**Assignment 6**

DUE DATE:  Apr. 12, 2015

**Purpose:**. Practice in curved surfaces

Add the capability to your Assignment 05 to create and view cubic surfaces.

This assignment modifies the "Load and Display Objects" command in your assignment 05 such that it can read the geometry vectors of cubic Bezier patches by reading the coordinates of the control points from an input file. There will be 16 points for each surface patch. Maximum number of cubic patches is 100. The order for the points is P11,P12, ... P44 .

The following command should also be added to the previous commands

**:Decrement / Increment resolution of Bezier patches: "r" and "R" keys**Hitting the "r" key should decrement the resolution of Bezier patches by 1. The minimum possible resolution is 1.

Hitting the "R" key should increment the resolution of the Bezier patches by one. The maximum possible patch resolution should be set to 100.

Notice that this Lab adds additional functionality to your Assignment 05. All the previous functionalities should stay the same.

Format of the data file:

n <n>      //resolution of the patches in both u and v directions

b <x1> <y1> <z1>  //Control point p11

b <x2> <y2> <z2>  //Control point p12

b <x3> <y3> <z3>  //Control point p13

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b <x16> <y16> <z16>  //Control point p44 (first patch ends here)

b <x1> <y1> <z1>  //Control point p11 (second patch starts here)

b <x2> <y2> <z2>  //Control point p12

b <x3> <y3> <z3>  //Control point p13

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b <x16> <y16> <z16>  //Control point p44 (second patch ends here)

b <x1> <y1> <z1>  //Control point p11 (third patch starts here).

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v <x1> <y1> <z1>  //Define a vertex (The same as Lab 3)

v <x2> <y2> <z2>

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v <xn> <yn> <zn>

f <u1> <v1> <w1> //Define a face (u,v, and w are integers)

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Notes:

The cubic patches should be displayed by a polygon mesh of triangles.

The data (vertices and faces) which is read by the "Load and Display Objects"(in assignment 05) should also be displayed along with the cubic patch(es).