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MATLAB for Engineers

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                              Electrical Engineering Department   (at Shoubra)

Create a Simple App Using GUIDE

This example shows how to use GUIDE to create an app that has a simple user interface (UI), such as the one shown here.
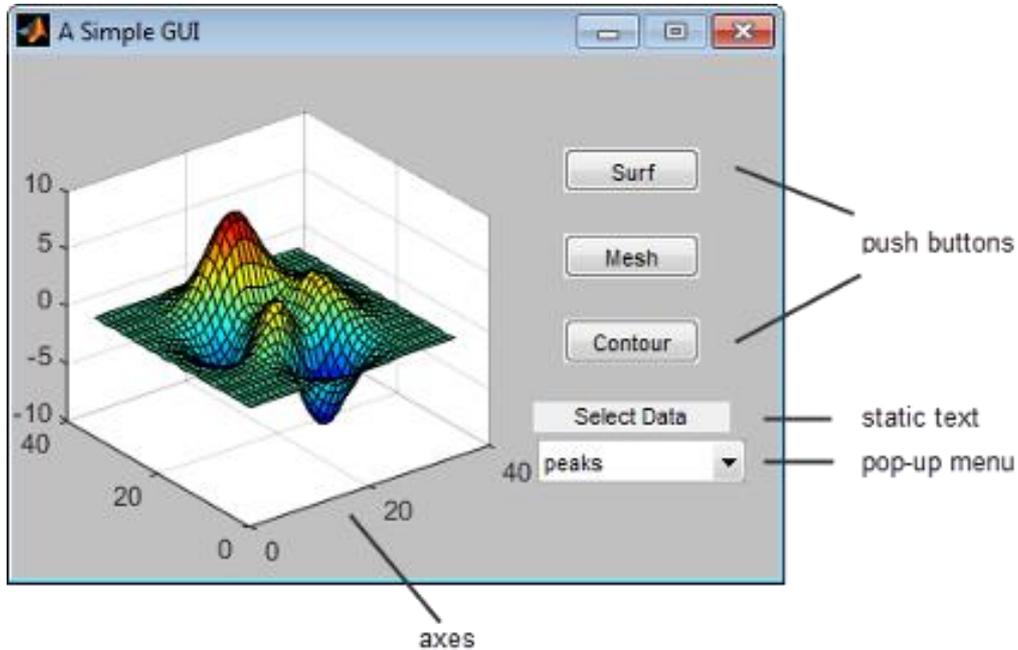
Open a New UI in the GUIDE Layout Editor

1.   Start GUIDE by typing `guide` at the MATLAB prompt.
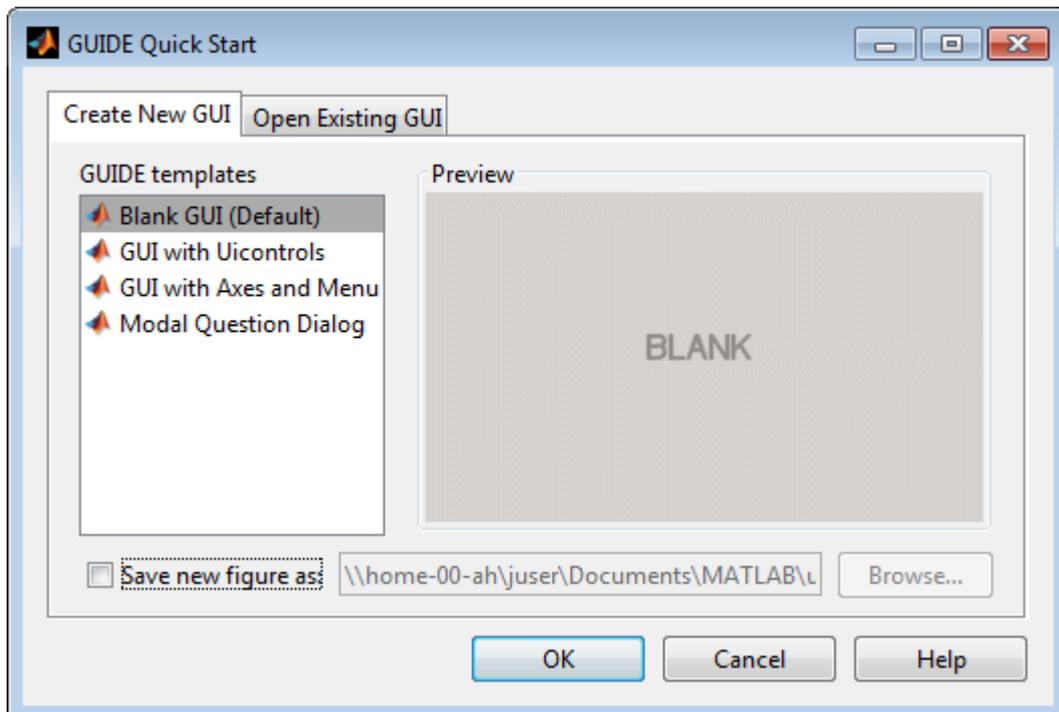
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2. In the GUIDE Quick Start dialog box, select the **Blank (Default)** template, and then click **OK**.
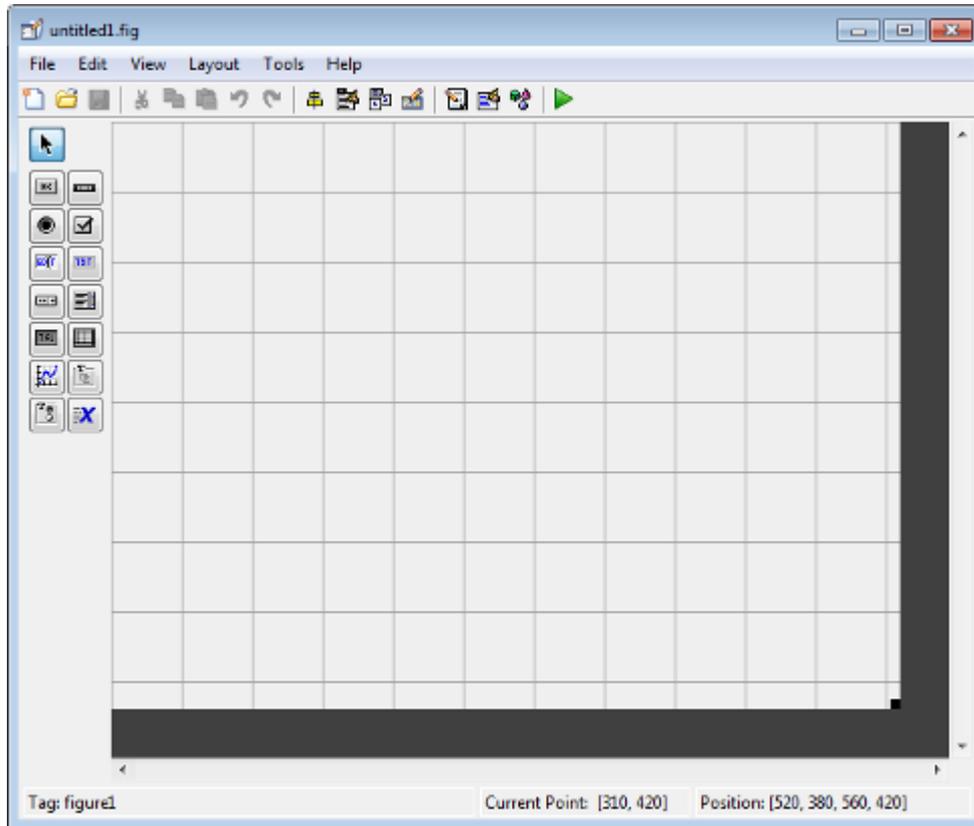
3. Display the names of the components in the component palette:

   a. Select **File** > **Preferences** > **GUIDE**.

   b. Select **Show names in component palette**.

   c. Click **OK**.

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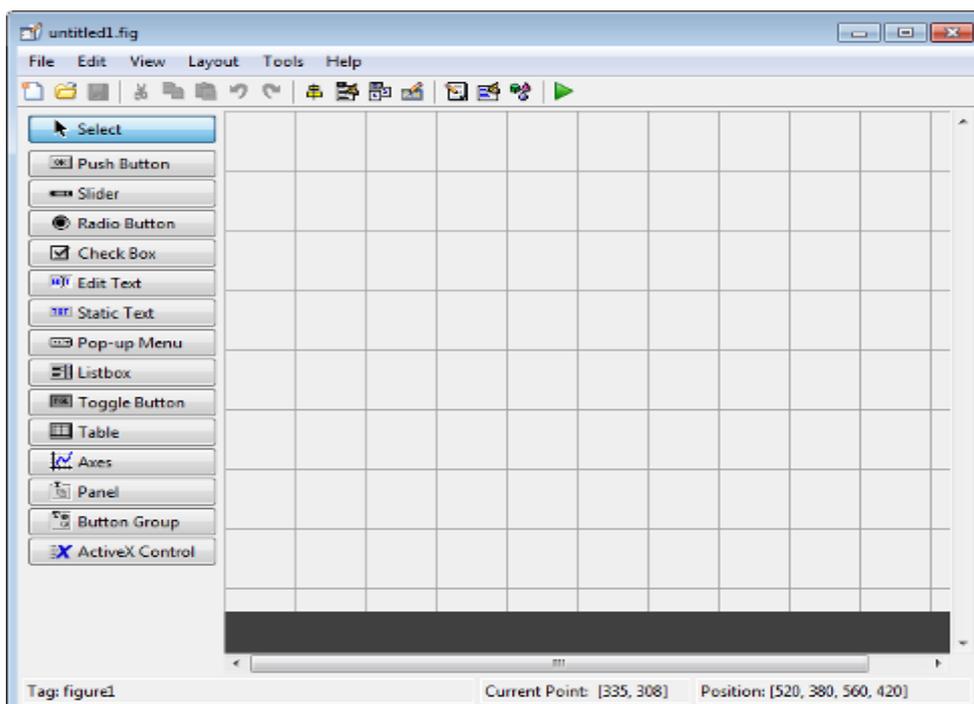
Set the Window Size in GUIDE

Set the size of the window by resizing the grid area in the Layout Editor. Click the lower-right corner and drag it until the canvas is approximately 3 inches high and 4 inches wide. If necessary, make the canvas larger.
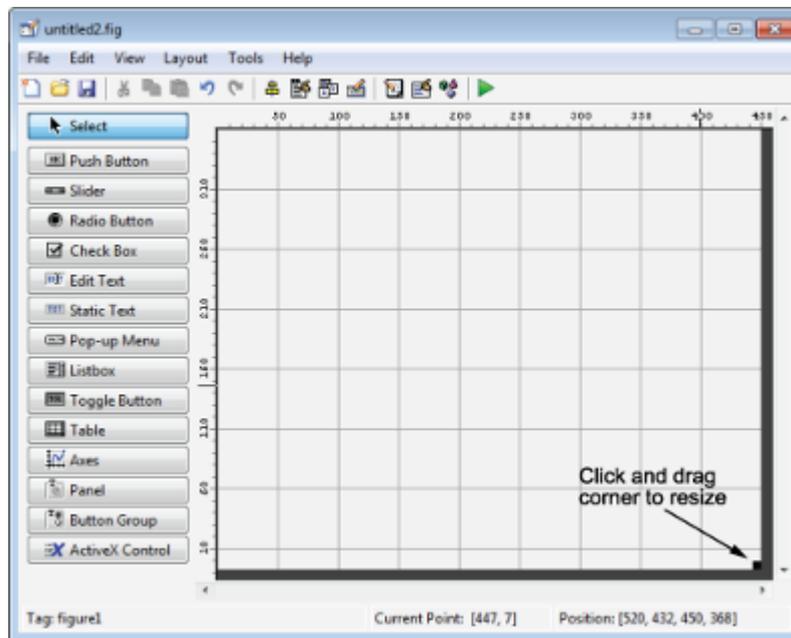
Layout the UI

Add, align, and label the components in the UI.

1.   Add the three push buttons to the UI. Select the push button tool from the component palette at the left side of the Layout Editor and drag it into the layout area. Create three buttons, positioning them approximately as shown in the following figure.
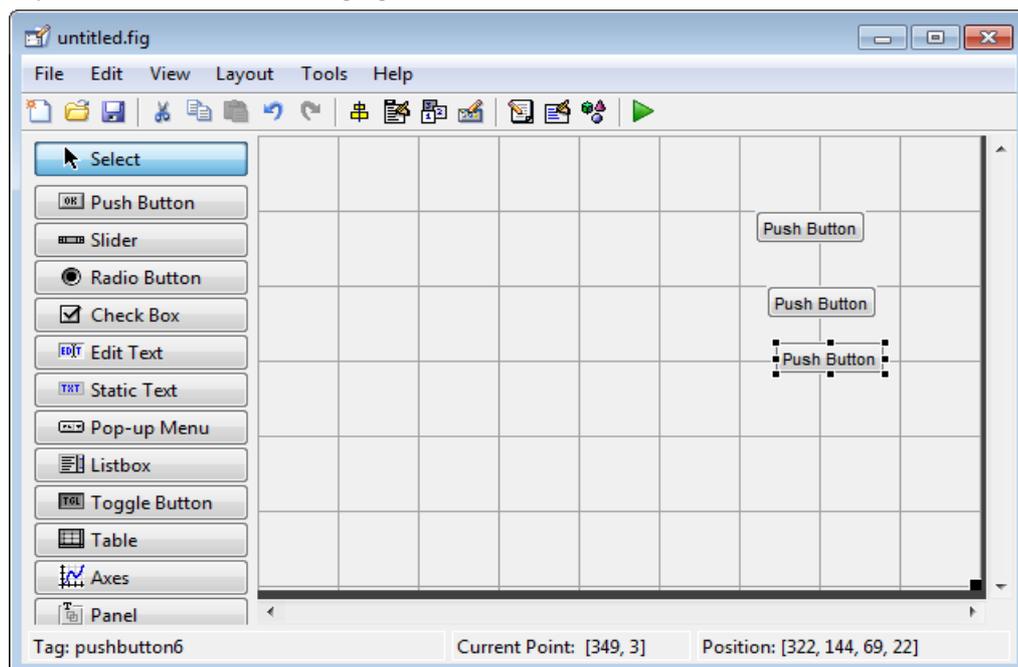
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2.   Add the remaining components to the UI.

- A static text area

- A pop-up menu

- An axes

Arrange the components as shown in the following figure. Resize the axes component to approximately 2-by-2 inches.
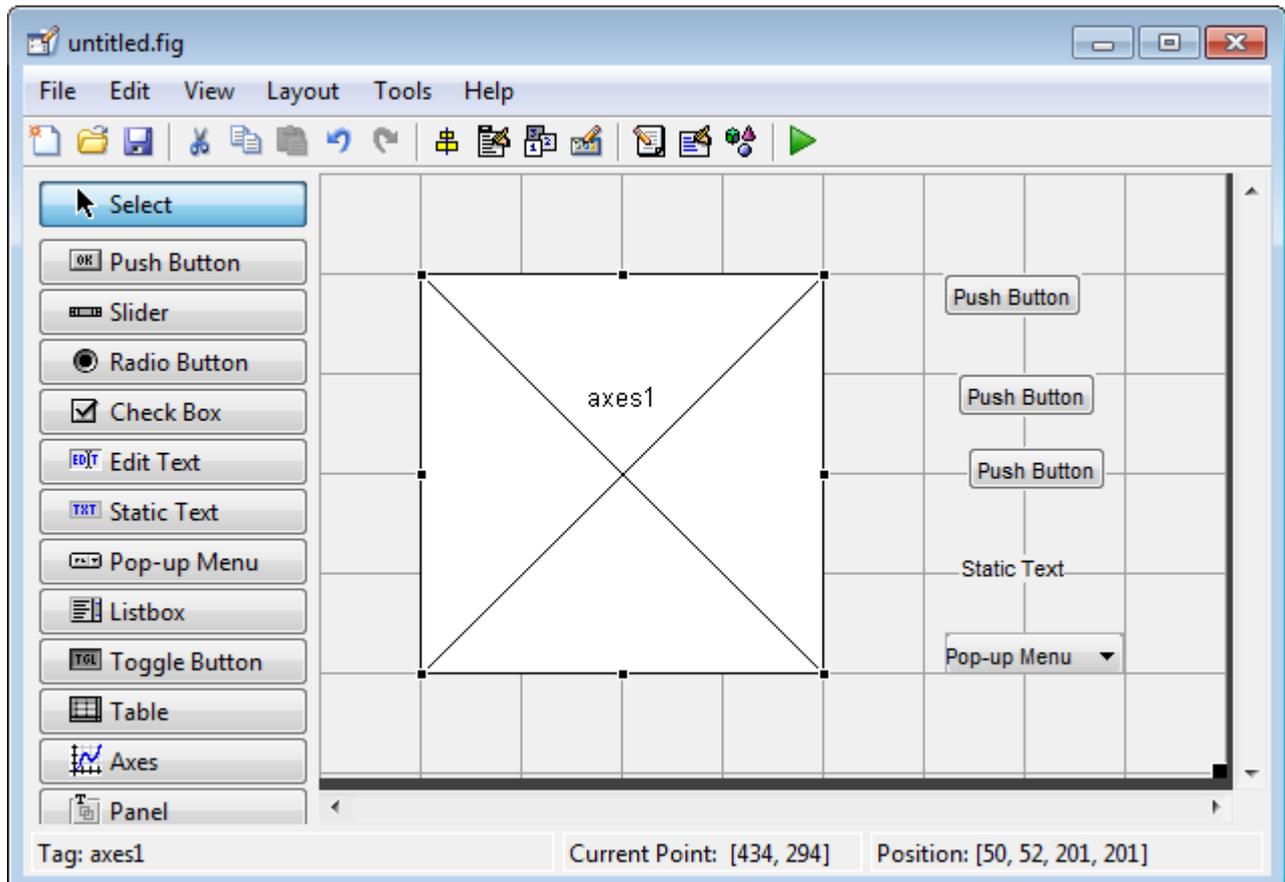
Align the Components

If several components have the same parent, you can use the Alignment Tool to align them to one another. To align the three push buttons:

1.   Select all three push buttons by pressing **Ctrl** and clicking them.

2.   Select **Tools** > **Align Objects**.

3.   Make these settings in the Alignment Tool:

- Left-aligned in the horizontal direction.

- 20 pixels spacing between push buttons in the vertical direction.

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4.   Click **OK**.

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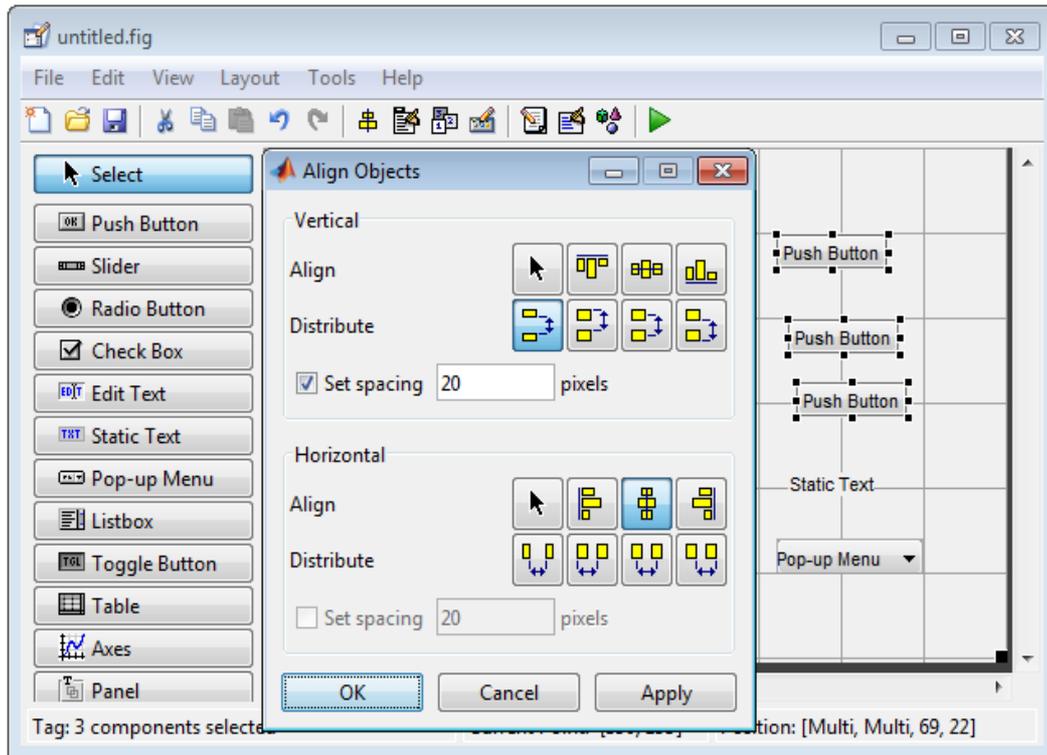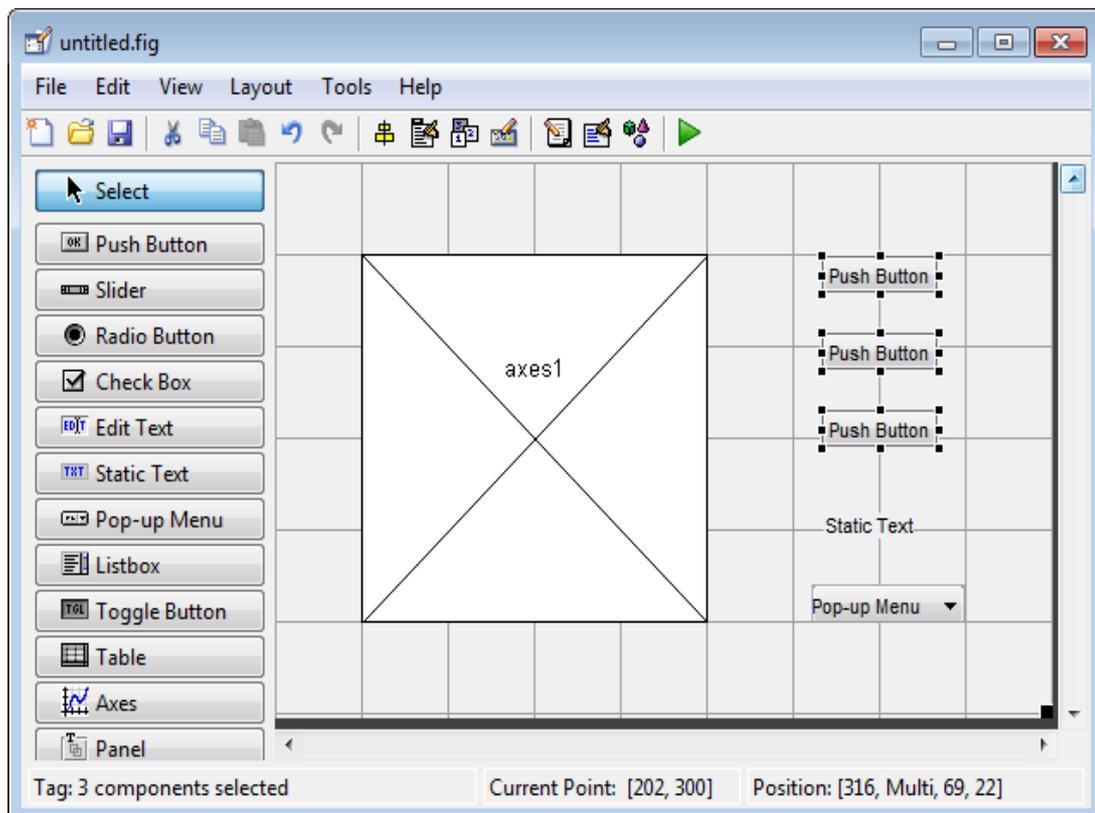
Label the Push Buttons

Each of the three push buttons specifies a plot type: surf, mesh, and contour. This section shows you how to label the buttons with those options.

1. Select **View** > **Property Inspector**.
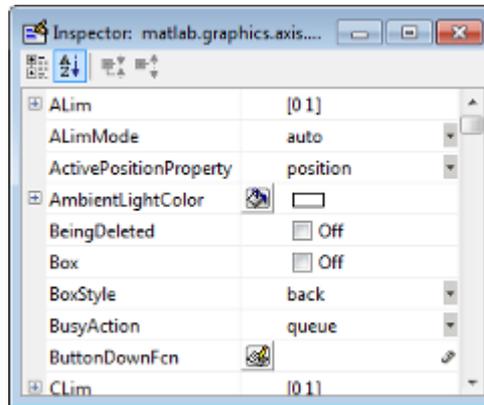
2. In the layout area, click the top push button.
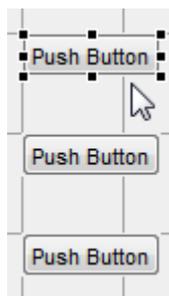
3. In the Property Inspector, select the String property, and then replace the existing value with the word Surf.

4. Click outside the String field. The push button label changes to **Surf**.

5. Click each of the remaining push buttons in turn and repeat steps 3 and 4. Label the middle push button **Mesh**, and the bottom button **Contour**.

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List Pop-Up Menu Items

The pop-up menu provides a choice of three data sets: peaks, membrane, and sinc. These data sets correspond to MATLAB functions of the same name. This section shows you how to list those data sets as choices in the pop-menu.

1.   In the layout area, click the pop-up menu.

2.   In the Property Inspector, click the button next to `String`. The String dialog box displays.
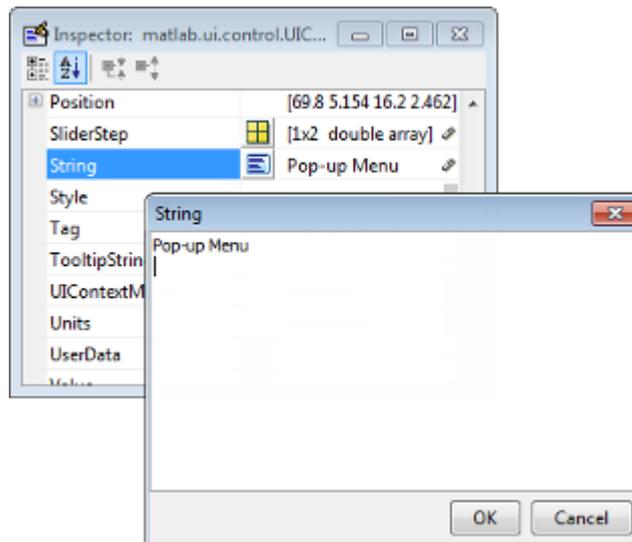
3.   Replace the existing text with the names of the three data sets: peaks, membrane, and sinc. Press **Enter** to move to the next line.
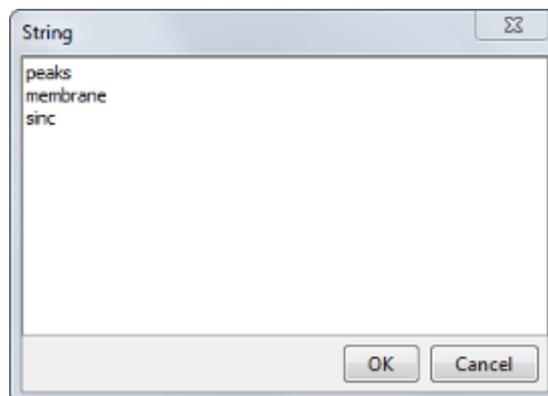
4.   When you finish editing the items, click **OK**.

The first item in your list, `peaks`, appears in the pop-up menu in the layout area.

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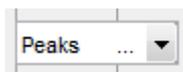
Modify the Static Text

In this UI, the static text serves as a label for the pop-up menu. This section shows you how to change the static text to read `Select Data`.

1.   In the layout area, click the static text.

2.   In the Property Inspector, click the button next to `String`. In the String dialog box that displays, replace the existing text with the phrase `Select Data`.
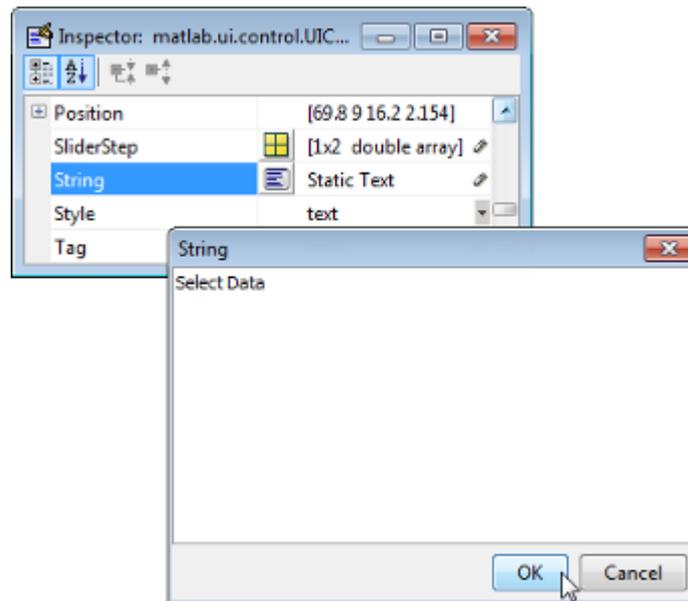
3.   Click **OK**.

The phrase `Select Data` appears in the static text component above the pop-up menu.
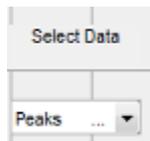
Save the Layout

When you save a layout, GUIDE creates two files, a FIG-file and a code file. The FIG-file, with extension `.fig`, is a binary file that contains a description of the layout. The code file, with extension `.m`, contains MATLAB functions that control the app's behavior.

1.   Save and run your program by selecting **Tools** > **Run**.

2.   GUIDE displays a dialog box displaying: "Activating will save changes to your figure file and MATLAB code. Do you wish to continue?

Click **Yes**.

3.   GUIDE opens a **Save As** dialog box in your current folder and prompts you for a FIG-file name.

4.   Browse to any folder for which you have write privileges, and then enter the file name `simple_gui` for the FIG-file. GUIDE saves both the FIG-file and the code file using this name.

5.   If the folder in which you save the files is not on the MATLAB path, GUIDE opens a dialog box that allows you to change the current folder.

6.   GUIDE saves the files `simple_gui.fig` and `simple_gui.m`, and then runs the program. It also opens the code file in your default editor.

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The app opens in a new window. Notice that the window lacks the standard menu bar and toolbar that MATLAB figure windows display. You can add your own menus and toolbar buttons with GUIDE, but by default a GUIDE app includes none of these components.

When you run `simple_gui`, you can select a data set in the pop-up menu and click the push buttons, but nothing happens. This is because the code file contains no statements to service the pop-up menu and the buttons.
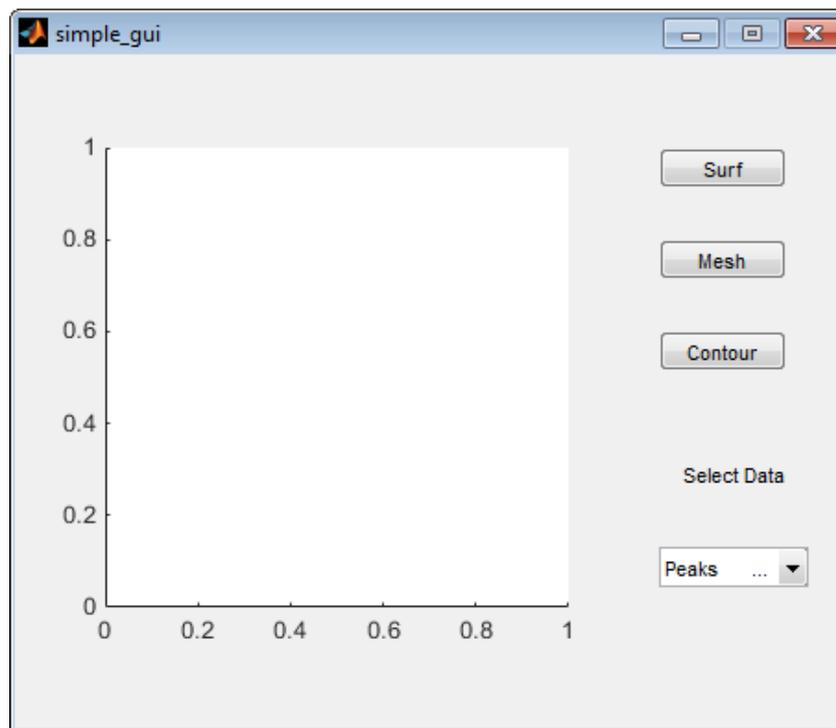
To run an app created with GUIDE without opening GUIDE, execute its code file by typing its name.

```
simple_gui
```

You can also use the `run` command with the code file, for example,
```
run simple_gui
```