Lab Exercises : Layers and Animation in GIMP
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Note: This lab is designed as a tutorial on GIMP and GAP (Gimp animation package). The first part of the lab is an exercise to familiarize you with GIMP layers. The second part of the lab is an exercise to use GAP. Remember there is no ‘one’ right sequence to follow, in order to make an animation. Be creative and explore the various functionalities of GIMP. One possible sequence of steps is described in this lab-tutorial.

Exercise 1: GIMP layers and layer masks.
In this exercise we will work with two images: image of a girl running (henceforth referred to as girl image) and an image of a stream (water image). Download and save these images from:
www.ece.ualberta.ca/~meghna/cmput206/girl.jpg
and www.ece.ualberta.ca/~meghna/cmput206/water.jpg.

1. Open GIMP.
2. Click FileÆOpen, and open the girl image.
3. Click FileÆOpen as layer, and open the water image as a layer on top of the girl image. In the image window you will notice that the girl image has disappeared.
4. If a Layers, Channel dock/dialogue window is not already open, then from the image window click DialoguesÆCreate New DockÆLayers Channels and Paths, to open the Layer dock.
5. Your Layer dock should look something like Figure 1 (the names of the layers might be different).
6. Before we can work with the background image of the girl we must add an alpha channel to the image. The alpha channel will allow us to move this image to a higher position in the layer stack and also allow us to change the transparency of the girl image. To add an alpha channel, right click on the girl image in the layer dock. In the menu that opens (Figure 2), scroll down and click on add alpha channel. Remember the girl image must be highlighted in blue in the layer dock (only then is a layer selected).

7. Now, raise the background layer to the top of the stack by clicking on the background layer and then using the up-arrow key in the layer dock (Figure 3).
8. Change the opacity of the girl layer by moving the opacity ruler at the top of the layer dock, see Figure 4. Water from the lower layer begins to show through, BUT we don’t want water to show through the girl’s body. So we will now create a layer ‘mask’ to add to the girl image. A layer mask can be used to define areas in a layer which can be made opaque or transparent.

9. To add a layer mask, first we need to select the region we want in our mask. To select regions in an image or layer we can use the image selection tools in the toolbox window.
(Figure 5). Try a few of these tools to select the region you want. Hold down the shift key to select more than one region.

![Selection tools](image)

**Figure 5: Selection tools.**

10. In our case, we want to select the grass in the girl image (or conversely the girl in the foreground). If you select the grass region then you need to check ‘invert mask’ box in the following step, else if you select the girl region, then do not check that box. Once you are happy with your region selection, from the image window click **Layer ➔ Mask ➔ Add Layer Mask**. Choose the options as shown in Figure 6. (Remember the ‘invert mask’ criterion discussion above when you do this step).

![Add Layer Mask](image)

**Figure 6: Add a mask to the layer (invert mask only if you have the grassy region as your selection).**
11. In the layer dock view you will see that the layer mask is displayed adjacent to the layer now (Figure 7).

![Figure 7: Mask layer displayed in the layers dock.](image)

12. If the selection view is still being highlighted in your image, then from the image window click Select→None. (Figure 8.)

![Figure 8: Unselect the selection.](image)

13. Change the transparency of the top layer (girl image) so that some water begins to show from the layer beneath. If all went well, then only the grassy region in the girl image
should allow water to show through. The body of the girl should remain opaque. (Figure 9(b))

Figure 9: (a) original girl image (courtesy MS office clipart) and (b) girl image with a water added as a layer.
Exercise 2: GIMP animation package (GAP)

In this exercise, we will use GAP to develop a very simple animation. We will use a flower image (courtesy MS office Clipart) which can be downloaded from: www.ece.ualberta.ca/~meghna/cmput206/flower.jpg

In our animation, we want the flower to slowly emerge into the foreground and increase in size at the same time.

1. Open GIMP. Click File ➔ Open, and open the flower image.
2. From the same toolbox window, Click File ➔ New, accept the default settings and just click OK. A blank image opens in a separate image window.
3. In this new image window, click File ➔ Save as.
4. Save this image as frame1_00001.xcf in your animation’s folder. GAP will be creating a lot of images with the names 00001-000030.xcf, so it is best to create a separate folder for your animation, other wise you might have to do some clean-up later on. While the text “frame1_” is not important and you can choose any name that you wish, “00001.xcf” is mandatory text. All animations in GIMP need to have at least one such file name to begin with.
5. Remember to keep the flower image still open while doing the following steps.
6. In the frame1_00001.xcf image window, click on Video ➔ Duplicate Frames.
7. In the menu box that opens, change the “N times” slider to 29 and click OK. We are creating an animation with 30 frames, so excluding frame1, we still need 29 more duplicated frames.
8. In the frame1_00001.xcf image window again, click Video ➔ Move path. Display similar to Figure 10 should open up.
9. If all has gone well, then your source image option (figure 11) should be showing you the flower image. Right under the source image, change the Stepmode from ‘Loop’ to NONE.

10. The section shown in Figure 12, shows us the number of points in our animation and the opacity/perspective/scale etc. for this point of the animation. In order to better design our animation, first check the instant apply box under the preview window.
11. For Current point [1] of [1] change the opacity to 0, change the width and height to 50. Notice the changes in the preview window.

12. In the Edit Control section as shown in Figure 14, click on add point. The current point list now changes to Current Point [2] of [2].
13. For the second point, change opacity to 100, and change width and height to 400. Notice the changes in the preview window.


15. In the pop-up window that opens, make changes as shown in Figure 15 and click OK.

![Figure 15: Animation preview setting.](image)

16. Play your animation in the playback window that opens. If you’re happy with your animation, close the playback window and move to the ‘Untitled_some_number.bmp (RGB 30 layers)’ image that has opened. You can also close the move path dialogue window that is open in the background.

17. In the untitled.bmp image window click on **Filters**→**Animation**→**Optimize for GIF**. Another untitled image window opens, in this window click **File**→**Save**. Save it as ‘<somefilename>.gif’, click Save.

18. In the dialogue box that opens check **save as animation** and check **convert to indexed** and click **export**. In the new dialogue box that opens accept the default settings and click **OK**.

Congratulations! You have just created your first animation in GAP. While this tutorial is not a comprehensive guide to GAP, hopefully it will be a good first start for you to design and produce much more elaborate and artistic animations using GIMP.