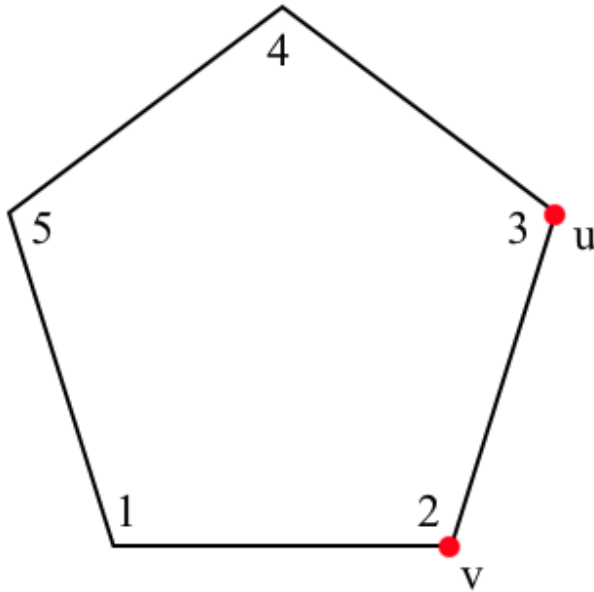


How to sort vertices of a polygon in counter clockwise order?

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- 3 I want to create a function (algorithm) which compares two vectors $\vec{v} \rightarrow$ and $\vec{u} \rightarrow$ which are vertices in a polygon. It should choose the vertex which counter clockwise index inside the polygon is higher. The first index should be the bottom left vertex.



In this example it should choose $\vec{u} \rightarrow$.

For the first quadrant I can say that $\vec{u} > \vec{v}$ if $|\vec{u}| > |\vec{v}|$ and $\forall \vec{u} > \vec{v} \forall \vec{u} \rightarrow > \vec{v} \rightarrow$. The length should be weighted more than the angle in order that vertex 1 gets a lower index than vertex 2. But this rule only works for the first quadrant. I could first move the whole polygon into the first quadrant but I want to find a better solution. Any ideas?

geometry vectors polygons

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edited Oct 17 '14 at 19:32

asked Oct 17 '14 at 19:11



VoidCatz

40 1 6

Are you looking for an analytical function or an algorithm? For the second case you could just loop over the vertices numbers. – [anderstood](#) Oct 17 '14 at 19:15

Counter clockwise index from *where*? Are you assuming that your polygons are convex? – [Steven Stadnicki](#) Oct 17 '14 at 19:15

Otherwise you can check the sign of the angles (u,v) but it depends on the center and could be complicated if the polygon is complex. – [anderstood](#) Oct 17 '14 at 19:17

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2 Answers

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- 7 If your polygon is convex, take any point in the interior of the polygon, e.g. the average of all the vertices. Then you can compute the angle of each vertex to the center point, and sort according to the computed angles. This will work for any point inside the polygon. Note you will get a circular ordering.

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answered Oct 17 '14 at 19:16



[user2566092](#)

21.2k 18 45

Thanks for your contribution. – [VoidCatz](#) Oct 17 '14 at 19:37

Some background from [Wikipedia](#). – [Vorac](#) May 11 '16 at 13:37
