AIT-BUDAPEST

AQUINCUM INSTITUTE OF TECHNOLOGY

COMPUTER GRAPHICS

Homework assignment example

VECTOR GRAPHICS EDITOR

Background:

Students received this assignment after practical sessions where they have already implemented drawing Bezier and Lagrange curves, and adding new control points using mouse clicks. The assignment requires them to apply their knowledge to different types of curves (which is not automatic), and to add new editing features, demonstrating their understanding of the event based application model.

The assignment text was as follows:

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Write a small vector graphics editor!

You need to support:

- polylines

- Lagrange or Bezier curves (pick one)

- Catmull-Clark subdivision curves or Catmull-Rom splines (pick one)

The program must be able to display any (reasonable) number of such objects. The color
of the objects depends on their type, but none of them is blue. Zero or one object can
be selected. The selected object is displayed in blue, and with double width.

The user can create objects by pressing down the 'P', 'L', 'B', 'C', or 'R' key ---
Polyline, Lagrange, Bezier, Catmull-Clark, or Catmull-Rom, respectively. Control points
can be added by mouse clicks as long as the key is held down. The object being created
is the selected one, and is drawn as such.

When no keys are pressed and the user presses the mouse button, the object at the mouse
cursor (if there is any) becomes selected. As long as the mouse button remains pressed,
mouse movements drag the selected object. When the button is released, the object
remains selected.

When an object is selected, the user may hold down 'A' to add control points to the
selected object.

When an object is selected, pressing the 'F' key should turn the curve into a polygon
that fills the curve.
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See curves.avi for an example of a complete solution.