**1)If cost price and selling price of an item is input through the keyboard, write a C program to determine whether the seller has made profit or incurred loss. Also determine how much profit he made or loss he incurred.**

#include<bits/stdc++.h>

using namespace std;

int main()

{

    float cost\_price, selling\_price, profit, loss;

    cout <<"Enter the cost price of an item: ";

    cin >> cost\_price;

    cout<< "Enter the selling price of an item: ";

    cin >> selling\_price;

    if (selling\_price > cost\_price)

    {

        profit = selling\_price - cost\_price;

        cout<< "We earn profit by selling item: "<<  profit;

    }

    else if (selling\_price < cost\_price)

    {

        loss = cost\_price - selling\_price;

       cout << "\n We incurred loss on selling item: " <<  loss;

    }

    else

    {

        cout << "\n We don't get any loss and profit on selling item: ";

    }

}

**2)Any Integer is input through the keyboard. Write a program to find out whether it is an odd number or even number.**

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int num;

    cout << "Enter a number: ";

    cin >> num;

    if(num%2==0)

       cout <<"\n The number is even: " << num;

    else

        cout << "\n The number is odd: "  << num;

}

# 3)Check Whether a Year is Leap Year or Not.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int year;

    cout << "Enter the Year: ";

    cin >> year;

    if (year % 4 == 0)

    {

        if (year % 100 == 0)

        {

            if (year % 400 == 0)

            {

                cout << " is a Leap Year: "<< year;

            }

            else

            {

                cout << "is a not Leap Year: "<< year;

            }

        }

        else

        {

           cout << "is a Leap Year: "<< year;

        }

    }

    else

    {

       cout << "is not a Leap year: "<< year;

    }

    return 0;

}

# 4)According to the Gregorian calendar, it was Monday on the date 01/01/01. If any year is input through the keyboard write a program to find out what is the day on 1st January of this year.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int year,a, day = 0;

    printf("Enter a year : ");

    cin >> year;

    for(a = 1; a < year; a++)

    {

        if(a % 4 == 0)

            day = day + 366;

        else

            day = day + 365;

    }

    day = day % 7;

    if(day == 1)

        cout << "It'll be Monday : "<< year;

    if(day == 2)

        cout << "It'll be Tuesday : " << year;

    if(day == 3)

        cout << "It'll be Wednesday : "<< year;

    if(day == 4)

        cout << "It'll be Thursday : "<< year;

    if(day == 5)

        cout << "It'll be Friday : " << year;

    if(day == 6)

        cout << "It'll be Saturday: "<< year;

    if(day == 0)

        cout << "It'll be Sunday: "<< year;

    return 0;

}

# 5)A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int num, n, r\_num=0;

    cout << "Enter a number: ";

    cin >> num;

    n = num;

    while(num!=0)

    {

        r\_num = r\_num \* 10;

        r\_num = num % 10 + r\_num;

        num = num/10;

    }

   cout << " \n Reversed Number: " << n << endl;

   cout << r\_num;

    if (n==r\_num){

        cout <<" \n Input Number & Reversed Number are equal: " << n <<endl;

        cout<< r\_num;

    }

    else{

       cout <<"\n Input Number & Reversed Number are not equal: "<< n << endl;

       cout<< r\_num;

    }

   return 0;

}

# 6)If the ages of Ram, Shyam and Ajay are input through the keyboard, write a program to determine the youngest of the three.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int ram, shyam, ajay;

    cout << "Enter the age of Ram: ";

    cin>>ram;

    cout << "Enter the age of Shyam: ";

    cin >> shyam;

   cout << "Enter the age of Ajay: ";

    cin >> ajay;

    if (ram<=shyam)

    {

        if(ram<=ajay)

        {

            cout << "Ram is the Youngest";

        }

        else

        {

            cout <<"Ajay is the Youngest";

        }

    }

    else if(shyam<=ajay)

    {

        cout <<"Shyam is the Youngest";

    }

    else

    {

        cout << "Ajay is the Youngest";

    }

    return 0;

}

# 7)Given the length and breadth of a rectangle, write a program to find whether the area of the rectangle is greater than its perimeter. For example, the area of the rectangle with length=5 and breadth=4 is greater than its perimeter.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    float length, breadth, area, perimeter;

    cout <<"Enter the length of rectangle: ";

    cin >>length;

    cout <<"Enter the breadth of rectangle: ";

    cin >>breadth;

    area = length \* breadth;

    perimeter = 2 \* (length+breadth);

    cout <<"\n The area of rectangle: "<< area;

    cout <<"\n The perimeter of rectangle: " << perimeter;

    if (area>perimeter)

        cout << "\n Area of rectangle is greater than it's perimeter";

    else

        cout << "\n Perimeter of rectangle is greater than it's area";

} Program To Check If Three Points Are On One Straight Line

### 8) C Program To Check If Three Points Are On One Straight Line.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    float x1, y1, x2, y2, x3, y3, m, n;

    cout << "\n Enter points (x1, y1): ";

    cin >> x1 >> y1;

    cout << "\n Enter points (x2, y2): ";

    cin >> x2 >> y2;

    cout << "\n Enter points (x3, y3): ";

    cin >> x3 >> y3;

    m = (y2 - y1) / (x2 - x1);

    n = (y3 - y2) / (x3 - x2);

    if( m == n)

    {

        cout << "\n All 3 points lie on the same line";

    }

    else

    {

        cout << "\n All 3 points do not lie on the same line";

    }

    return 0;

}

# 9) Given the coordinates (x, y) of center of a circle and its radius, write a program which will determine whether a point lies inside the circle, on the circle or outside the circle. (Hint: Use sqrt() and pow() functions).

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int x1, y1, x2, y2, radius;

    float distance;

    cout <<"Enter the center point(x1, y1): ";

        cin >> x1 >>  y1;

    cout <<"Enter radius of the circle: ";

        cin >> radius;

    cout <<"Enter the point(x2, y2) to check its position: ";

        cin >> x2 >> y2;

        distance = sqrt(pow(x2-x1, 2)+pow(y2-y1,2));

    if(distance < radius)

    {

        cout <<"Point is inside the Circle: " << x2 << y2;

    }

    else if(distance > radius)

    {

        cout <<"Point is outside the Circle: " << x2 << y2;

    }

    else

    {

        cout <<"Point is on the Circle: " << x2  << y2;

    }

    return 0;

}

# 10)Given a point (x, y), write a program to find out if it lies on the x-axis, y-axis or on the origin.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int x1, y1;

    cout << "Enter the co-ordinates of point: ";

    cin >> x1 >> y1;

    if(x1 == 0 && y1 !=0)

        cout <<"Point lies on y-axis: " << x1 << y1;

    else if (x1 !=0 && y1 == 0)

        cout <<"Point lies on x-axis: " << x1 << y1;

    else if (x1 == 0 && y1 == 0)

        cout <<"Point  lies on the origin: " << x1 << y1;

    else

        cout <<"Point  neither lie on x-axis nor on y-axis: " << x1 << y1;

    return 0;

}