Computer Graphics, Lab Assignment 11

Handed out: May 18, 2021

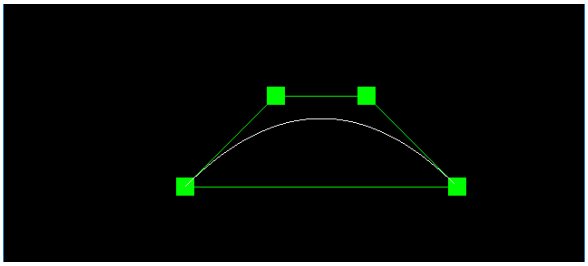
Due: 23:59, May 18, 2021 (NO SCORE for late submissions!)

- *Only accept answers submitted via git push to this course project for you at https://hconnect.hanyang.ac.kr (<Year>_<Course no.>_<Class code>/<Year>_<Course no.>_<Student ID>.git).*
- *Place your files under the directory structure <Assignment name>/<Problem no.>/<your file> just like the following example.*

```
+ 2021_ITE0000_2019000001
  + LabAssignment11/
    + 1/
      - 1.py
    + 2/
      - 2.py
    + 3/
      - 3.py
```

- *The submission time is determined not when the commit is made but when the git push is made.*

1. Write down a Python program to visualize a Bezier curve.
   A. Start from uploaded LabAssignment11-1-code-skeleton.py, modify this program to draw a Bezier curve instead of a line
   B. About LabAssignment11-1-code-skeleton.py:
      i. It draws a line segment between two end points.
      ii. You can drag the end points.
   C. Use **de Casteljau's Algorithm** to compute Bezier curve.
   D. In your modified program, control points p0, p1, p2, p3 should be draggable and rendered in green.
   E. Draw the edges of the control polygon in green as well.

i. 

F. Initial value of control points:

i.
```
p0 = np.array([100.,200.])
p1 = np.array([200.,300.])
p2 = np.array([300.,300.])
p3 = np.array([400.,200.])
```

G. Set the window title to **your student ID** and the window size to (480,480).

H. Expected result: Uploaded LabAssignment11-1.mp4

I. Files to submit: A Python source file (Name the file whatever you want (in English). Extension should be .py)