array for index [%d][%d]: ",i,j);

scanf("%d",&(\*(\*(a+i)+j)));

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter number of 2 array for index [%d][%d]: ",i,j);

scanf("%d",&(\*(\*(b+i)+j)));

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

c[i][j]=a[i][j]+b[i][j];

}

}

printf("1st array: \n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",(\*(\*(a+i)+j)));

}

printf("\n");

}

printf("2nd array: \n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",(\*(\*(b+i)+j)));

}

printf("\n");

}

printf("add array: \n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",(\*(\*(c+i)+j)));

}

printf("\n");

}

return 0;

}\*/

/\*Q. 9 Write a C program to multiply two matrix using pointers\*/

/\*#include<stdio.h>

int main(){

int m,n;

printf("enter size of 2d array: ");

scanf("%d %d",&m,&n);

int a[m][n], b[m][n], c[m][n];

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter number of array 1 for index [%d][%d]: ",i,j);

scanf("%d",&(\*(\*(a+i)+j)));

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("enter number of array 2 for index [%d][%d]: ",i,j);

scanf("%d",&(\*(\*(b+i)+j)));

}

}

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

c[i][j]=0;

for(int k=0; k<m; k++)

{

c[i][j]+=a[i][k]+b[k][j];

}

}

}

printf("1 array: \n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",(\*(\*(a+i)+j)));

}

printf("\n");

}

printf("2 array: \n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",(\*(\*(b+i)+j)));

}

printf("\n");

}

printf("multiply array: \n");

for(int i=0; i<m; i++)

{

for(int j=0; j<n; j++)

{

printf("%d ",(\*(\*(c+i)+j)));

}

printf("\n");

}

}\*/

WEEK-9

/\* Q. 1 Write a C program to Search string. \*/

/\*#include<stdio.h>

int main(){

char s[100], n;

int f=0;

printf("enter the string: ");

gets(s);

printf("enter character to be search: ");

scanf("%c",&n);

for(int i=0; s[i]!='\0'; i++)

{

if(s[i]==n)

{

f=1;

break;

}

}

if(f==1)

{

printf("character is present.\n");

}

else

{

printf("character is not present.\n");

}

return 0;

}\*/

/\* Q. 2 Write a C program to Reverse words in string. \*/

/\*#include<stdio.h>

#include<string.h>

int main(){

char s[100];

printf("enter the string:\n");

gets(s);

printf("original string: %s\n",s);

printf("reverse of string: %s",strrev(s));

return 0;

}\*/

/\* Q. 3 Write a C program to count vowels, consonants, etc. \*/

/\*#include<stdio.h>

#include<string.h>

int main(){

char s[100];

printf("enter the string: ");

gets(s);

int l=strlen(s);

int v=0, c=0;

for(int i=0; i<=l; i++)

{

if(s[i]=='a'||s[i]=='A'||s[i]=='e'||s[i]=='E'||s[i]=='i'||s[i]=='I'||s[i]=='o'||s[i]=='O'||s[i]=='u'||s[i]=='U')

{

v++;

}

else

{

c++;

}

}

printf("total number of vowels: %d\n",v);

printf("total number of constant: %d\n",c);

return 0;

}\*/

/\* Q. 4 Create a program to separate characters in a given string? \*/

/\*#include<stdio.h>

#include<string.h>

int main(){

char s[100];

printf("enter the string: ");

gets(s);

int i=0;

while(s[i]!='\0')

{

printf("%c ",s[i]);

i++;

}

return 0;

}\*/

/\* Q. 5 Write a program to take two strings from user and concatenate them also add

a space between them using strcat() function.

Sample input: JAI

GLA

Sample output: JAI GLA \*/

/\*#include<stdio.h>

#include<string.h>

int main(){

char s1[100], s2[100];

printf("enter string 1: ");

gets(s1);

printf("enter string 2: ");

gets(s2);

strcat(s1,s2);

printf("concatenated string: %s.",s1);

return 0;

}\*/

/\* Q. 6 Write a C program to take a string from user and make it toggle its case i.e.

lower case to upper case and upper case to lower case.

Sample Input: HElLo wOrlD

Sample output: heLlO WoRLd \*/

/\*#include<stdio.h>

#include<string.h>

int main(){

char s[100];

printf("enter the string: ");

gets(s);

printf("entered string: %s\n",s);

for(int i=0; s[i]!='\0'; i++)

{

if(s[i]>='A' && s[i]<='Z')

{

s[i]+=32;

}

else if(s[i]>='a' && s[i]<='z')

{

s[i]-=32;

}

}

printf("new string: %s\n",s);

return 0;

}\*/

/\* Q. 7 Write a C program to take two strings as input from user and check they are

identical or not without using string functions.

Sample input: Jai Gla

Jai Gla

Sample output: Identical \*/

/\*#include<stdio.h>

#include<string.h>

int main(){

char s1[100], s2[100];

printf("enter the string 1: ");

gets(s1);

printf("enter the string 2: ");

gets(s2);

if(strcmp(s1,s2)==0)

{

printf("identical\n");

}

else

{

printf("not identical\n");

}

return 0;

}\*/

/\* Q. 8 Write a C program to take a list of a student’s names from user by asking

number of students and sort them alphabetical order.

Sample Input:

Bhisham

Jayant

Abhishek

Dhruv

Sample Output:

Abhishek

Bhisham

Dhruv

Jayant \*/

/\*#include<stdio.h>

#include<string.h>

int main(){

int n;

printf("enter the number of input: ");

scanf("%d",&n);

char name[n][20], temp[20];

for(int i=0; i<n; i++)

{

scanf("%s",name[i]);

}

for(int i=0; i<n;i++)

{

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

{

if(strcmp(name[i],name[j])>0)

{

strcpy(temp,name[i]);

strcpy(name[i],name[j]);

strcpy(name[j],temp);

}

}

}

printf("after sorting string: \n");

for(int i=0; i<n; i++)

{

printf("%s\n",name[i]);

}

return 0;

}\*/

WEEK-10

/\* Q. 1 Write a C program to find length of string using pointers. \*/

/\*#include<stdio.h>

#include<string.h>

int main(){

char s[100], \*p;

int len=0;

printf("enter the string: ");

gets(s);

p=s;

while(\*p!='\0')

{

len++;

p++;d

}

printf("length of string: %d.",len);

return 0;

}\*/

/\* Q. 2 Write a C program to copy one string to another using pointer. \*/

/\*#include<stdio.h>

#include<conio.h>

#include<windows.h>

int main()

{

char \*str1, \*str2 ;

int i ;

printf("Enter the string : ") ;

scanf("%s", str2) ;

for(i = 0; \*str2 != '\0' ; i++, str1++, str2++)

{

\*str1 = \*str2 ;

\*str1 = '\0' ;

str1 = str1 - i ;

}

printf("\nThe copied string is : %s", str1) ;

getch();

}\*/

/\* Q. 3 Write a C program to concatenate two strings using pointers. \*/

/\*#include <stdio.h>

int main()

{

char string1[20];

char string2[20];

int i=0,j=0;

char \*str1;

char \*str2;

str1=string1;

str2=string2;

printf("Enter the first string: ");

scanf("%s",string1);

printf("\nEnter the second string: ");

scanf("%s", string2);

while(string1[i]!='\0')

{

++str1;

i++;

}

while(string2[j]!='\0')

{

\*str1=\*str2;

str1++;

str2++;

j++;

}

printf("\nThe concatenated string is %s",string1);

return 0;

}\*/

/\* Q. 4 Write a C program to compare two strings using pointers. \*/

/\*#include<stdio.h>

int main()

{

char string1[50],string2[50],\*str1,\*str2;

int i,equal = 0;

printf("Enter The First String: ");

scanf("%s",string1);

printf("Enter The Second String: ");

scanf("%s",string2);

str1 = string1;

str2 = string2;

while(\*str1 == \*str2)

{

if ( \*str1 == '\0' || \*str2 == '\0' )

break;

str1++;

str2++;

}

if( \*str1 == '\0' && \*str2 == '\0' )

printf("\n\nBoth Strings Are Equal.");

else

printf("\n\nBoth Strings Are Not Equal.");

}\*/

/\* Q. 5 WAP to find largest among three numbers using pointer \*/

/\*#include<stdio.h>

int main()

{

int a,b,c,\*pa, \*pb, \*pc;

printf("Enter three numbers:\n");

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

pa= &a;

pb= &b;

pc= &c;

if(\*pa > \*pb && \*pa > \*pc)

{

printf("Largest is: %d", \*pa);

}

else if(\*pb > \*pc && \*pb > \*pc)

{

printf("Largest is : %d", \*pb);

}

else

{

printf("Largest = %d", \*pc);

}

return 0;

}\*/

/\* Q. 7 WAP to find factorial of a number using pointer. \*/

/\*#include <stdio.h>

void findFact(int,int\*);

int main()

{

int fact;

int num1;

printf(" Input a number : ");

scanf("%d",&num1);

findFact(num1,&fact);

printf(" The Factorial of %d is : %d \n\n",num1,fact);

return 0;

}

void findFact(int n,int \*f)

{

int i;

\*f =1;

for(i=1;i<=n;i++)

\*f=\*f\*i;

}\*/

/\* Q. 8 Write a program to print largest even number present in an array using

pointer to an array. \*/

/\*#include <stdio.h>

#include <stdlib.h>

void findLargest(int\* arr, int N)

{

int i;

for (i = 1; i < N; i++) {

if (\*arr < \*(arr + i)) {

\*arr = \*(arr + i);

}

}

printf("%d ", \*arr);

}

int main()

{

int i, N = 4;

int\* arr;

arr = (int\*)calloc(N, sizeof(int));

if (arr == NULL) {

printf("No memory allocated");

exit(0);

}

\*(arr + 0) = 14;

\*(arr + 1) = 12;

\*(arr + 2) = 19;

\*(arr + 3) = 20;

findLargest(arr, N);

return 0;

}\*/

/\* Q. 9 WAP to find sum of elements of an array using array of pointer. \*/

/\*#include <stdio.h>

#include <malloc.h>

void main()

{

int i, n, sum = 0;

int \*a;

printf("Enter the size of array A \n");

scanf("%d", &n);

a = (int \*) malloc(n \* sizeof(int));

printf("Enter Elements of the List \n");

for (i = 0; i < n; i++)

{

scanf("%d", a + i);

}

/\* Compute the sum of all elements in the given array \*/

for (i = 0; i < n; i++)

{

sum = sum + \*(a + i);

/\* this (a+i) is used to access the value stored at the address/

}

printf("Sum of all elements in array = %d\n", sum);

return 0;

}\*/

/\* Q. 10 WAP to compute simple interest using pointers. \*/

/\*#include<stdio.h>

#include<conio.h>

void main()

{

float p,r,t,si,\*p1,\*p2,\*p3;

clrscr();

p1=&p;

p2=&r;

p3=&t;

printf("Enter principal amount: ");

scanf("%f",p1);

printf("Enter rate of interest: ");

scanf("%f",p2);

printf("Enter time: ");

scanf("%f",p3);

si=(p1p2\*p3)/100;

printf("\n\nSimple Interest = %f",si);

getch();

}\*/

/\* Q. 11 Write a program to print largest even number present in an array using

pointer to an array. \*/

/\*#include <stdio.h>

#include <stdlib.h>

void findLargest(int\* arr, int N)

{

int i;

for (i = 1; i < N; i++) {

if (\*arr < \*(arr + i)) {

\*arr = \*(arr + i);

}

}

printf("%d ", \*arr);

}

int main()

{

int i, N = 4;

int\* arr;

arr = (int\*)calloc(N, sizeof(int));

if (arr == NULL) {

printf("No memory allocated");

exit(0);

}

\*(arr + 0) = 14;

\*(arr + 1) = 12;

\*(arr + 2) = 19;

\*(arr + 3) = 20;

findLargest(arr, N);

return 0;

}\*/

WEEK-11

/\*1. Write a C function to return the maximum of three

integers.\*/

/\*#include <stdio.h>

int findMaximum(int num1, int num2, int num3) {

int max = num1;

if (num2 > max) {

max = num2;

}

if (num3 > max) {

max = num3;

}

return max;

}

int main() {

int num1, num2, num3;

printf("Enter the first number: ");

scanf("%d", &num1);

printf("Enter the second number: ");

scanf("%d", &num2);

printf("Enter the third number: ");

scanf("%d", &num3);

int maximum = findMaximum(num1, num2, num3);

printf("The maximum number is: %d\n", maximum);

return 0;

}\*/

/\*2. Write a C function to check if a given number is prime or

not.\*/

/\*#include <stdio.h>

int isPrime(int n) {

if (n <= 1) {

return 0;

}

for (int i = 2; i \* i<= n; i++) {

if (n % i == 0) {

return 0;

}

}

return 1;

}

int main() {

int n;

printf("Enter a number: ");

scanf("%d", &n);

if (isPrime(n)) {

printf("%d is a prime number.\n", n);

} else {

printf("%d is not a prime number.\n", n);

}

return 0;

}\*/

/\*3• Write a C function to compute the factorial of a nonnegative integer.\*/

/\*#include <stdio.h>

unsigned long longfactorial(int n) {

if (n < 0) {

return 0;

}

if (n == 0 || n == 1) {

return 1;

}

unsigned long long r = 1;

for (int i = 2; i<= n; i++) {

r \*= i;

}

return r;

}

int main() {

int n;

printf("Enter a non-negative integer: ");

scanf("%d", &n);

unsigned long long r = factorial(n);

printf("The factorial of %d is: %llu\n", n, r);

return 0;

}\*/

/\*4• Write a C function to swap the values of two integers in

actual arguments.\*/

/\*#include <stdio.h>

void swapIntegers(int \*a, int \*b) {

int temp = \*a;

\*a = \*b;

\*b = temp;

}

int main() {

int num1, num2;

printf("Enter the first integer: ");

scanf("%d", &num1);

printf("Enter the second integer: ");

scanf("%d", &num2);

swapIntegers(&num1, &num2);

printf("After swapping:\n");

printf("First integer: %d\n", num1);

printf("Second integer: %d\n", num2);

return 0;

}\*/

/\*5• Write a C function to compute the sum and average of an

array of integers.\*/

/\*#include <stdio.h>

void computeSumAndAverage(int \*arr, int size, int \*sum, float \*average) {

\*sum = 0;

for (int i = 0; i< size; i++) {

\*sum += \*(arr + i);

}

\*average = (float)(\*sum) / size;

}

int main() {

int size;

printf("Enter the size of the array: ");

scanf("%d", &size);

int numbers[size];

printf("Enter the array elements:\n");

for (int i = 0; i< size; i++) {

scanf("%d", &numbers[i]);

}

int sum;

float average;

computeSumAndAverage(numbers, size, &sum, &average);

printf("Sum of the array elements: %d\n", sum);

printf("Average of the array elements: %.2f\n", average);

return 0;

}\*/

/\*6• Write a C function to find the GCD (Greatest Common

Divisor) of two nonnegative integers using Euclid's algorithm.\*/

/\*#include <stdio.h>

int findGCD(int a, int b) {

while (b != 0) {

int temp = b;

b = a % b;

a = temp;

}

return a;

}

int main() {

int num1, num2;

printf("Enter the first non-negative integer: ");

scanf("%d", &num1);

printf("Enter the second non-negative integer: ");

scanf("%d", &num2);

int gcd = findGCD(num1, num2);

printf("The GCD of %d and %d is: %d\n", num1, num2, gcd);

return 0;

}\*/

/\*7• Write a C function to check if a given string is a valid

palindrome, considering only alphanumeric characters and

ignoring cases.\*/

/\*#include <stdio.h>

#include <ctype.h>

#include <string.h>

int isPalindrome(const char \*str) {

int length = strlen(str);

int start = 0;

int end = length - 1;

while (start < end) {

while (!isalnum(str[start]) && start < end) {

start++;

}

while (!isalnum(str[end]) && start < end) {

end--;

}

char char1 = tolower(str[start]);

char char2 = tolower(str[end]);

if (char1 != char2) {

return 0;

}

start++;

end--;

}

return 1;

}

int main() {

char input[100];

printf("Enter a string: ");

fgets(input, sizeof(input), stdin);

input[strcspn(input, "\n")] = '\0';

if (isPalindrome(input)) {

printf("The string is a valid palindrome.\n");

} else {

printf("The string is not a palindrome.\n");

}

return 0;

}\*/

/\*8• Write a C function to calculate the sum and difference of

two complex numbers.\*/

/\*#include <stdio.h>

typedef struct {

float real;

float imaginary;

} ComplexNumber;

void addComplex(ComplexNumber num1, ComplexNumber num2,

ComplexNumber \*result) {

result->real = num1.real + num2.real;

result->imaginary = num1.imaginary + num2.imaginary;

}

void subtractComplex(ComplexNumber num1, ComplexNumber num2,

ComplexNumber \*result) {

result->real = num1.real - num2.real;

result->imaginary = num1.imaginary - num2.imaginary;

}

int main() {

ComplexNumber complex1, complex2, sum, difference;

printf("Enter the real part of the first complex number: ");

scanf("%f", &complex1.real);

printf("Enter the imaginary part of the first complex number: ");

scanf("%f", &complex1.imaginary);

printf("Enter the real part of the second complex number: ");

scanf("%f", &complex2.real);

printf("Enter the imaginary part of the second complex number: ");

scanf("%f", &complex2.imaginary);

addComplex(complex1, complex2, &sum);

subtractComplex(complex1, complex2, &difference);

printf("Sum: %.2f + %.2fi\n", sum.real, sum.imaginary);

printf("Difference: %.2f + %.2fi\n", difference.real, difference.imaginary);

return 0;

}\*/

/\*9• Write a C function to find the second largest and second

smallest elements in an array of integers.\*/

/\*#include <stdio.h>

void findSecondLargestAndSmallest(int arr[], int size, int \*secondLargest, int

\*secondSmallest) {

if (size < 2) {

printf("Array should have at least two elements.\n");

return;

}

\*secondLargest = (arr[0] >arr[1]) ? arr[0] : arr[1];

\*secondSmallest = (arr[0] <arr[1]) ? arr[0] : arr[1];

for (int i = 2; i< size; i++) {

if (arr[i] > \*secondLargest) {

\*secondLargest = arr[i];

} else if (arr[i] < \*secondSmallest) {

\*secondSmallest = arr[i];

}

}

}

int main() {

int size;

printf("Enter the size of the array: ");

scanf("%d", &size);

if (size <= 0) {

printf("Array size should be greater than 0.\n");

return 1;

}

int numbers[size];

printf("Enter the array elements:\n");

for (int i = 0; i< size; i++) {

scanf("%d", &numbers[i]);

}

int secondLargest, secondSmallest;

findSecondLargestAndSmallest(numbers,size,&secondLargest,

&secondSmallest);

printf("Second Largest Element: %d\n", secondLargest);

printf("Second Smallest Element: %d\n", secondSmallest);

return 0;

}\*/

/\*10.• Write a C function to find the number of occurrences of

each unique element in an array.\*/

/\*#include <stdio.h>

void countOccurrences(int arr[], int size) {

int frequency[size];

for (int i = 0; i< size; i++) {

frequency[i] = 0;

}

for (int i = 0; i< size; i++) {

int currentElement = arr[i];

int isEncountered = 0;

for (int j = 0; j <i; j++) {

if (arr[j] == currentElement) {

isEncountered = 1;

break;

}

}

if (!isEncountered) {

int count = 1;

for (int j = i + 1; j < size; j++) {

if (arr[j] == currentElement) {

count++;

}

}

printf("Element %d occurs %d times\n", currentElement, count);

}

}

}

int main() {

int size;

printf("Enter the size of the array: ");

scanf("%d", &size);

if (size <= 0) {

printf("Array size should be greater than 0.\n");

return 1;

}

int numbers[size];

printf("Enter the array elements:\n");

for (int i = 0; i< size; i++) {

scanf("%d", &numbers[i]);

}

countOccurrences(numbers, size);

return 0;\*/

THANK YOU !