1 Short help on Mesh

The mesh-command generates 3-D animated plots of matrices. The command mesh(z) plots the values in matrix z over its element coordinates. Figure 1 shows the meshplot of the matrix

$$z = \left(\begin{array}{ccc} 0 & 0.5 & 0 \\ 0.5 & 1 & 0.5 \\ 0 & 0.5 & 0 \end{array} \right)$$

As you can see, the X and Y-coordinates range from 1 to 3 since we have a 3 by 3 matrix.
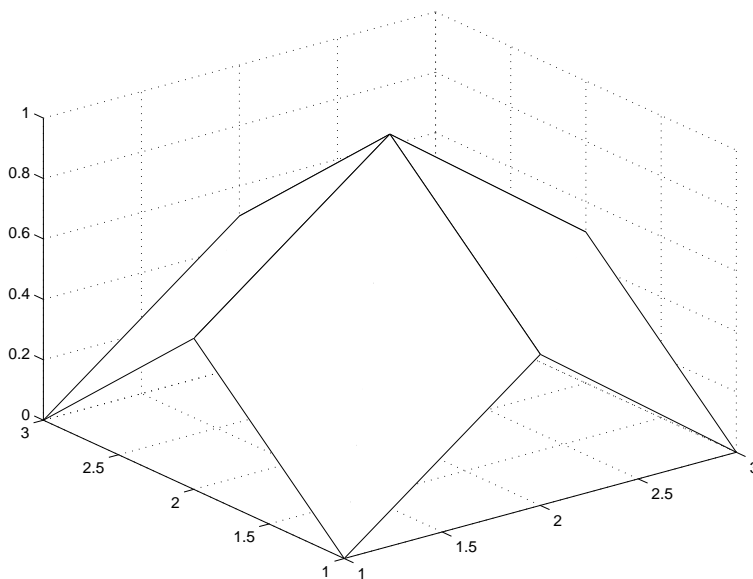

Figure 1: Meshplot mesh(z)

The values of z are displayed as height over the rectangular xy-grid.

If you use mesh(X,Y,Z), you can display the matrix Z over the coordinates specified in X and Y. You can use the **meshgrid** command to generate X and Y.

2 Matlab Help on Mesh

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MESH   3-D mesh surface.
   MESH(X,Y,Z,C) plots the colored parametric mesh defined by
   four matrix arguments.  The view point is specified by VIEW.
   The axis labels are determined by the range of X, Y and Z,
   or by the current setting of AXIS.  The color scaling is determined
   by the range of C, or by the current setting of CAXIS.  The scaled
```

color values are used as indices into the current COLORMAP.

MESH(X,Y,Z) uses C = Z, so color is proportional to mesh height.

MESH(x,y,Z) and MESH(x,y,Z,C), with two vector arguments replacing
the first two matrix arguments, must have length(x) = n and
length(y) = m where [m,n] = size(Z). In this case, the vertices
of the mesh lines are the triples (x(j), y(i), Z(i,j)).
Note that x corresponds to the columns of Z and y corresponds to
the rows.

MESH(Z) and MESH(Z,C) use x = 1:n and y = 1:m. In this case,
the height, Z, is a single-valued function, defined over a
geometrically rectangular grid.

MESH(...,'PropertyName',PropertyValue,...) sets the value of
the specified surface property. Multiple property values can be set
with a single statement.

MESH(AX,...) plots into AX instead of GCA.

MESH returns a handle to a surface plot object.

AXIS, CAXIS, COLORMAP, HOLD, SHADING, HIDDEN and VIEW set figure,
axes, and surface properties which affect the display of the mesh.

See also surf, meshc, meshz, waterfall.