North Carolina State University

Fold Program

User's Manual

Table of Contents

Platforms

The FOLD Program is a web application that runs on a multitude of web browsers, including Google Chrome, Mozilla Firefox, and Apple Safari. No installation is necessary to use the program. The application can be accessed on the website http://foldproject.github.io/.

Creating a New Project

To start a new project at any time, go to the **File** menu and select **New** from the options (Figure 1).
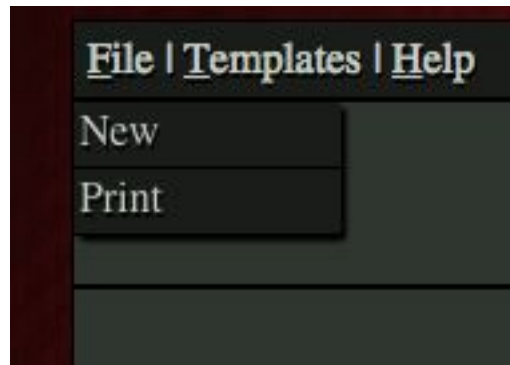

Figure 1 – New Project

Drawing Shapes

Drawing shapes in the FOLD Program is fun and easy! To create a new shape, simply select the shape you want using the **Add Triangle**, **Add Square**, or **Add Hexagon** button, and click anywhere on the blank canvas. The shape you selected will appear on the canvas, and will be used as the base shape for your template (Figures 2 and 3). **NOTE:** Be sure you are in draw mode during this process by selecting **Draw Mode** located on the top right portion of the application.

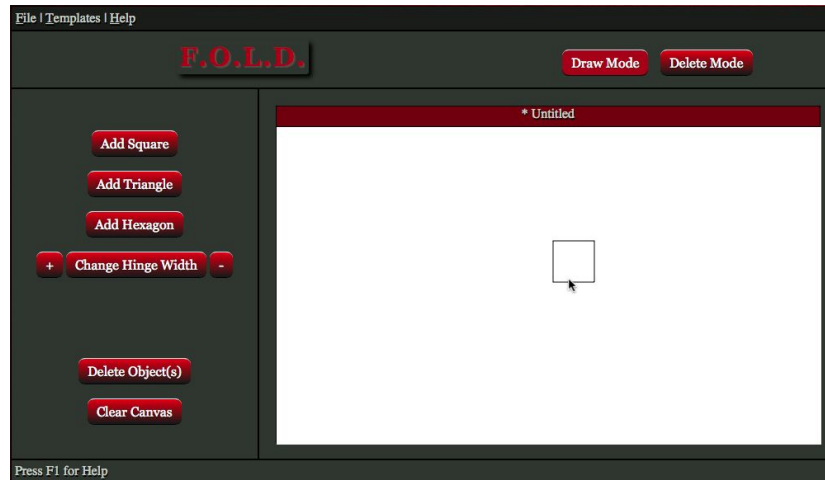Figure 2 – Select One of Three Shapes Available

Figure 3 – Click Anywhere on Blank Canvas to Add Shape

Adding Shapes to Template

With the FOLD Program, you can add shapes to the one(s) already on the canvas; giving you the ability to create a template you can print and watch fold into a 3D structure! To add shapes, simply select the shape you wish to add to the one on the canvas using the **Add Triangle**, **Add Square**, or **Add Hexagon** button. When you have selected your desired shape, the program will show all of the places you can add the shape on the canvas. These potential addition spots will show up as the desired shape highlighted in blue. When you know where you want to add the shape, click on the area, and the shape will be added to the template. This process can be repeated many times, allowing you to add multiple shapes to your template! Figures 4-7 illustrate this process. **NOTE:** Be sure you are in draw mode during this process by selecting **Draw Mode** located on the top right portion of the application.
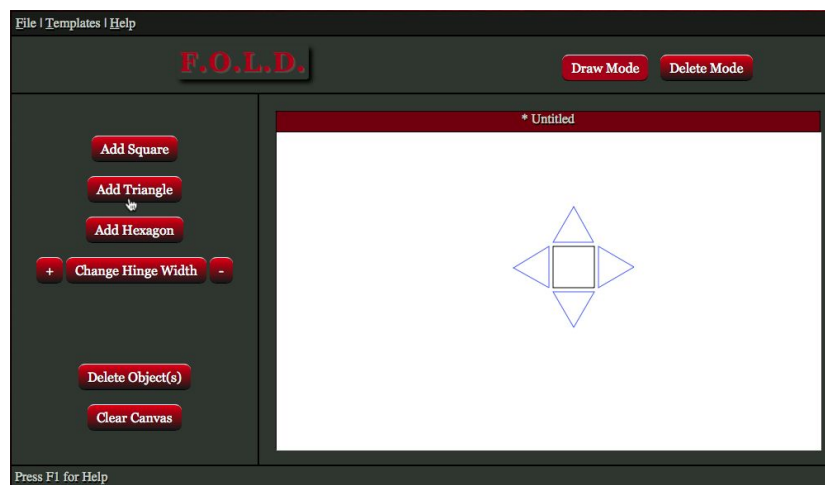

Figure 4 – Potential Addition Spots for "Add Triangle" Option
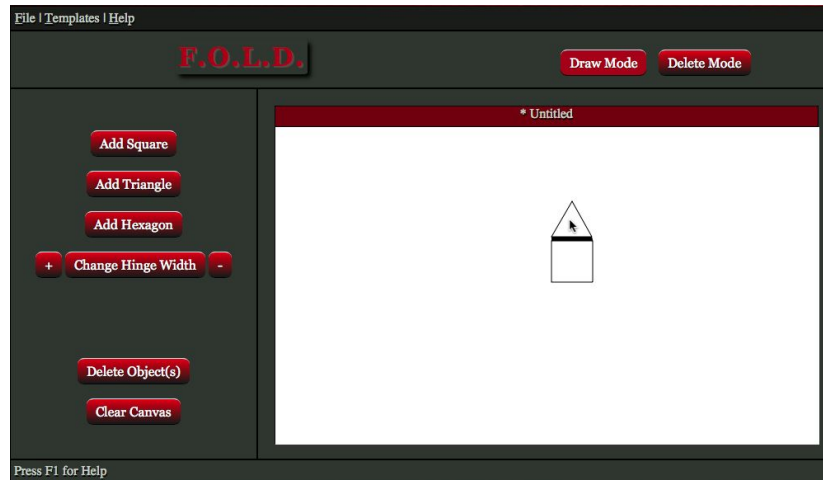
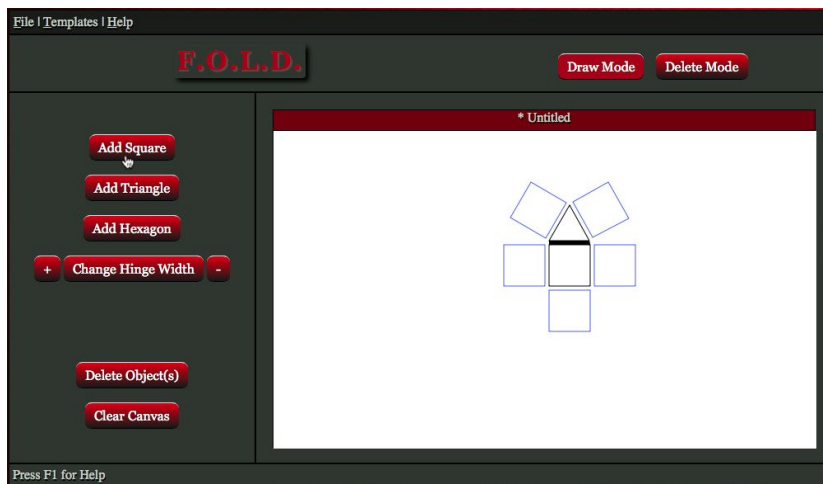Figure 5 – Addition of Triangle to Template

Figure 6 – Potential Addition Spots for "Add Square" Option
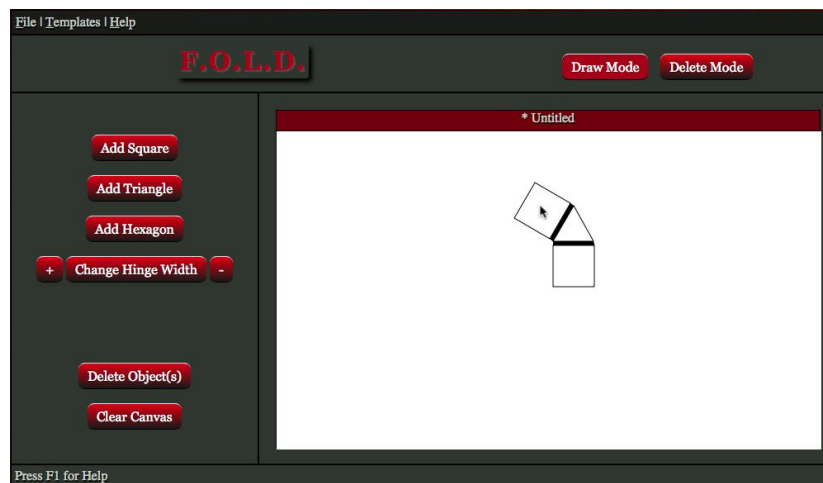

Figure 7 – Addition of Square to Template

Deleting Shapes

To delete an unwanted shape, click on the **Delete Mode** button located on the top right portion of the FOLD application next to the **Draw Mode** button (Figure 8). Once this has been done, click on the shape you wish to delete from the template. The shape will be highlighted red (Figure 9). Then, click on the **Delete Object(s)** button. Clicking this button will result in the removal of the object from the template (Figure 10)!
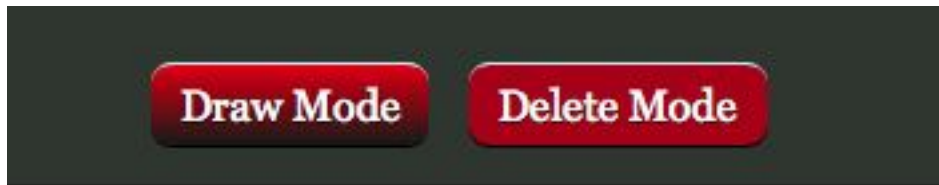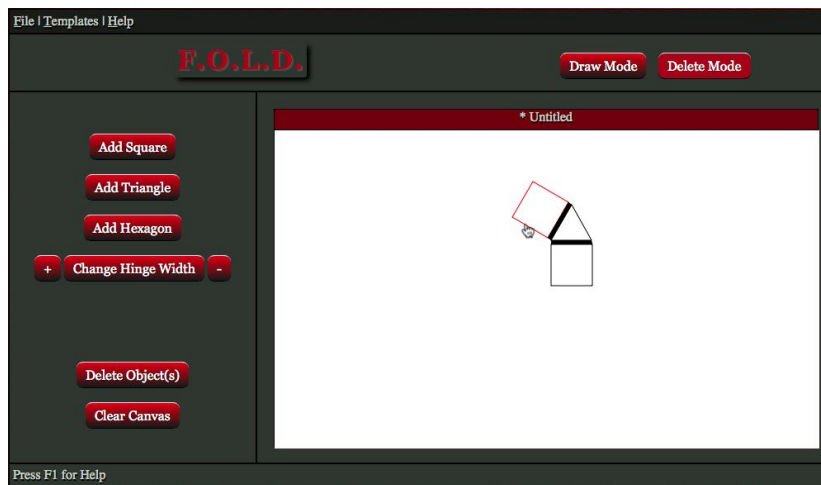

Figure 8 – Delete Mode Selected
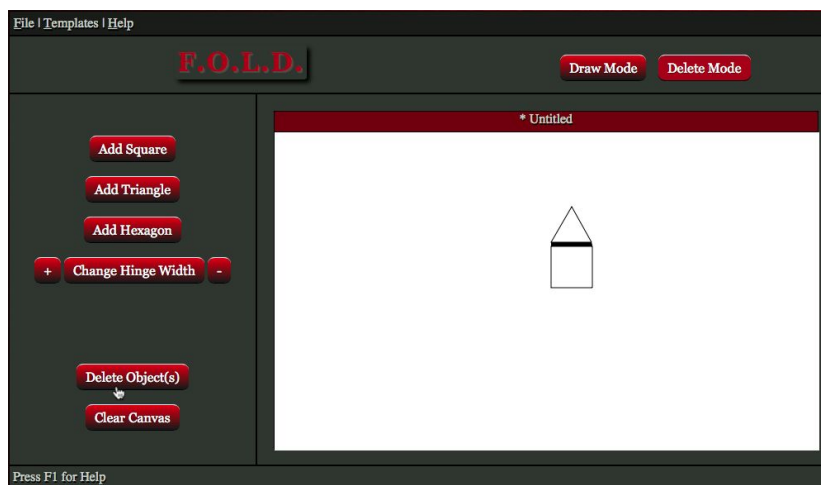

Figure 9 – Shape Selected for Deletion

Figure 10 – Shape Successfully Deleted From Template

Clearing the Canvas

If you decide you want to delete the canvas completely, you may choose to use the **Clear Canvas** button. Doing so will result in the removal of your template from the canvas (Figure 11). **NOTE:** Once this has been done, you cannot retrieve the template you created.
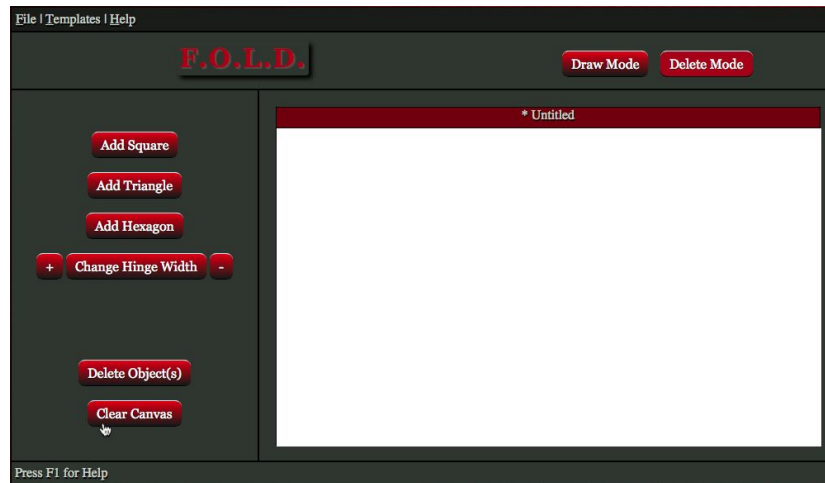

Figure 11 – Removal of Template Using "Clear Canvas" Button

Changing Hinge Width

Hinge width is very important in the FOLD process, as it affects how the folding of the template will actually occur. With the FOLD program, this can be adjusted, allowing you to see the affects of hinge width on the folding of your template! To change the hinge width, select the shape you wish to add to your template. Before clicking on the area you want to add the shape, use the **+** or **-** buttons to adjust the width of the hinges (Figure 12). Once you have found a suitable width, select the region where you want to add your shape, and the shape with a larger/smaller hinge width will be added (Figure 13).
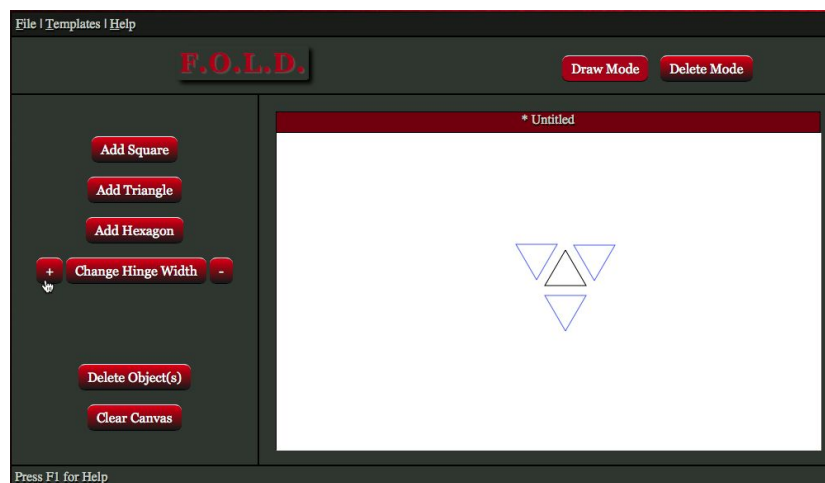

Figure 12 – Potential Additions Spots for "Add Triangle Option" With Larger Hinge Width
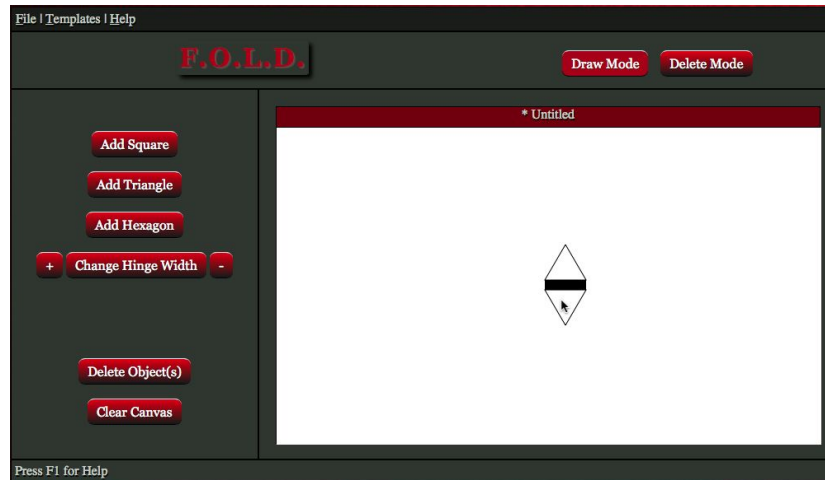
Figure 13 – Addition of Triangle with Larger Hinge Width to Template

Adding a Pre-Made Template to the Canvas

Sometimes, creating a 3D object can be tricky! To help with the spatial understand of going from 2D templates to 3D objects, two pre-made templates have been provided. To use these templates, go to the **Template** menu and select either **Cube** or **Rectangular Pyramid** (Figure 14). The template you select will be added to the canvas (Figure 15), where you can print it out and fold it to see the 3D shape!

Figure 14 – "Templates" Menu and Two Pre-Made Templates
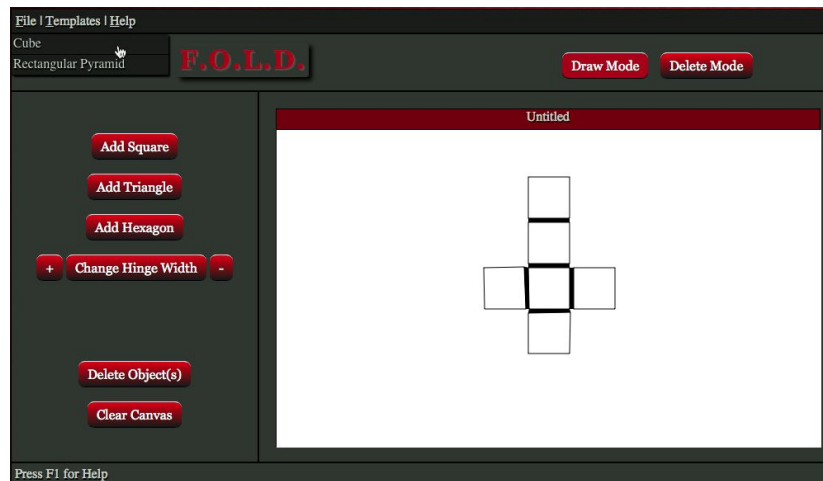

Figure 15 – Selection of "Cube" Template

Printing

To print a finished template, go to the **File** menu and select the **Print** option (Figure 16). This will isolate the template as an image on your web browser (Figure 17), which can be saved on the desktop and printed using the printer dialogue on your computer.
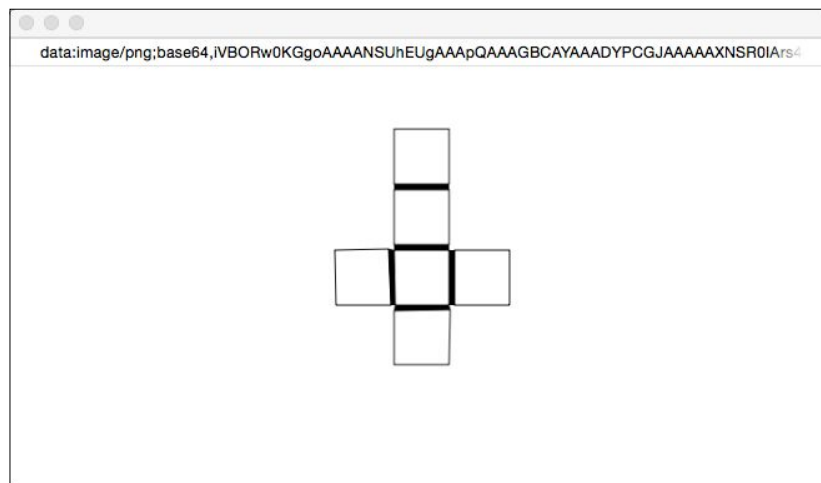

Figure 16 – "Print" Option From "File" Menu

Figure 17 – Printed Template