```
/** A 2D POINTB FROMED BY FLOATS **/

public class Point2Df {
        public float x,y;
        /** Creates a new instance of Point2Df */
        public Point2Df() {
        }
}


/** METHODS TO CALCULATE THE AREA AND CENTROID OF A POLYGON
    INSERT THEM INTO THE CORRESPONDING CLASS **/
public double SignedPolygonArea(Point[] polygon,int N)
{
        Polygon P;
        int i,j;
        double area = 0;

        for (i=0;i<N;i++) {
                j = (i + 1) % N;
                area += polygon[i].x * polygon[j].y;
                area -= polygon[i].y * polygon[j].x;
        }
        area /= 2.0;

   return(area);
        //return(area < 0 ? -area : area); for unsigned
}


/* CENTROID */

public Point2Df PolygonCenterOfMass(Point[] polygon,int N)
{
        float cx=0,cy=0;
        float A=(float)SignedPolygonArea(polygon,N);
        Point2Df res=new Point2Df();
        int i,j;

        float factor=0;
        for (i=0;i<N;i++) {
                j = (i + 1) % N;
                factor=(polygon[i].x*polygon[j].y-polygon[j].x*polygon[i].y);
                cx+=(polygon[i].x+polygon[j].x)*factor;
                cy+=(polygon[i].y+polygon[j].y)*factor;
        }
        A*=6.0f;
        factor=1/A;
        cx*=factor;
        cy*=factor;
        res.x=cx;
        res.y=cy;
        return res;
}
```