

Chapter 3

Surface and Curve Modeling

Learning Objectives

After completing this chapter, you will be able to:

- *Work with surface primitives*
- *Use the curve tools for creating different models*
- *Use the Rotoscopic technique*
- *Modify the surface geometry*

INTRODUCTION

Surface is one of the basic types of renderable geometry which can be used to create smooth, precise, and seamless models. Surfaces are NURBS (Non-uniform rational basis spline) patches that can be mathematically represented as 3D models. The surface objects have less subdivisions than polygon objects and they are ideal for creating objects such as car, bike, aeroplane, and so on. Surface objects have many components such as points, knots, knot curves, NURBS boundaries, isolines, surface curves, trim curves, samples, and subsurfaces. There are seven types of surface primitives available in Softimage: Cone, Cube, Cylinder, Disc, Grid, Sphere, and Torus.

The NURBS patches are the interconnected patchwork of smaller surfaces defined by intersecting NURBS curves. NURBS curves are linear (degree 1) or cubic (degree 3) and help you to create complex meshes and surfaces easily. In this chapter, you will create models by using various curve and surface modeling techniques.

TUTORIALS

Before you start the tutorials, you need to download the *c03_softimage_2013_tut.zip* file from www.cadcim.com. The path of this file is as follows: *Textbooks > Animation and Visual Effects > Softimage > Autodesk Softimage 2013: A Tutorial Approach*

Next, extract the contents of the zip file to *|Documents*.

Tutorial 1

In this tutorial, you will create a sea beach scene by using surface primitives, as shown in Figure 3-1. **(Expected time: 40 min)**

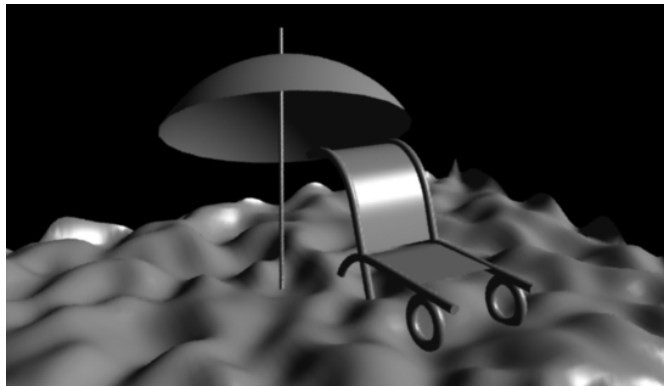


Figure 3-1 The sea beach scene

The following steps are required to complete this tutorial:

- a. Create the project folder.
- b. Create a beach surface.
- c. Create a beach umbrella.

- d. Create the seat supports of the chair.
- e. Create a seat of the chair.
- f. Create a back support of the chair.
- g. Create the wheels for the chair.
- h. Save and render the scene.

Creating the Project Folder

Create a new project folder with the name *c03_tut1* at *\Documents\Softimage_Projects* and then save the file with the name **c03_tut_01**, as discussed in Tutorial 1 of Chapter 2.

Creating the Beach Surface

In this section, you will create a beach surface.

1. Choose **Model > Get > Primitive > Surface > Grid** from the main toolbar; the **Scene_Root : grid (General)** property editor is displayed. In this property editor, enter **surface** in the **Name** edit box.
2. In the **Grid** property set, enter **30** and **20** in the **U Length** and **V Length** edit boxes, respectively.
3. In the **Geometry** property set, enter **30** and **20** in the **U** and **V** edit boxes of the **Subdivisions** area, respectively. Next, close the property editor; a grid with the name *surface* is created in all viewports.
4. Make sure the Camera viewport is maximized. Next, press T; the **Point** mode is activated. Now, select the points randomly on *surface* by using the SHIFT key and then press V; the **Translate Tool** is activated.
5. Move the points along the Y axis to create a bump shape. Next, press the + (plus) key once; the surface becomes smooth. Now, press SPACEBAR; the **Object** mode is activated.

Next, switch to previous state by pressing the - (minus) key.

6. Choose the Display Mode button from the Viewport menu bar; a Display Mode menu is displayed. Next, choose **Shaded** from the menu; *surface* in the viewport is displayed in shaded mode, as shown in Figure 3-2. Press F12 to view all viewports.

Creating the Beach Umbrella

In this section, you will create a beach umbrella.

1. Choose **Model > Get > Primitive > Surface > Cylinder** from the main toolbar; the **Scene_Root : cylinder (General)** property editor is displayed. In this property editor, enter **pole** in the **Name** edit box.
2. In the **Cylinder** property set, enter **0.09** and **8** in the **Radius** and **Height** edit boxes, respectively.

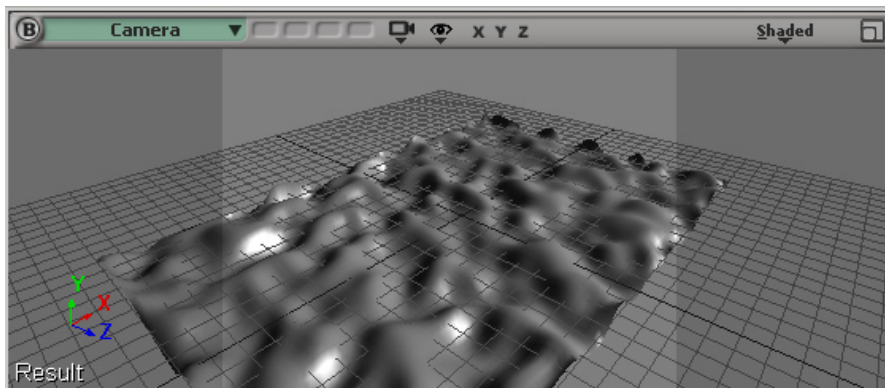


Figure 3-2 The surface displayed in the shaded view

3. In the **Geometry** property set, enter **6** in the **V** edit box of the **Subdivisions** area. Next, close the **Scene_Root : cylinder (General)** property editor; a cylinder with the name *pole* is displayed in all viewports.
4. Make sure that *pole* is selected in all viewports. Next, set values for the following parameters in the **Transform** subpanel of the Main Command Panel:

s area

x: **0.9** y: **1.25** z: **0.9**

r area

x: **-29** y: **-27**

t area

x: **1.50** y: **4.7** z: **-3.4**

Next, you will create the canopy of the beach umbrella.

5. Choose **Model > Get > Primitive > Surface > Sphere** from the main toolbar; the **Scene_Root: sphere (General)** property editor is displayed. In this property editor, enter **canopy** in the **Name** edit box.
6. In the **Sphere** property set of the property editor, enter **5** in the **Radius** edit box. Next, enter **60** in the **End V** edit box in the **Extent** property set of the **Angles** area. Now, close the **Scene_Root : sphere (General)** property editor; a sphere with the name *canopy* is displayed in all viewports.
7. Make sure that *canopy* is selected in all viewports. Next, set values for the following parameters in the **Transform** subpanel of the Main Command Panel:

s area

x: **1.4** y: **1.4** z: **1.4**

r area

x: **-28** y: **-22** z: **0.4**

t area

x: **1.4** y: **2.3** z: **-2.6**

After entering the values, the *canopy* is aligned to the top of the *pole* in all viewports, as shown in Figure 3-3.

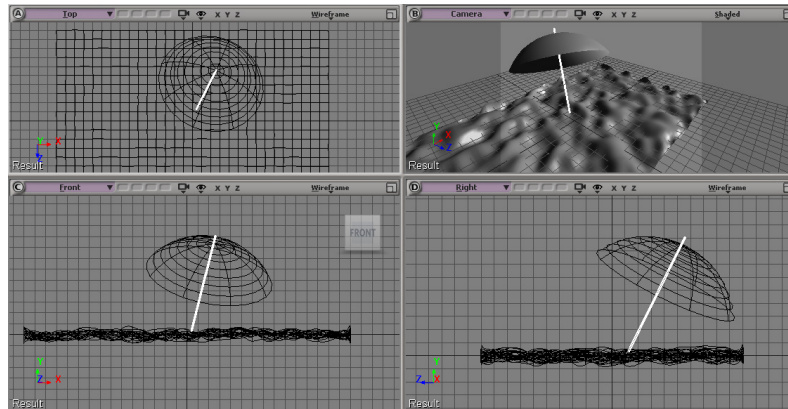


Figure 3-3 The canopy aligned to the top of the pole in all viewports

Creating the Seat Supports of the Chair

In this section, you will create seat supports of the chair by using the surface geometry.

1. Choose **Model > Get > Primitive > Surface > Cylinder** from the main toolbar; the **Scene_Root : cylinder# (General)** property editor is displayed. In this property editor, enter **seatsupport1** in the **Name** edit box.
2. In the **Cylinder** property set, enter **0.15** and **8** in the **Radius** and **Height** edit boxes, respectively.
3. In the **Geometry** property set, enter **10** and **8** in the **U** and **V** edit boxes of the **Subdivisions** area, respectively. Next, close the **Scene_Root : cylinder# (General)** property editor; a cylinder with the name *seatsupport1* is displayed in all viewports.

Next, you will bend *seatsupport1*.

4. Make sure that *seatsupport1* is selected in all viewports. Choose **Model > Modify > Deform > Bend** from the main toolbar; the **Scene_Root : seatsupport1 : NURBS Surface Mesh : Bend Op** property editor is displayed, as shown in Figure 3-4. In this property editor, enter **90** in the **Bend Direction** edit box in the **Direction** area and then enter **0.7** in the **Y** edit box in the **Offset** area. Next, close the property editor; the shape of *seatsupport1* is changed.

The **Bend** deformer is used to bend an object by specifying the angle, axis, and radius.

- Set the values for the following parameters in the **Transform** subpanel of the Main Command Panel:

r area

x: -90

t area

x: 2.15

y: 1.6

z: 2.4

After entering the values, *seatsupport1* is displayed in all viewports, as shown in Figure 3-5.

Next, you will duplicate the *seatsupport1*.

- Press CTRL+D; the duplicate copy of *seatsupport1* is created with the name *seatsupport2*.
- Enter 5.1 in the **x** edit box of the **t** area in the **Transform** subpanel of the Main Command Panel; *seatsupport2* is aligned with *seatsupport1*, as shown in Figure 3-6.

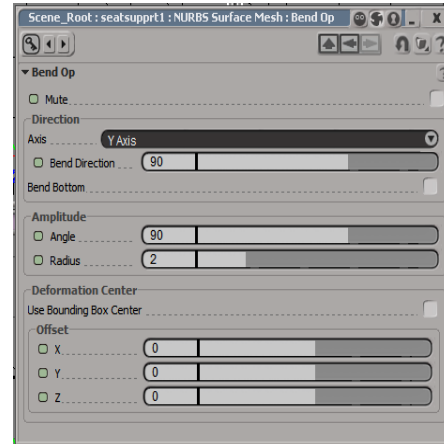


Figure 3-4 The *Scene_Root : seatsupport1 : NURBS Surface Mesh : Bend Op* property editor

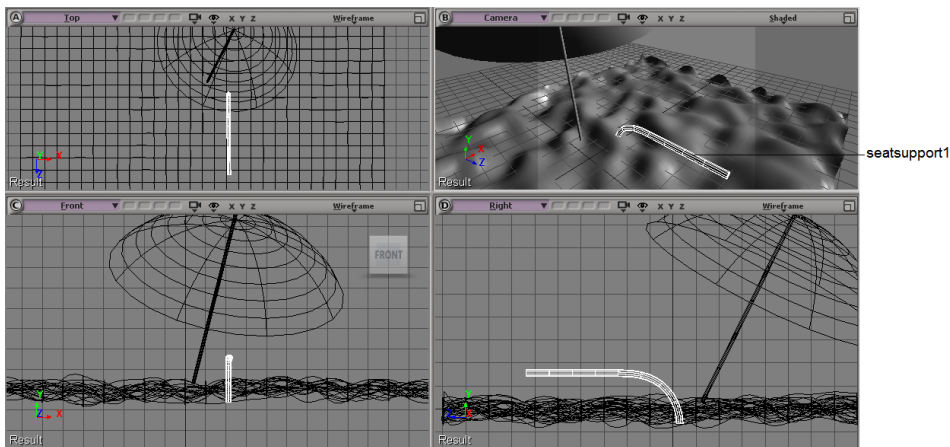


Figure 3-5 The *seatsupport1* displayed on the beach surface

Creating a Seat of the Chair

In this section, you will create the seat of the chair by using the surface geometry.

- Choose **Model > Get > Primitive > Surface > Grid** from the main toolbar; the **Scene_Root : grid# (General)** property editor is displayed. In this property editor, enter **seat** in the **Name** edit box.

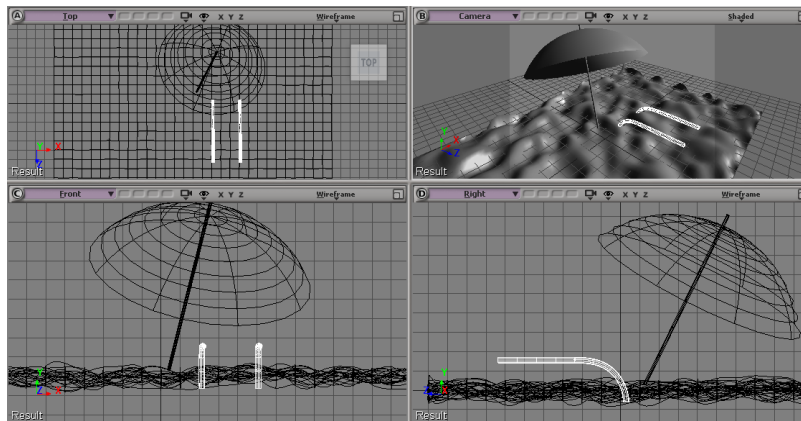


Figure 3-6 Alignment of seatsupport1 and seatsupport2

2. In the **Geometry** property set, enter **10** in the **U** and **V** edit boxes of the **Subdivisions** area, respectively. Next, close the property editor; a grid with the name *seat* is created in all viewports.
3. Set the values for the following parameters in the **Transform** subpanel of the Main Command Panel:

s area

x: **0.35** y: **0.03** z: **0.5**

r area

x: **-1.5** z: **0.04**

t area

x: **3.6** y: **1.6** z: **2.6**

After entering the values, *seat* is placed over the seat supports.

Next, you will modify the shape of *seat* to fit it on the seat supports.

4. Press T; the **Point** mode is activated. Next, marquee select the points from the Right viewport, refer to Figure 3-7.
5. Press the V key; the **Translate Tool** is activated. Now, move the selected points to define the shape of the seat. Again press the V key; the **Translate Tool** gets deactivated. Next, marquee select the points from the Front viewport, refer to Figure 3-7 and then activate the **Translate Tool** to align the points to get the shape of the seat, refer to Figure 3-8.

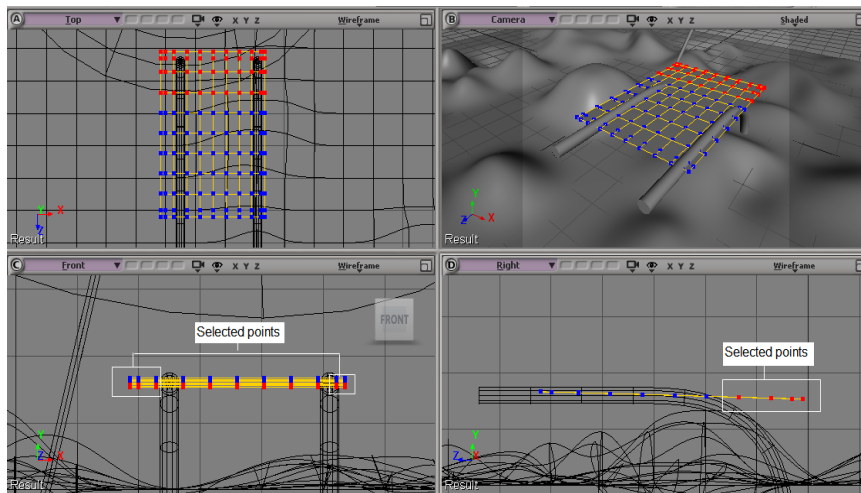


Figure 3-7 Points selected in the viewports

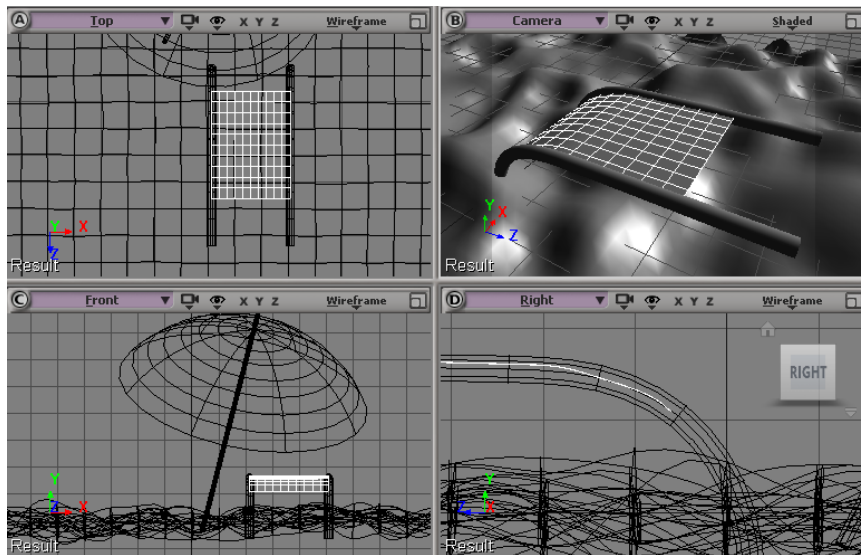


Figure 3-8 The modified shape of the seat

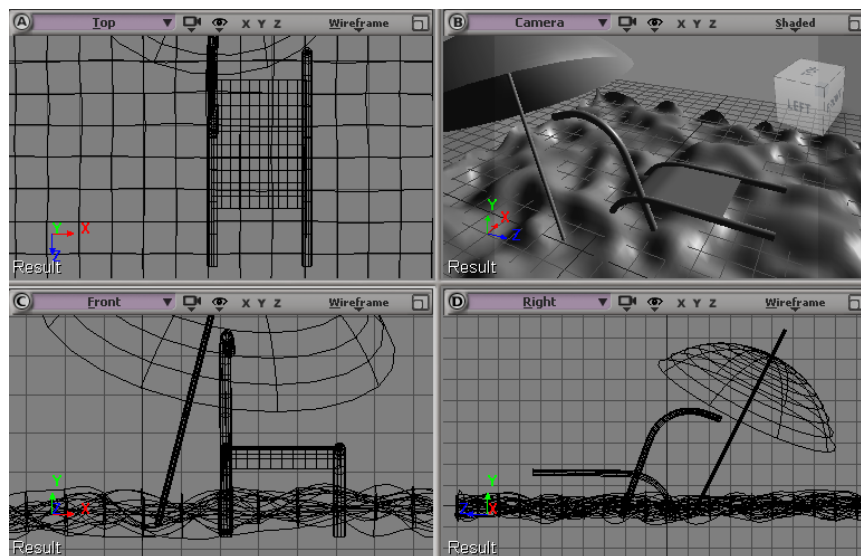
Creating the Back Supports of the Chair

In this section, you will create the back support of the chair.

1. Choose **Model > Get > Primitive > Surface > Cylinder** from the main toolbar; the **Scene_Root : cylinder# (General)** property editor is displayed. In this property editor, enter **backsupport1** in the **Name** edit box.
2. In the **Cylinder** property set, enter **0.15** and **8** in the **Radius** and **Height** edit boxes, respectively.

- Next, you will bend *backsupport1*.

- After entering the values, *backsupport1* is aligned with *seatsupport1*, as shown in Figure 3-9.



Next, you will duplicate *backsupport1*.

- Press CTRL+D; the duplicate of *backsupport1* is created with the name *backsupport2*.

8. Enter **4.95** in the **x** edit box in the **t** area of the **Transform** subpanel of the Main Command Panel; *backsupport2* is aligned with *seatsupport2*, as shown in Figure 3-10.

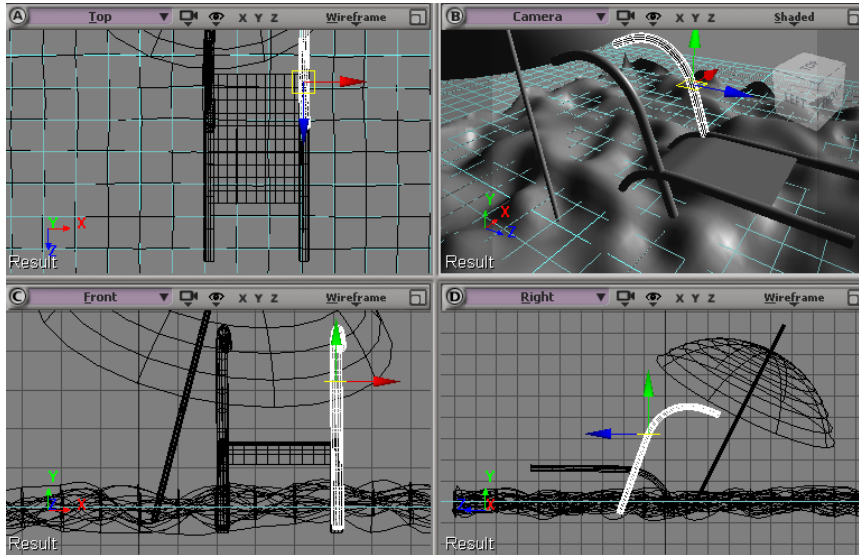


Figure 3-10 The alignment of *backsupport2* with *seatsupport2*

Next, you will create the back part of the back supports.

9. Choose **Model > Get > Primitive > Surface > Grid** from the main toolbar; the **Scene_Root: grid# (General)** property editor is displayed. In this property editor, enter **backsupport3** in the **Name** edit box.
10. In the **Geometry** property set, enter **10** in the both **U** and **V** edit boxes of the **Subdivisions** area, respectively. Next, close the property editor; a grid with the name *backsupport3* is created in all viewpoints.
11. Set values for the following parameters in the **Transform** subpanel of the Main Command Panel:

s area
x: **0.37**

z: **0.58**

r area
x: **72.4**

t area
x: **3.60** y: **3.34** z: **0.7**

After entering the values, *backsupport3* is placed between *backsupport1* and *backsupport2*, as shown in Figure 3-11.

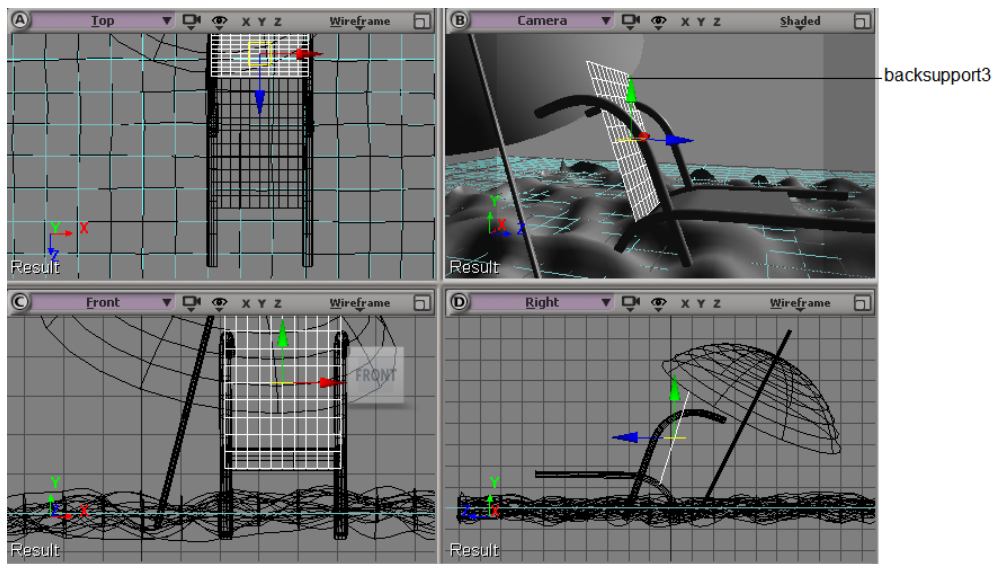


Figure 3-11 The backsupport3 placed between backsupport1 and backsupport2

12. Next, press T; the **Point** mode is activated. Next, adjust the points of backsupport3 on backsupport1 and backsupport2 to get the shape, as discussed earlier.

Figure 3-12 shows the modified shape of backsupport3.

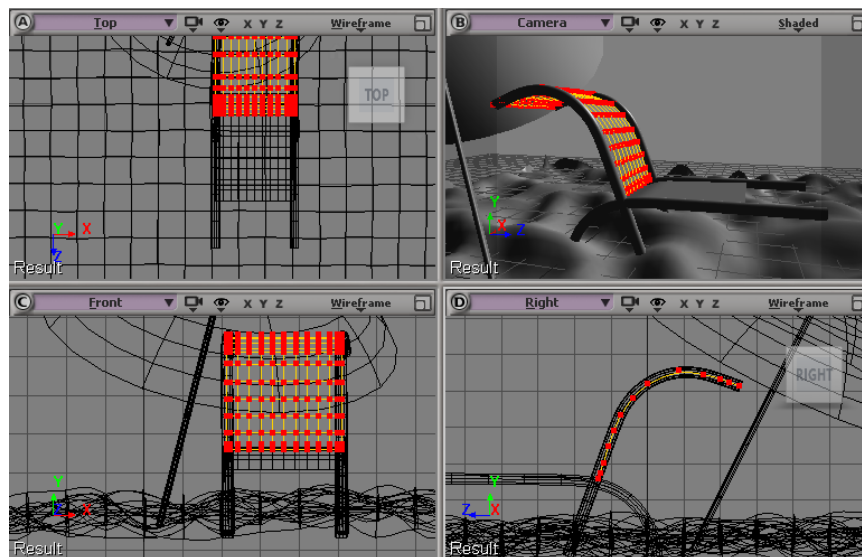


Figure 3-12 The shape of backsupport3 changed

Creating the Wheels for the Chair

In this section, you will create wheels for the chair.

1. Choose **Model > Get > Primitive > Surface > Torus** from the main toolbar; the **Scene_Root : torus : General** property editor is displayed. In this property editor, enter **wheel1** in the **Name** edit box.
2. In the **Torus** property set, enter **1.03** and **0.25** in the **Main** and **Cross Section** edit boxes of the **Radius** area, respectively. Next, close the property editor; a torus with the name *wheel1* is created in all viewports.
3. Set the values for the following parameters in the **Transform** subpanel of the Main Command Panel:

s area

x: **0.7**

y: **0.7**

z: **0.7**

r area

z: **90**

t area

x: **2.22**

y: **0.58**

z: **5**

After entering the values, *wheel1* is placed in all viewports, as shown in Figure 3-13.

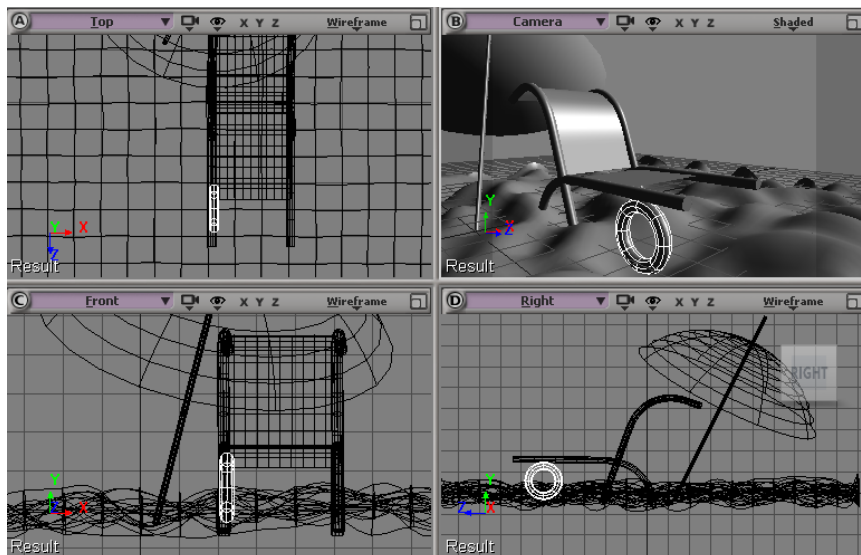


Figure 3-13 Placing *wheel1* in all viewports

4. Press CTRL+D; the duplicate of *wheel1* is created with the name *wheel2*. Next, align *wheel2* in all viewports, refer to Figure 3-14.

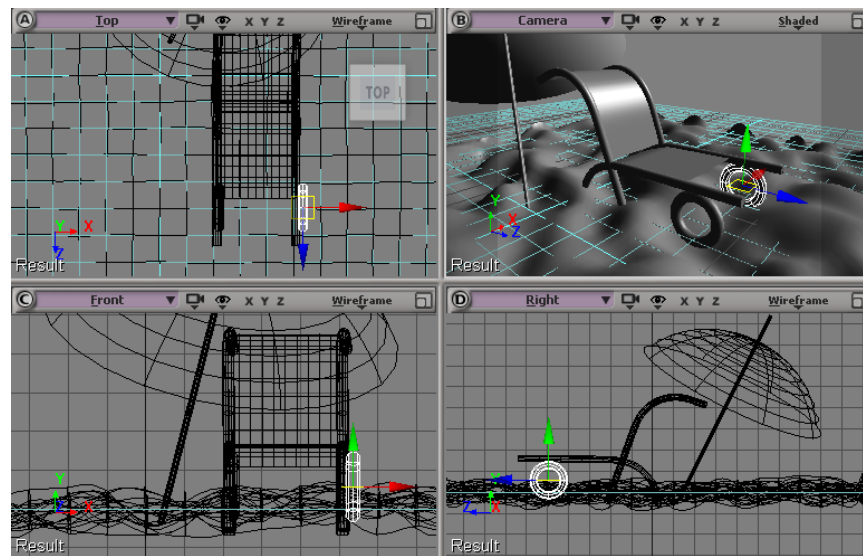


Figure 3-14 Aligning wheel1 and wheel2 in all viewports

Saving and Rendering the Scene

In this section, you will save the scene that you have created and then render it. You can view the final rendered image of this scene by downloading the *c03_softimage_2013_rndr.zip* file from www.cadcam.com. The path of this file is as follows: *Textbooks > Animation and Visual Effects > Softimage > Autodesk Softimage 2013: A Tutorial Approach*

1. Choose **File > Save** from the menu bar.
2. Activate the Camera viewport and then set the camera angle in it as per your requirement.
3. Choose **Render > Render > Regions > Region Tool** from the menu bar; a cascading menu is displayed. Next, choose **Region Tool** from the cascading menu; the tool is activated and the shape of the cursor is changed.
4. Draw a rectangular region around the area you want to render; the area enclosed within the rectangular region is rendered, refer to Figure 3-15.

You can also activate the **Region Tool** by pressing Q. To increase the quality of the render, use the quality slider located at the right of the region window, refer to Figure 3-15. When you click on the black triangle located at the top left corner of the render region window, a flyout is displayed. You can use this flyout to refresh or hide the window. It can also be used to select the channels to be viewed in this window, refer to Figure 3-16.

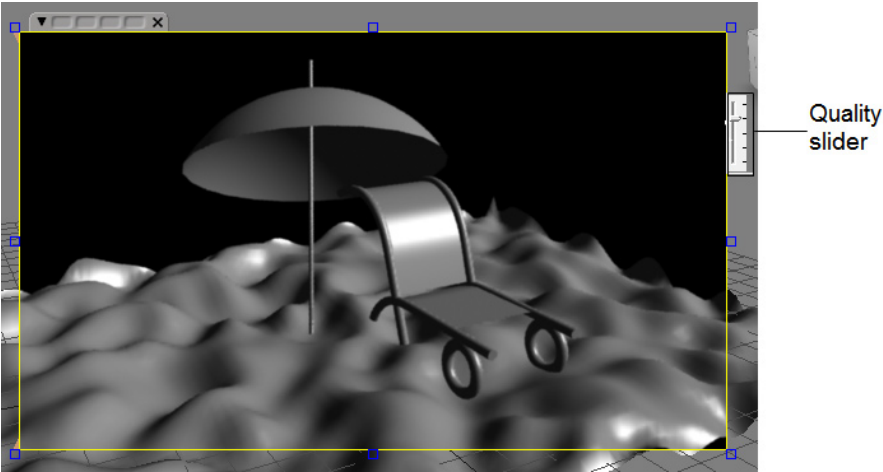


Figure 3-15 The render region window and the quality slider

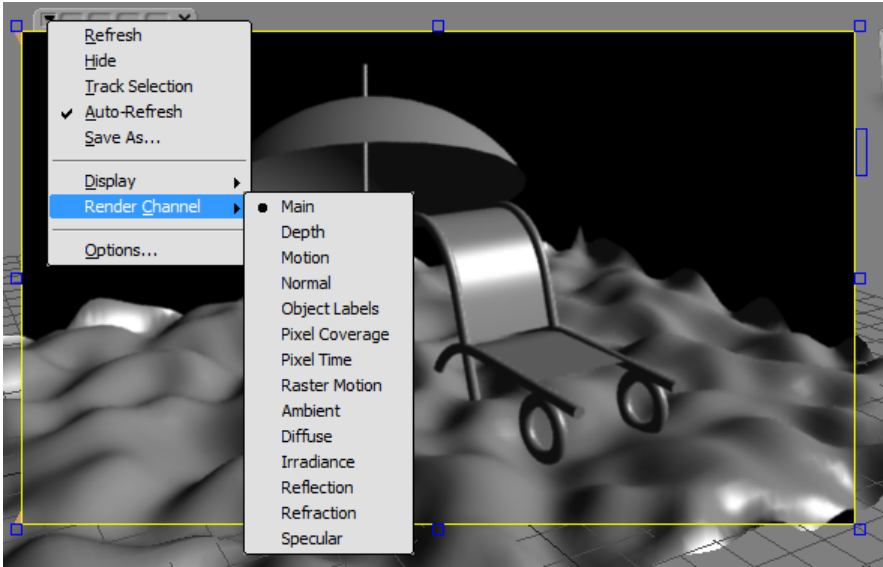


Figure 3-16 The flyout displayed on clicking the black triangle

Tutorial 2

In this tutorial, you will create a pot, a bottle, and a vase. You will use curve tool to create the pot, the rotoscopy method to create the bottle, and the loft method to create the vase, as shown in Figure 3-17. **(Expected time: 30 min)**

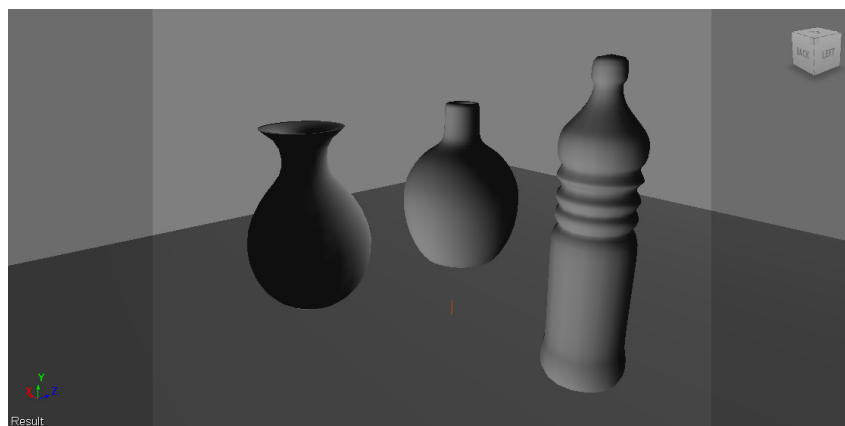


Figure 3-17 Models to be created

The following steps are required to complete this tutorial:

- a. Create the project folder.
- b. Create a pot.
- c. Create a bottle.
- d. Create a vase.
- e. Save and render the scene.

Creating the Project Folder

Create a new project folder with the name `c03_tut2` at `|Documents\Softimage_Projects` and then save the file with the name `c03_tut_02`, as discussed in Tutorial 1 of Chapter 2.

Creating a Pot

In this section, you will create a pot model by using curves.

1. Open the Windows Explorer and then browse to `|Documents\c03_softimage_2013_tut`. Next, copy the `glass-water-bottles-1.jpg` to `|Documents\Softimage_Projects\c03_tut2\Pictures`.
2. Choose **Model > Create > Curve** from the main toolbar; a flyout is displayed. Next, choose **Draw Cubic by CVs** from the flyout; the shape of the cursor changes to pen shape.
3. Activate the Front viewport and then press F12 to maximize it. Next, click on different places in the viewport to create a curve, as shown in Figure 3-18. Press ESC to exit the **Draw Cubic by CVs** tool. Alternatively, right-click; a shortcut menu is displayed. Next, choose **Exit Tool** from the shortcut menu.

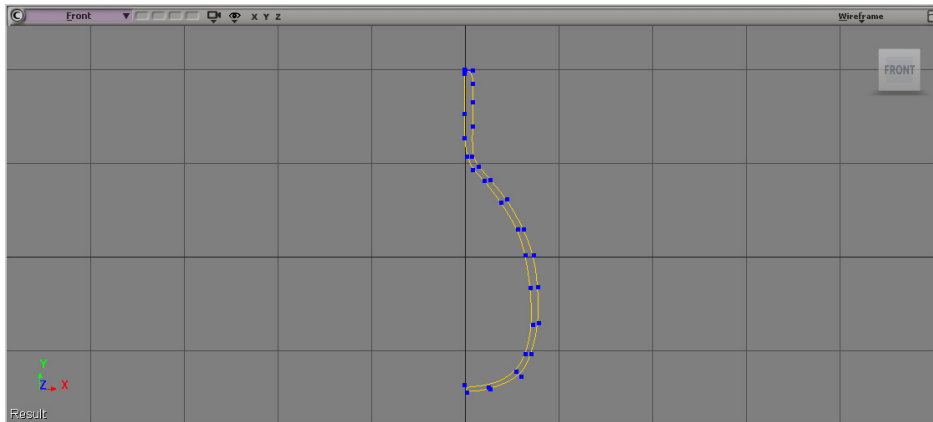


Figure 3-18 Shape of the curve displayed in the viewport



Tip: If you want to tweak the shape of the curve, choose **Model > Modify > Curve > Tweak Curve** from the main toolbar; the shape of cursor changes and then adjust the points on the curve. Alternatively, press **M**.

Next, you will apply the **Revolution Around Axis** tool to the curve to create a model.

4. Activate the Camera viewport and then press F12; the Camera viewport is maximized. Choose the Display Mode button from the Viewport menu bar; a Display Mode menu is displayed. Next, choose **Shaded** from the menu; the geometry in the viewport is displayed shaded.
5. Choose **Model > Create > Surf. Mesh > Revolution Around Axis** from the main toolbar; the **Scene_Root : sufmesh : NURB Surface Mesh : Revolution** property editor is displayed. In this property editor, enter **3** in both the **U** and **V** edit boxes of the **Subdivisions** area, respectively; the surface mesh is created, refer to Figure 3-19. Next, close the property editor.

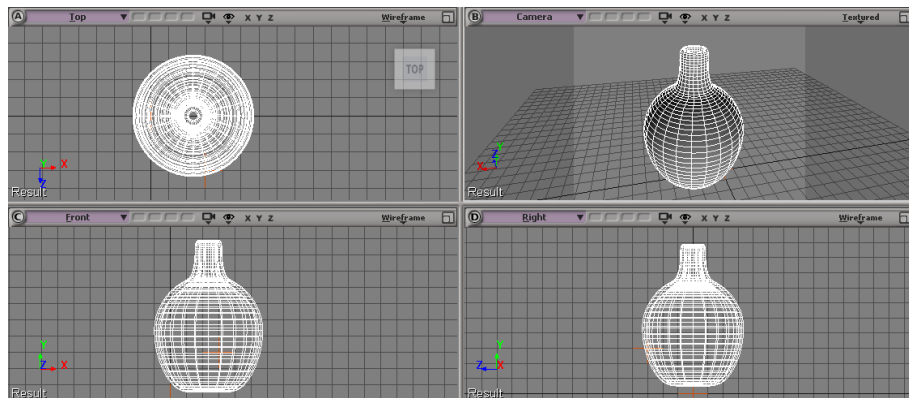


Figure 3-19 The shape of the pot created in the viewport

- Notice that the color of the pot is displayed as black instead of default grey. To rectify this, choose **Model > Modify > Surf. Mesh**; a flyout is displayed. Next, choose **Invert Normals** from the flyout; the color of the pot is now changed to default grey, refer to Figure 3-20. Next, move this object to a different location so that you can create another objects.



Note

*Revolution of an entity or curve about different axes (X, Y, and Z) from the **Scene_Root : sufmsH : NURB Surface Mesh : Revolution** property editor results in creation of different shapes.*

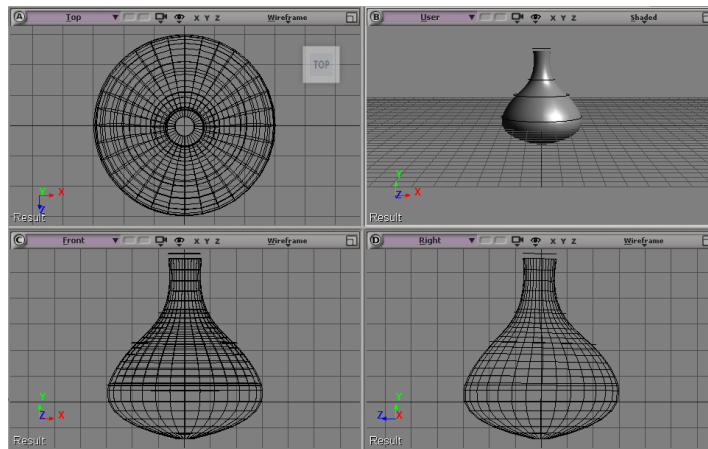


Figure 3-20 Different **Revolution Axis** creates the different shapes

Creating a Bottle

In this section, you will create a model of a bottle by using the rotoscopy method.

- Activate the Front viewport and then choose the Display Mode button from the Viewport menu bar; a Display Mode menu is displayed. Next, choose **Rotoscopy Options** from the menu; the **FrontCamera : Camera Rotoscopy** property editor is displayed.

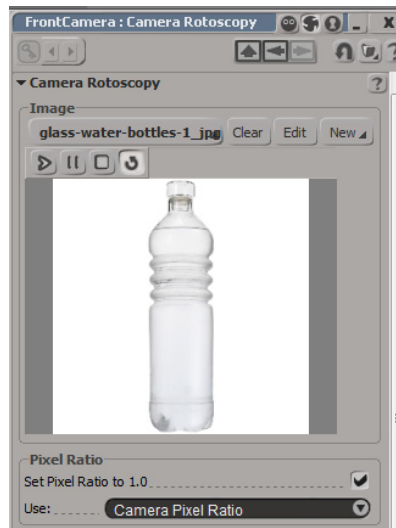
Rotoscopy is a technique in which you can use reference 2D images as viewport background for object modeling. You can also use video or image sequence in the background of a viewport. The Rotoscope images are also referred to as background plates, backplates, or backdrops.

- Choose the **New** button from the **FrontCamera : Camera Rotoscopy** property editor; a flyout is displayed. Next, choose **New From File** from the flyout; the **New Image Clip** property editor is displayed.
- In this property editor, select **glass-water-bottles-1.jpg**; the bottle image is displayed in the **FrontCamera : Camera Rotoscopy** property editor, as refer to Figure 3-21. In this property editor, set the values of the following parameters and then close the property editor.

Width: **14.29**

Height: **15.26**

Y: **7.14**



*Figure 3-21 Bottle image displayed in the **Front Camera : Camera Rotoscopy** property editor*

4. Choose the Display Mode button from the Front Viewport menu bar; a Display Mode menu is displayed. Next, choose **Rotoscope** from the menu; the image of the bottle is displayed in the Front viewport.
5. Create the outline of the bottle by using the **Draw Curve** tool in the Front viewport, as shown in Figure 3-22.

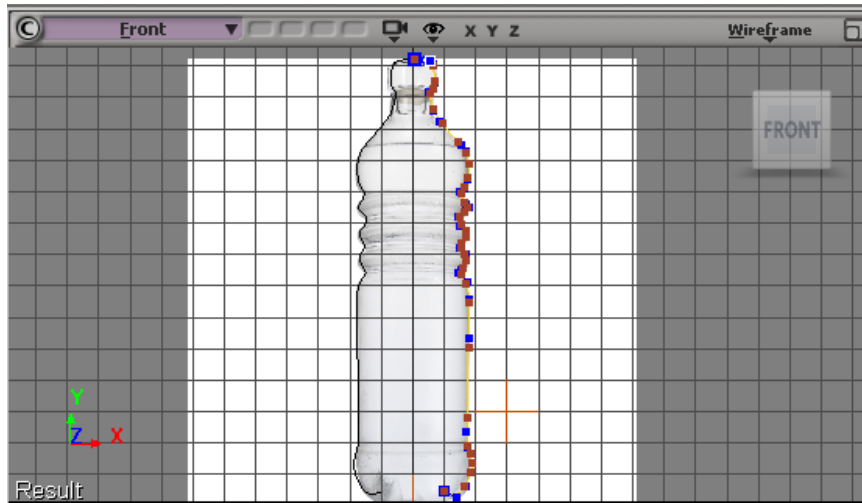


Figure 3-22 The outline of bottle created in the Front viewport

6. Choose **Model > Create > Surf. Mesh > Revolution Around Axis** from the main toolbar; the **Scene_Root : surfmsh : NURB Surface Mesh : Revolution** dialog box is displayed. In this property editor, enter **2** in both the **U** and **V** edit boxes in the **Subdivisions** area, respectively. Next, close the property editor.

After entering the values, the curve is revolved around the Y axis and the shape of the bottle model is created in all viewports, refer to Figure 3-23. Now, move this object to the different location so that you can create the another object.

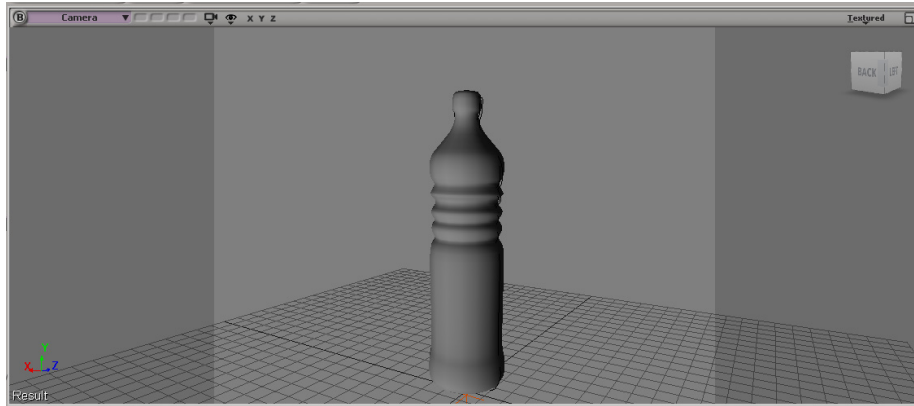


Figure 3-23 The model of bottle created in the Camera viewport



Note

By default, rotoscoped images are displayed in the orthographic views (Front, Top, and Right). These images are arranged at center of the grid. Always remember that the first curve point starts from the center of the grid when you use the image reference.

Creating the Vase

In this section, you will create model of a vase by using the loft method.

1. Choose **Model > Primitive > Curve > Circle** from the main toolbar; a circle is created in the viewport.
2. Duplicate the circle and make four more copies of the circle. Transform and scale the circles in all viewports, as shown in Figure 3-24.
3. In the Camera viewport, select all circles and then choose **Model > Create > Surf. Mesh > Loft** from the main toolbar; the **Scene Root : surfmsh : NURBS Surface Mesh : Loft** property editor is displayed. In this property editor, enter **3** in both the **U** and **V** edit boxes in the **Subdivisions** area. Next, close the property editor; the vase is displayed in all viewports, as shown in Figure 3-25.

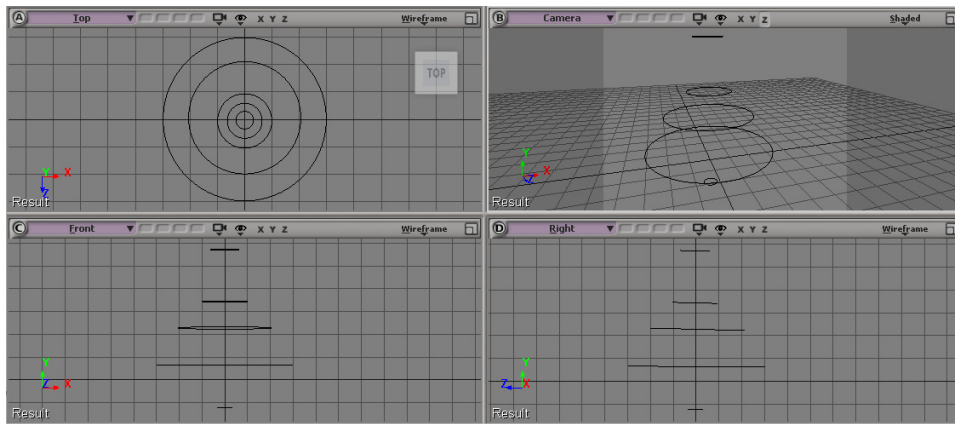


Figure 3-24 Circles transformed and scaled in all viewports

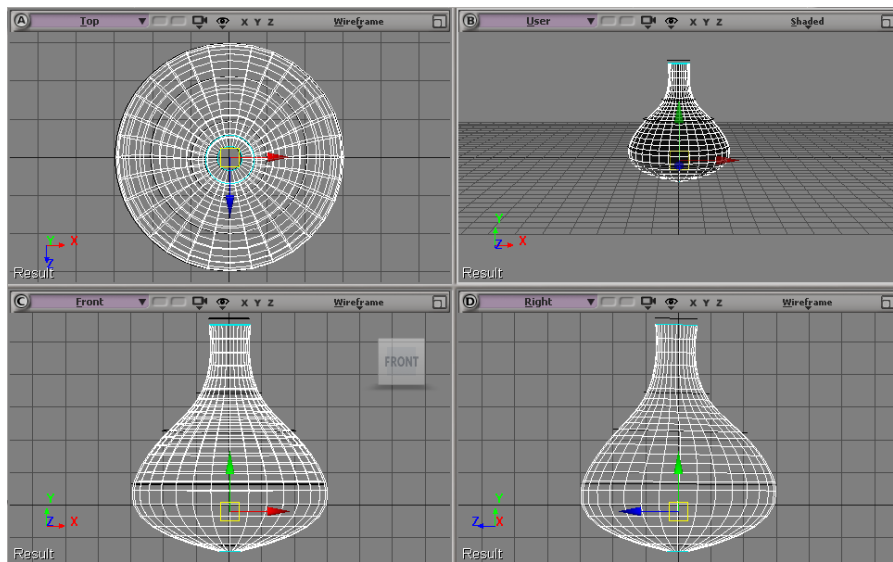


Figure 3-25 The lofted 3d model of vase displayed in all viewports

The **Loft** tool is used to create a geometry by using a series of profile curves. At least two profile curves are required to create a surface. If the input curves are closed, the resulting geometry will be closed and vice versa.

Saving and Rendering the Scene

In this section, you will save the scene that you have created and then render it. You can view the final rendered image of this scene by downloading the *c03_softimage_2013_rndr.zip* file from www.cadcam.com. The path of this file is as follows: *Textbooks > Animation and Visual Effects > Softimage > Autodesk Softimage 2013: A Tutorial Approach*

1. Choose **File > Save** from the menu bar.

2. Activate the Camera viewport and then set the camera angle in it as per your requirement. Choose **Render > Render > Preview** from the menu bar; a window is displayed with the rendered output.

Tutorial 3

In this tutorial, you will create a 3D model of a hat by using surface mesh, as shown in Figure 3-26. **(Expected time: 30 min)**

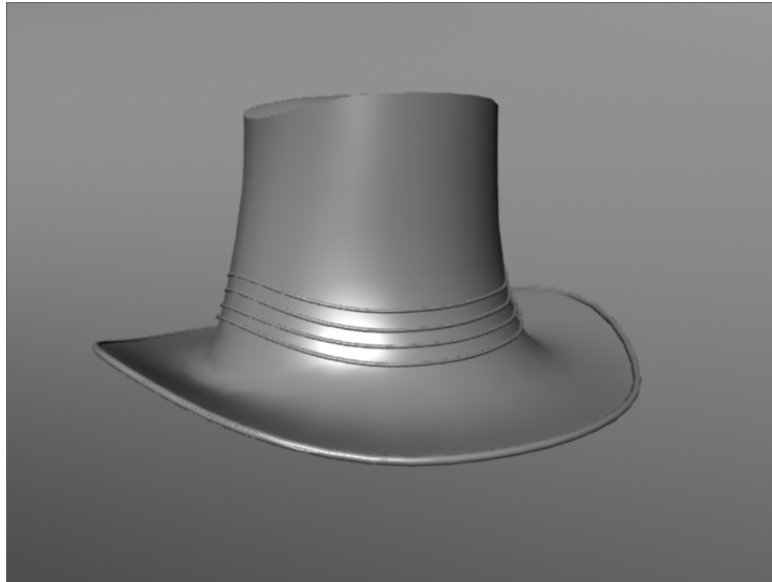


Figure 3-26 The model of hat

The following steps are required to complete this tutorial:

- a. Create the project folder.
- b. Create the basic structure of the hat.
- c. Modify the shape of the hat.
- d. Create rings of the hat.
- e. Save and render the scene.

Creating the Project Folder

Create a new project folder with the name *c03_tut3* at *|Documents\Softimage_Projects* and then save the file with the name **c03_tut_03**, as discussed in Tutorial 1 of Chapter 2.

Creating the Basic Structure of the Hat

In this section, you will create a basic structure of the hat using surface mesh.

1. Choose **Model > Get > Primitive > Surface > Cylinder** from the main toolbar; the **Scene_Root : cylinder (General)** property editor is displayed. In this property editor, enter **hat** in the **Name** edit box.

2. In the **Cylinder** property set, enter **3.18** in the **Radius** edit box.
3. In the **Geometry** property set, enter **5** in the **V** edit box of the **Subdivisions** area. Next, close the property editor; a cylinder with the name *hat* is displayed in all viewports.
4. Choose the Display Mode button from the Camera Viewport menu bar; a Display Mode menu is displayed. Next, choose **Shaded** from the menu; *hat* in the viewport is displayed in the shaded mode.
5. Activate the Front viewport and then Press F12; the Front viewport is maximized. Next, press T; the **Point** mode is activated. Select the points in the Front viewport, as shown in Figure 3-27.

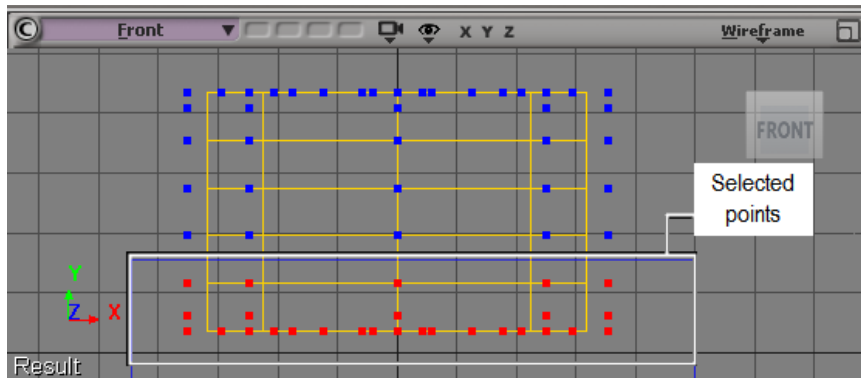


Figure 3-27 Points selected in the Front viewport

6. Press X; the **Scale Tool** is activated. In the Camera viewport, scale the points uniformly in all directions, refer to Figure 3-28.

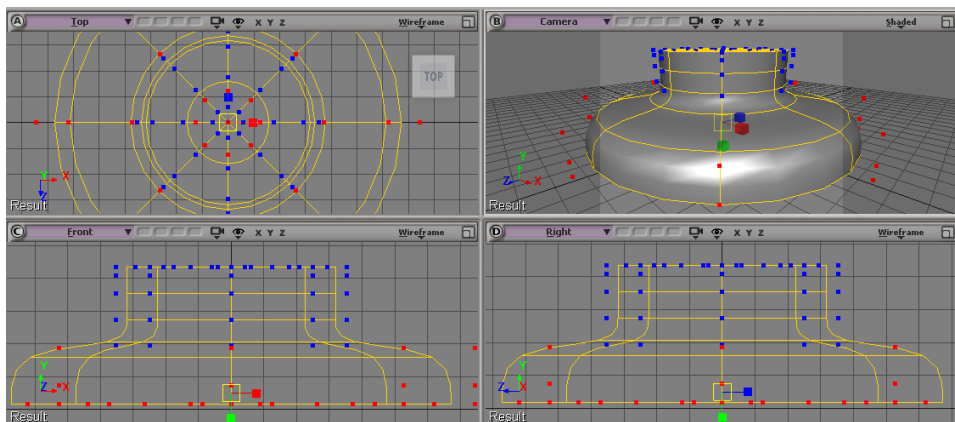


Figure 3-28 The points scaled uniformly

- Make sure the points are selected, refer to Figure 3-28. Select the green handle of the **Scale Tool** and scale the selected points along the Y axis; the mesh gets modified, as shown in Figure 3-29. Again press X; the **Scale Tool** is deactivated.

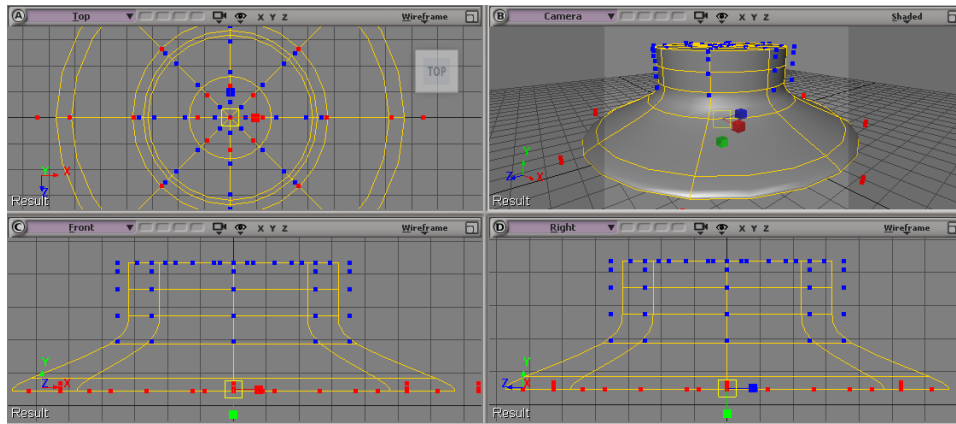


Figure 3-29 Selected points scaled along the Y axis

Modifying the Shape of the Hat

In this section, you will modify the shape of the *hat*.

- Activate the Top viewport and press F12; the Top viewport is maximized. Next, press T; the **Point** mode is activated. Select all points in the Top viewport, as shown in Figure 3-30.

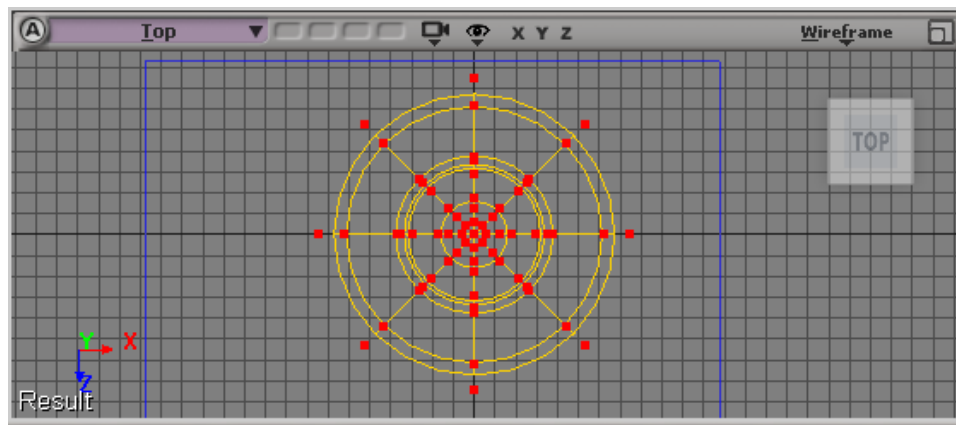


Figure 3-30 Points selected in the Top viewport

- Press X; the **Scale Tool** is activated. Scale the selected points along the Z axis, as shown in Figure 3-31. Next, press X; the **Scale Tool** is deactivated.
- Press F12 again to view all the viewports. In the Right viewport, select the points, refer to Figure 3-32. Next, press V; the **Translate Tool** is activated. Now, move the selected points along the Y axis, refer to Figure 3-32. Press V; the **Translate Tool** is deactivated.

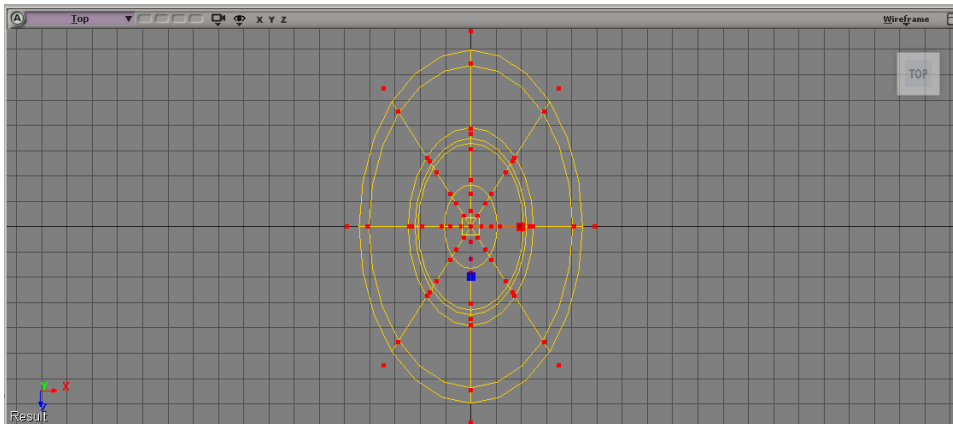


Figure 3-31 Selected points scaled along the Z axis

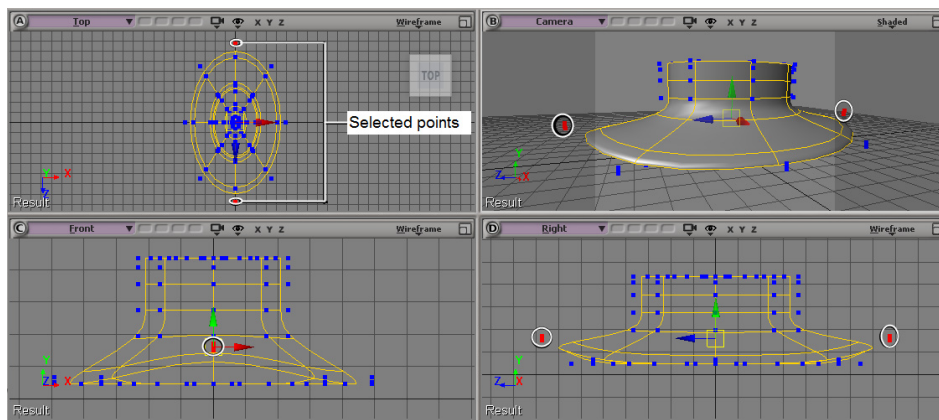


Figure 3-32 Moving the selected points along the Y axis

4. In the Front viewport, select the points, refer to Figure 3-33, and then press V; the **Translate Tool** is activated. Now, move the points (the points to be selected are encircled for reference) up along the Y axis, refer to Figure 3-33. Press V again; the **Translate Tool** is deactivated.

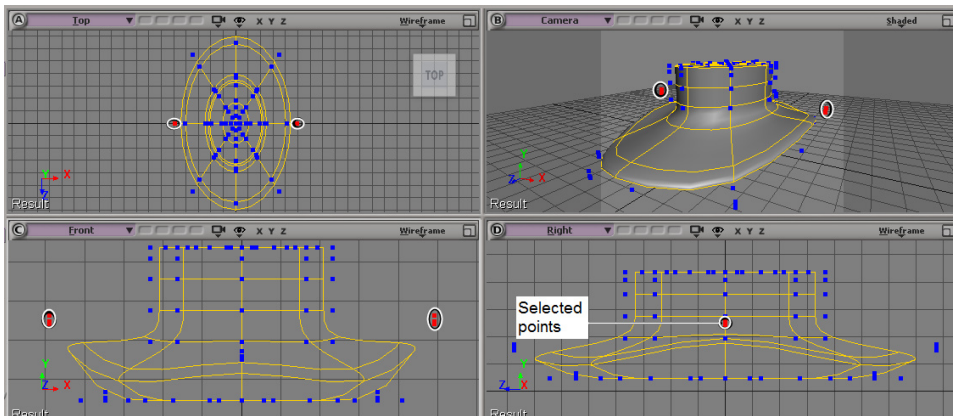


Figure 3-33 The selected points moved up along the Y axis

5. In the Front viewport, select the points, as shown in Figure 3-34. Press V; the **Translate Tool** is activated. Now, move the selected points up along the Y axis, as shown in Figure 3-35. Press V; the **Translate Tool** is deactivated.

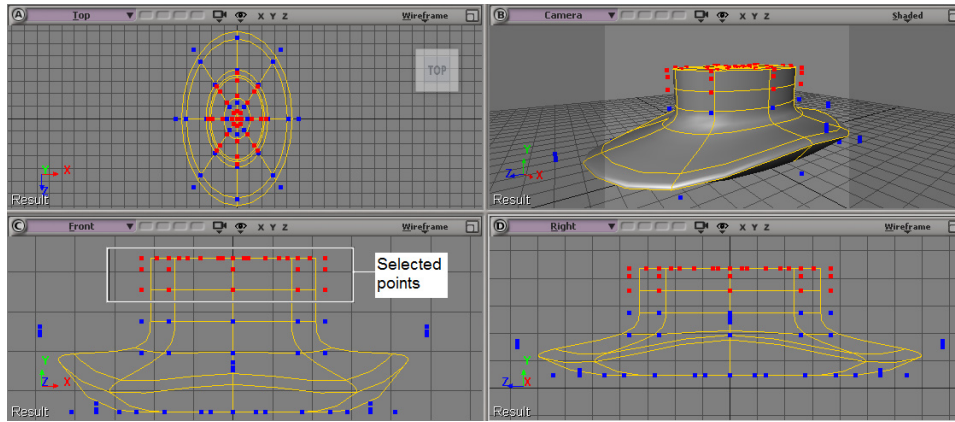


Figure 3-34 Points selected in the Front viewport

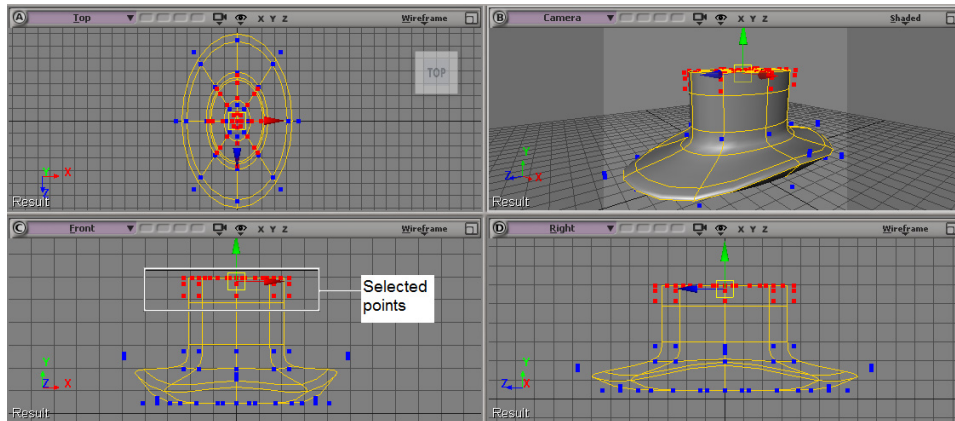


Figure 3-35 Moving the points up along the Y direction

6. In the Right viewport, select the points, as shown in Figure 3-36. Next, press V; the **Translate Tool** is activated. Move the selected points down along the Y axis, as shown in Figure 3-37. Now, press V; the **Translate Tool** is deactivated.
7. Select the points in the Top and Right viewports, as shown in Figure 3-38. Next, press V; the **Translate Tool** is activated. Move the selected points down along the Y axis, as shown in Figure 3-39. Now, press V; the **Translate Tool** is deactivated.

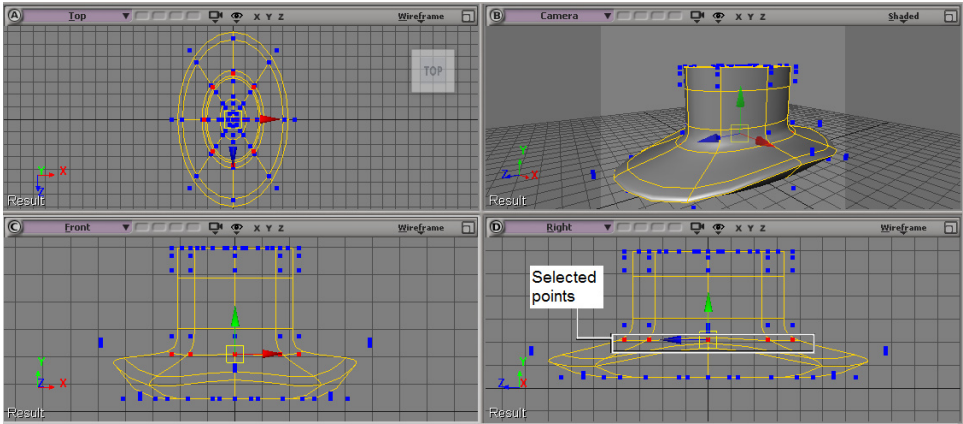


Figure 3-36 Points selected in the Right viewport

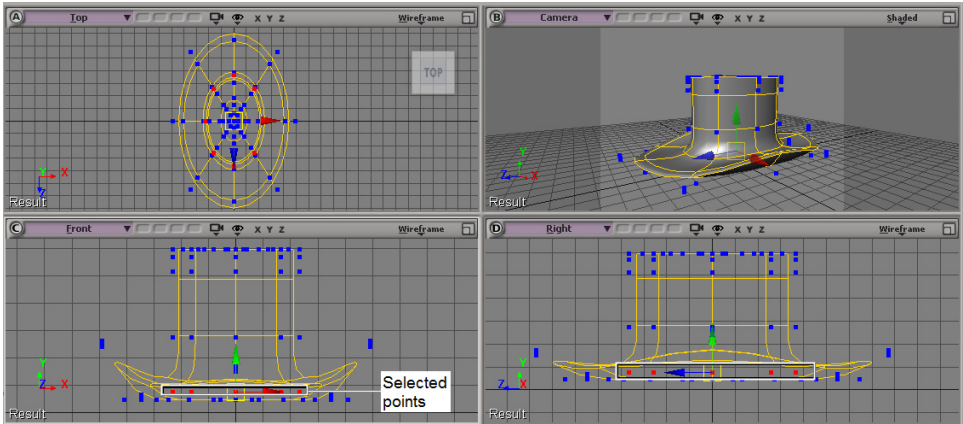


Figure 3-37 Moving the points down along the Y direction

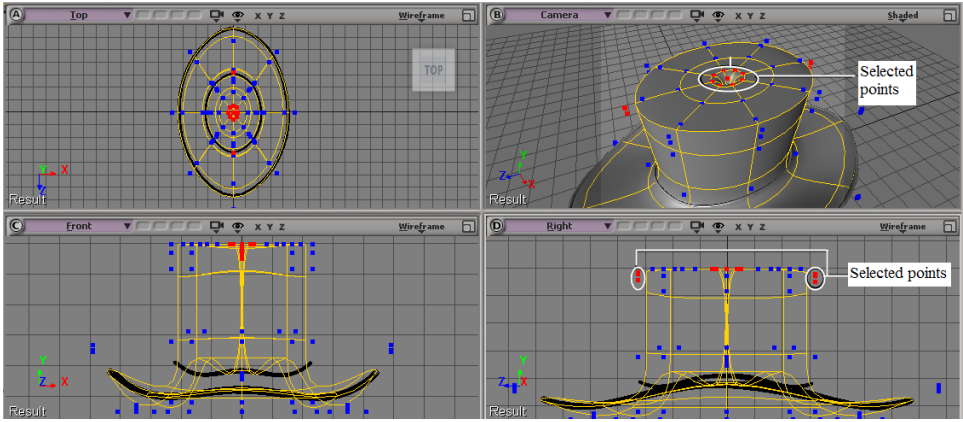


Figure 3-38 Points selected in the Top viewport

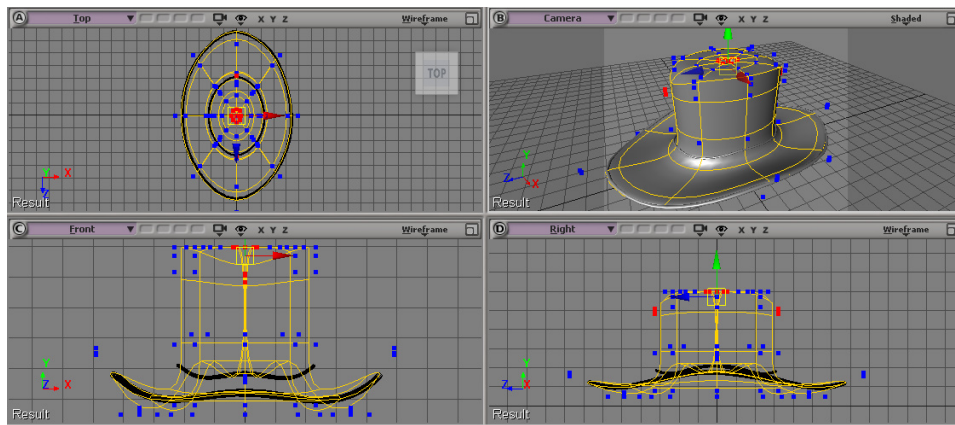


Figure 3-39 Moving down the points along the Y direction

8. Activate the Top viewport and make sure the points are selected. Choose **Model > Modify > Surf. Mesh > Open/Close** from the main toolbar; the **Scene_Root : hat: NURBS Surface Mesh : Open/Close Surface** property editor is displayed, as shown in Figure 3-40.

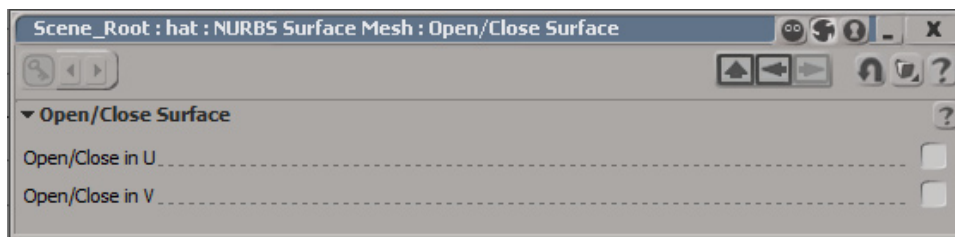


Figure 3-40 The **Scene_Root : hat : NURBS Surface Mesh : Open/Close Surface** property editor

9. In the **Scene_Root : hat: NURBS Surface Mesh : Open/Close Surface** property editor, select the **Open/Close in V** check box in **Open/Close Surface** area; the hole is created in the selected area of *hat*, as shown in Figure 3-41. Next, close the property editor.

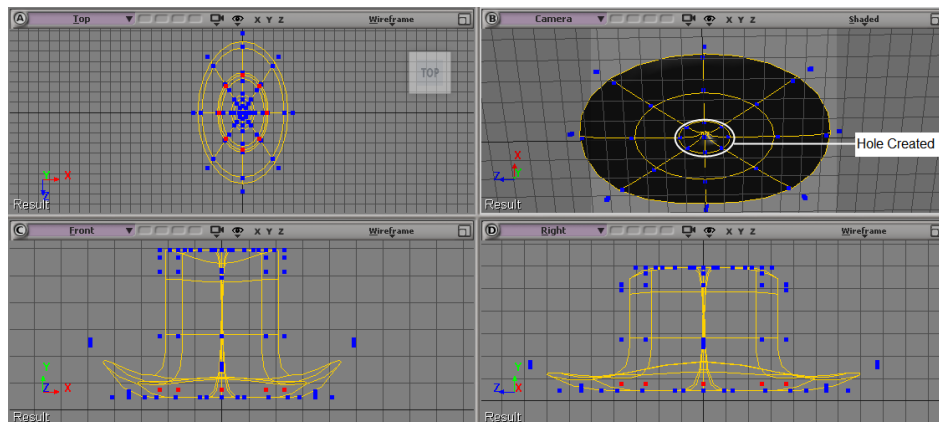


Figure 3-41 The hole created in the selected area of *hat*

10. In the Camera viewport select the points (the points to be selected are encircled for reference) of the hat, as shown in Figure 3-42.

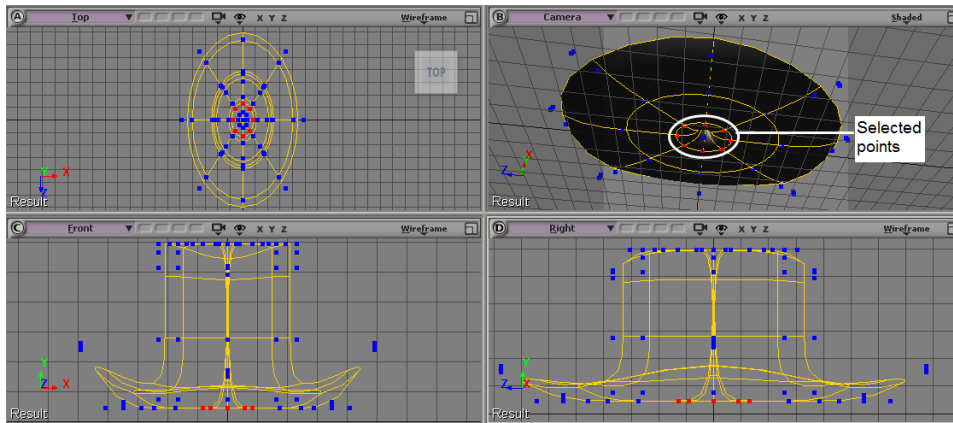


Figure 3-42 Selecting points in the Camera viewport

11. Press X; the **Scale Tool** is activated. Scale the selected points uniformly in the Camera viewport, refer to Figure 3-43.

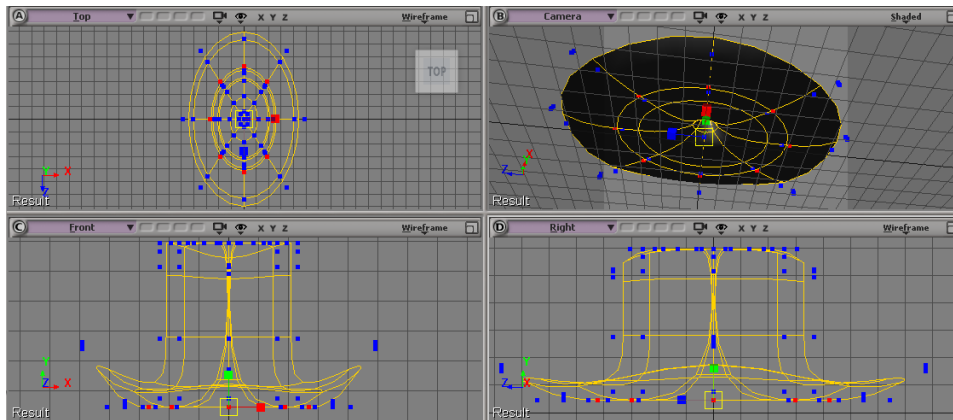


Figure 3-43 The selected points scaled

12. Press V; the **Translate Tool** is activated. Next, move the selected points up along the Y axis; the mesh gets modified, as shown in Figure 3-44. Figure 3-45 shows the final shape of the hat model in all viewports.

Creating the Rings Around the Hat

In this section, you will create rings around the hat.

1. Choose **Model > Get > Primitive > Surface > Torus** from the main toolbar; the **Scene_Root : torus (General)** property editor is displayed. In the **Torus** property set, enter **5.842** and **0.1** in the **Main** and **Cross Section** edit boxes of the **Radius** area, respectively.

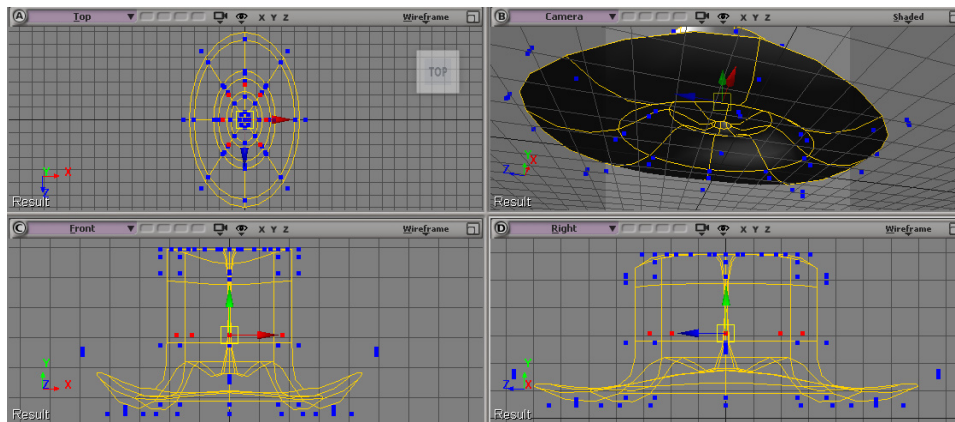


Figure 3-44 Moving the points up along the Y direction

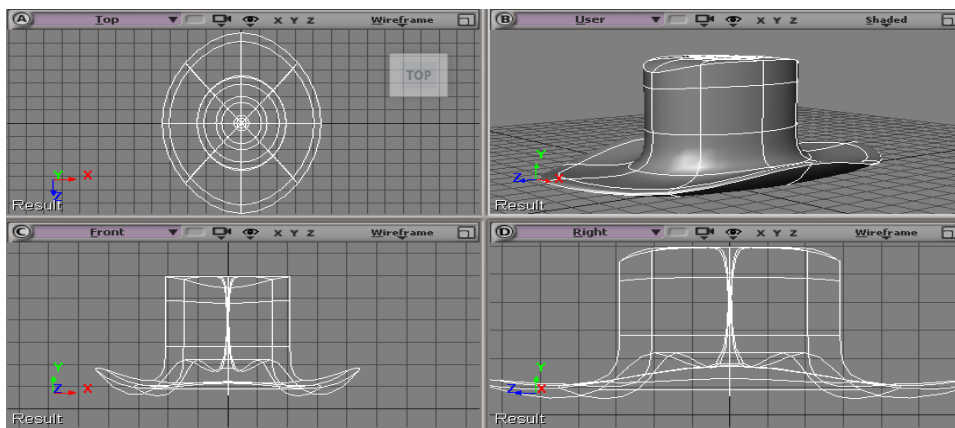


Figure 3-45 The hat model in all viewpoints

2. In the **Geometry** property set, enter **17** in both the **U** and **V** edit boxes of the **Subdivisions** area. Next, close the property editor; the torus is created in all viewpoints.
3. Press **V**; the **Translate Tool** is activated. Next, move the torus up along the **Y** axis from the Front viewport, as shown in Figure 3-46.
4. Activate the Top viewport. Next, press **T**; the **Point** mode is activated. Select the points of *torus* and move them in the Top viewport by using the **Translate Tool** to define the shape of *torus* in the Top viewport, as shown in Figure 3-47.
5. Activate all viewpoints. Now, set the points in Camera viewport to match it with the shape of the hat; *torus* is modified, as shown in Figure 3-48.

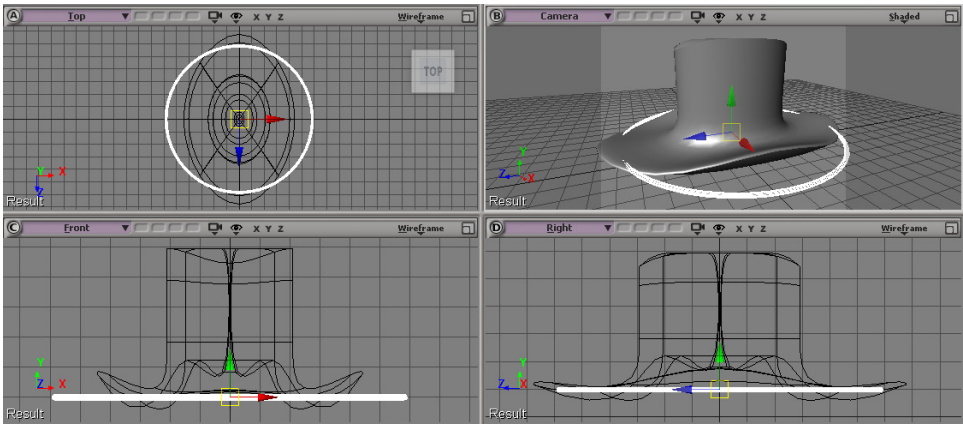


Figure 3-46 Moving the torus up along the Y axis

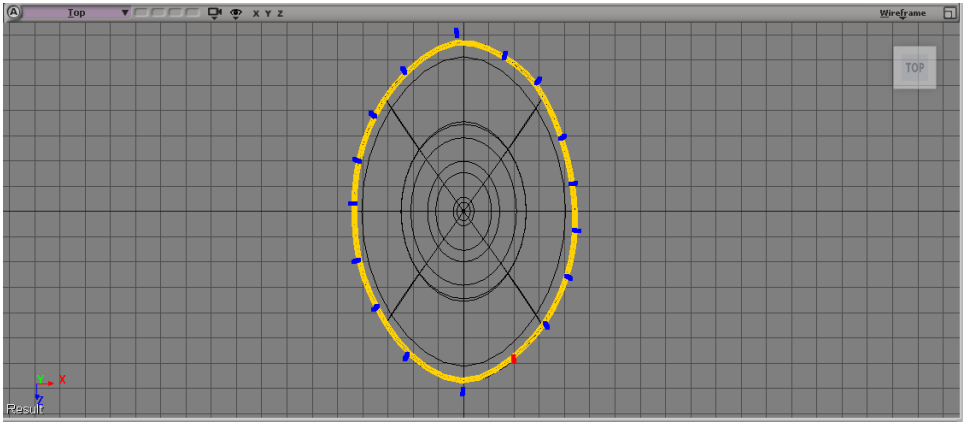


Figure 3-47 The points to be moved

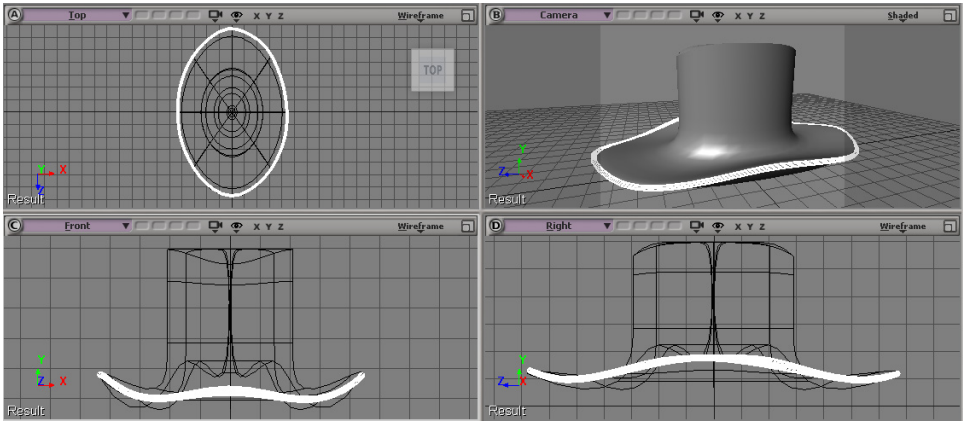


Figure 3-48 Modifying torus

- Press SPACEBAR; the **Object** mode is activated. Make sure that *torus* is selected. Press CTRL+D; the duplicate copy of *torus* is created with the name *torus1*. Invoke the **Translate Tool** and move *torus1* along the Y axis, as shown in Figure 3-49.

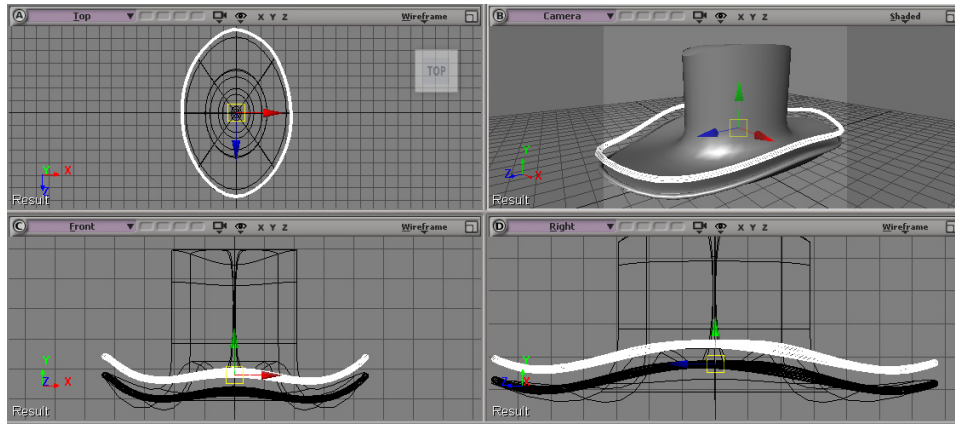


Figure 3-49 Moving the torus1 along the Y axis

- Press X; the **Scale Tool** is activated. Next, scale *torus1* uniformly in the Camera viewport, as shown in Figure 3-50.

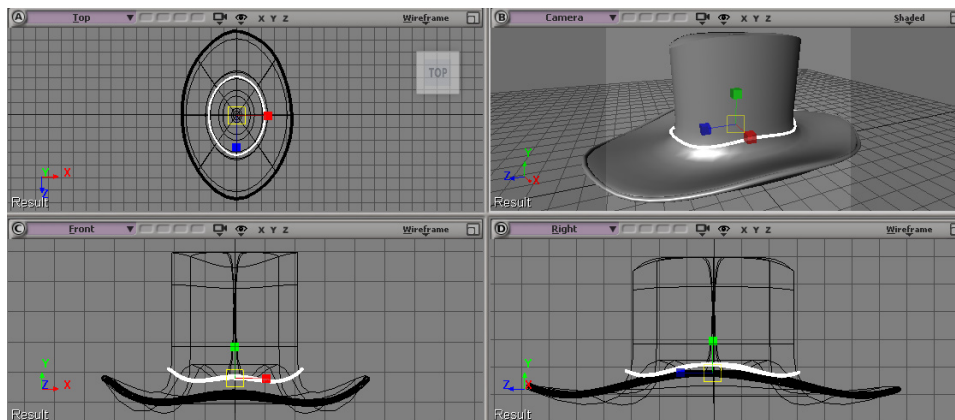


Figure 3-50 Scaling torus1 in the Camera viewport

- Create three copies of *torus1* and arrange them, as shown in Figure 3-51.

Saving and Rendering the Scene

In this section, you will save the scene that you have created and then render it. You can view the final rendered image of this scene by downloading the *c03_softimage_2013_rndr.zip* file from www.cadcam.com. The path of this file is as follows: *Textbooks > Animation and Visual Effects > Softimage > Autodesk Softimage 2013: A Tutorial Approach*

- Choose **File > Save** from the menu bar.

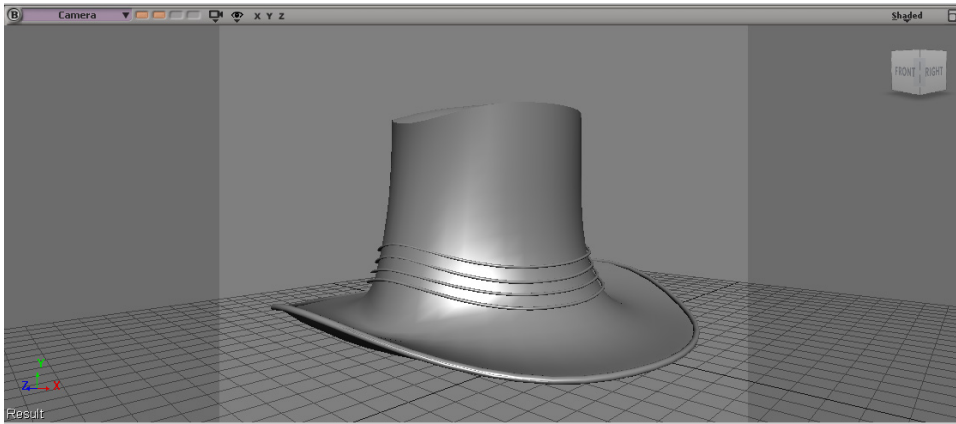


Figure 3-51 The final output

2. Activate the Camera viewport and then set the camera angle in it as per your requirement.
3. Choose **Render > Render > Preview** from the menu bar; a window is displayed with the rendered output. Next, close the window.

Self-Evaluation Test

Answer the following questions and then compare them to those given at the end of this chapter:

1. Which of the following tools is used to draw 2D shapes for curve modeling?
 - (a) Draw Cubic by CVs
 - (b) Draw Cubic by Bézier-Knot Points
 - (c) Draw Cubic by Knot Points
 - (d) All of these
2. Which of the following keys is used to modify the curve points?
 - (a) X
 - (b) V
 - (c) M
 - (d) None of these
3. The _____ key is used to maximize the viewport.
4. The _____ command is used to create a surface or polygon mesh by using a series of profile curves.
5. The **Revolution Around Axis** tool is used to convert a curve into a 3D object. (T/F)

Review Questions

Answer the following questions:

1. Which of the following keys is used to exit the curve tool?
 - (a) CTRL
 - (b) SHIFT
 - (c) ESC
 - (d) X
2. In _____ technique, the reference images are used to create the 3D objects.
3. The _____ and _____ are two types of curve used in Softimage.
4. The _____ deformer is used to bend the object in any direction.
5. The **Point**, **Polygon**, and **Edge** are the components of curve. (T/F)

Exercises

Exercise 1

Create the different models of wine glass, as shown in Figure 3-52, by using the **Draw Cubic by CVs** tool and the **Revolution Along Axis** modifier. You can view the final rendered images of these models by downloading the *c03_softimage_2013_exr.zip* file from www.cadcim.com. The path of the file is as follows: *Textbooks > Animation and Visual Effects > Softimage > Autodesk Softimage 2013: A Tutorial Approach* **(Expected time: 20 min)**

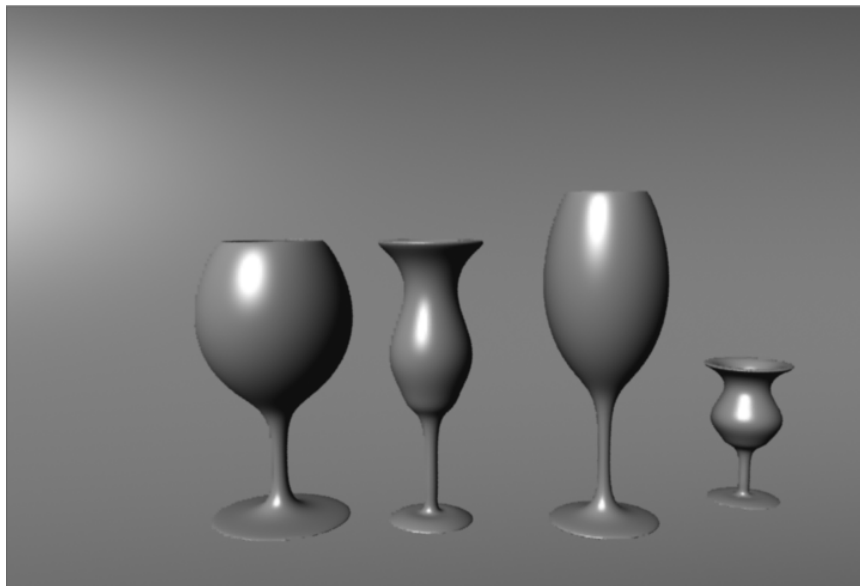


Figure 3-52 Different models of wine glass

Exercise 2

Create the models of mushroom, as shown in Figure 3-53, using the **Draw Cubic by CVs** tool and the **Revolution Along Axis** modifier. You can view the final rendered image of this model by downloading the *c03_softimage_2013_exr.zip* file from www.cadcim.com. The path of the file is mentioned in Exercise 1. **(Expected time: 30 min)**

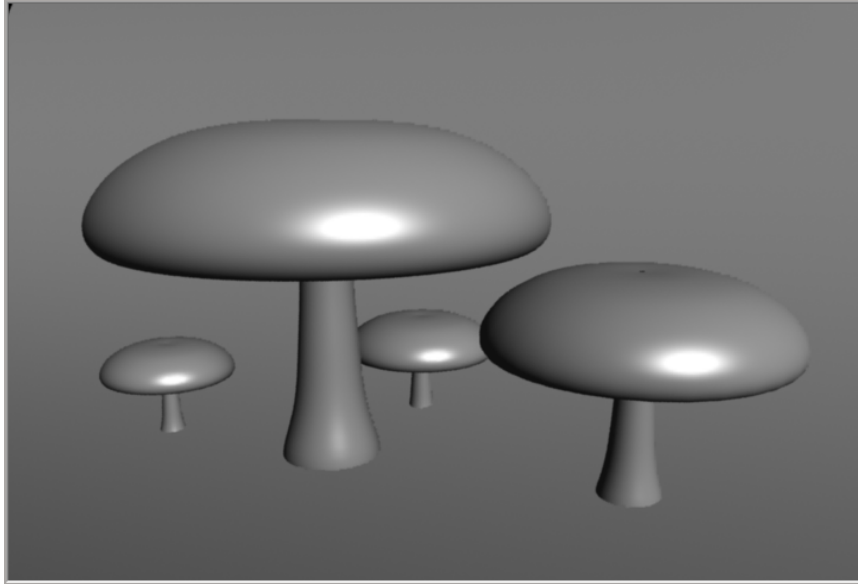


Figure 3-53 The models of mushroom

Exercise 3

Create the model of lamp, pot, and utensils, as shown in Figure 3-54. You can view the final rendered image of these models by downloading the *c03_softimage_2013_exr.zip* file from www.cadcim.com. The path of the file is mentioned in Exercise 1. **(Expected time: 20 min)**



Figure 3-54 The model of lamp, pot, and utensils

Exercise 4

Create a model of dining table and chairs, as shown in Figure 3-55, using the **Loft** tool. You can view the final rendered image of this model by downloading the *c03_softimage_2013_exr.zip* file from *www.cadcim.com*. The path of the file is mentioned in Exercise 1.

(Expected time: 35 min)



Figure 3-55 The model of dining table and chairs

Answers to Self-Evaluation Test

1. d, 2. c, 3. F12, 4. Loft, 5. T