Subject: Re: Point inside/outside a polygon?
Posted by James Kuyper on Mon, 13 Aug 2001 16:07:39 GMT
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Med Bennett wrote:
>
> Here is what I ended up with when I had to solve this problem a few years
> back:
>
> 1) define a point that is outside of the polygon - easy enough.
>
> 2) define a line from the point in question to your outside point, say
> A-A'.
>
> 3) Count the number of times that this line crosses any of the line
> segments making up the polygon. If it's an even number, your point is
> outside the polygon. If it's odd, your point is inside the polygon.
>
> It's easy to see why this works geometrically with a simple drawing, and
> it's pretty straightforward to code. David's method appears to be more
> computationally efficient, as it avoids loops, but I don't fully understand
> why it works. I'd be happy to send you my actual code if you'd like. The

For a point on the inside of a polygon, travelling around the polygon
involves a net angular motion of 360 degrees around that point. For a
point outside the polygon, the net angular change must be 0 degrees.
It's easier to see that this is so, if you first consider a simple
convex polygon, but it remains true even if it's not convex.