



Chapter 2

Advanced GIMP

Learning Objectives

After learning this chapter learner will be able to:-

- State the purpose of using Gimp software.
- List the features of Gimp.
- Use advance tools of Gimp for editing the images.
- Align different objects placed in a Layer.
- Create image by merging two or three images using Layers.
- View the images in different dimensions using Perspective tool.
- Apply different effects on image using Masking option.

INTRODUCTION

GIMP is called multi-platform photo manipulation tool. Since, GIMP is free software, it is covered by the General Public License [GPL]. The GPL provides the users with the freedom to access and alter the source code. In this chapter, you will learn advance tools of Gimp used to give different projections to the image to get the desired result.

1. REVIEW OF GIMP COVERED IN CLASS IX

GIMP is a GNU Image Manipulation Program. It is a powerful open source image editing tool that provides retouching, authoring and composition of photos. It consists of the features similar to the ones provided by the other available Photo Editing software. It is freely downloadable software, which can be downloaded from www.gimp.org site.

GNU/Linux distributions include GIMP as a standard application. The GIMP is also available for other operating systems such as Microsoft Windows™ or Apple's Mac OS X™ (Darwin).

1.1 Features of GIMP are:

- ❖ It can be used as a simple paint program
- ❖ It can be used as an expert quality photo retouching program.
- ❖ It can be used as an online batch processing system.

- ❖ It can be used as a mass production image producer to develop different models.
- ❖ The advanced scripting interface allows everything from the simplest task to the most complex image manipulation procedures to be easily scripted.
- ❖ It can convert and save files to many file formats such as gif, jpeg, tiff.etc
- ❖ It can load and save animations in a convenient frame as layer format.
- ❖ Virtually unlimited images can be opened at one time.
- ❖ GIMP works with numerous operating systems including Linux, Mac OS and Microsoft Windows.

2. TOOL BOX

The Basic tools were learnt in Class IX. Here we would learn some advanced tools.

2.1 Move Tool [M]

The Move Tool is used to move layers, selections, paths or guides of both the objects and the text.

2.2 Align Tool [Q]

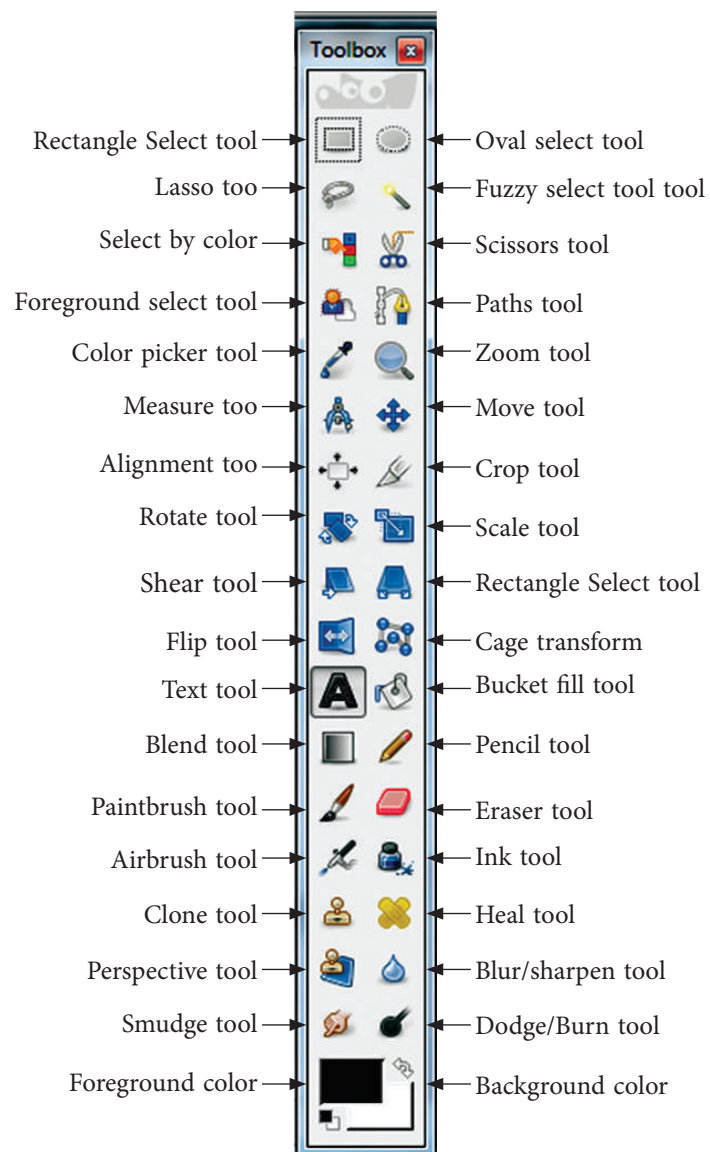
The Align tool is useful to align the image layers with various image objects.

2.3 Scale Tool [Shift + T]

The Scale Tool is used to scale layers, selections or paths (the Object).

2.4 Shear Tool [Shift + S]

Shear tool is used to shift one selected part of an image, a layer, a selection or a path to a direction and the other part to the opposite direction. For instance, a horizontal shearing will shift the upper part to the right and the lower part to the left.



2.5 Perspective Tool

The Perspective Tool is used to view the images in different dimensions, of the active layer content.

2.6 Flip an Image

In a photo, if the face of a person is in the left side direction, this tool changes the direction of the face to the right side. It creates the mirror image of the photo.

2.7 Rotate an Image

This tool is used to rotate an image in different directions i.e. from horizontal to vertical and vice versa.

2.8 Blend Tool [L]

This tool is used to fill the selected area with a gradient blend of the foreground and background colours by default. These colours can be modified to change the colour of the gradient.

2.9 Blur/Sharpen Tool [Shift + U]

This tool is used to blur or sharpen the image using the current brush. Note that in “Sharpen” mode, the tool increases the contrast where the brush is applied.

2.10 Smudge Tool [S]

The Smudge tool uses the current brush to smudge colours on the active layer or the selection. It takes the colour and uses it to mix it with the next colour it meets.

2.11 Dodge/Burn Tool [Shift + D]

The Dodge tool uses the current brush to lighten the colors in your image.

The Burn tool uses the current brush to darken the colors in your image.

The mode will determine which types of pixels are affected.

2.12 Eraser Tool [Shift + E]

Eraser Tool works similar to a classic eraser. Simply select the tool and drag on the canvas to erase things.

2.13 Pencil tool [N]

The Pencil Tool is used as the same way that you would use a real pencil to draw. Simply select the tool and drag on the canvas to draw with the Pencil Tool.

2.14 Paintbrush tool [P]

The Paint Brush tool draws brush like strokes, as if you were painting. It lets you create special effects. Unlike the Pencil Tool, the brush tool draws both a fill and outline.

3. STEPS TO USE THE TOOLS STATED ABOVE USED IN GIMP ARE AS FOLLOWS

3.1 Move Tool [M]

The Move Tool is used to move layers, selections, paths or guides. It works also on texts.

You can access the Move Tool in different ways:

From the image menu bar Tools → Transform Tools → Move

By clicking the tool icon: 

By using the keyboard shortcut M.

The Move tool is automatically activated when you create a guide.

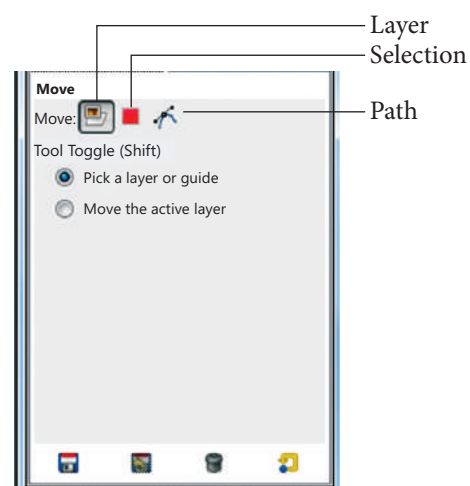
To use this tool simply click on the canvas and drag the selection to a desired location.

Note: Holding down the space bar changes the active tool to Move temporarily.

3.2 Move Tool Options

Normally, tool options are displayed in a window attached under the Toolbox as soon as you activate a tool. If they are not, you can access them from the image menu bar through

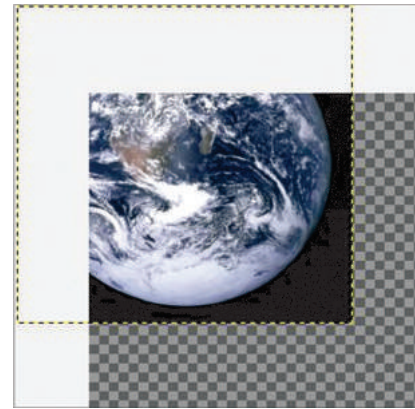
Windows → Dockable Windows → Tool Options which opens the option window of the selected tool.



If Move is on “Layer” –
Only the current Layer
will be moved.

If Move is on “Selection” –
The selection’s outline will
be moved.

If Move is on “Path” - The
mouse pointer turns to a
small hand when it goes
over a visible path. Then you can move this path by click-and-dragging it (it will be the active path while moving).



Selected part of the Image is moved

3.3 Align Tool

The Align tool is useful to align the image layers with various image objects. When this tool is selected, the mouse pointer turns to a small hand. By clicking on an element of a layer in the image, you choose the layer which will be moved (with Shift + click, you can choose several layers to be aligned), this focalised layer has small squares in corners. Various buttons in the dialog allow you to select how the layer will be moved. And you can select the image object (other layer, selection, path...) the selected layer will be aligned on. This object is called target.

You can activate the Align tool in several ways:

From the image-menu, through: Tools → Transform Tools → Align, By clicking on the tool icon: in the toolbox, By using the Q keyboard shortcut.

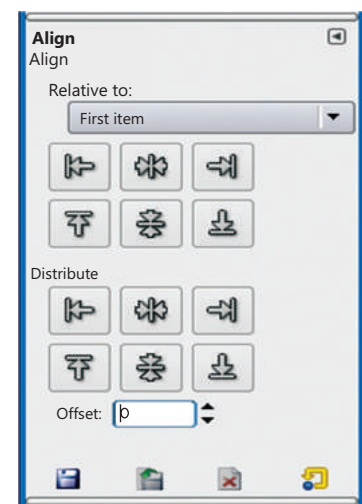
3.4 Align Tool Options

The options of Align Tool become active when a layer

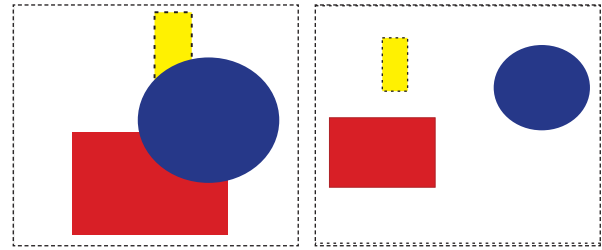
is selected. When you click on one of these buttons, you align the selected layer with left edge, horizontal middle, right edge, top edge, vertical middle, or bottom of the target.



These options seem to differ from the “Related to ” options only by the possibility to set an offset. This offset is the distance which will separate the selected layer(s) from



the target once the alignment is performed. Distribute add this offset to the left edges, horizontal centres, right edges, top edges, vertical centres, or bottoms of targets.



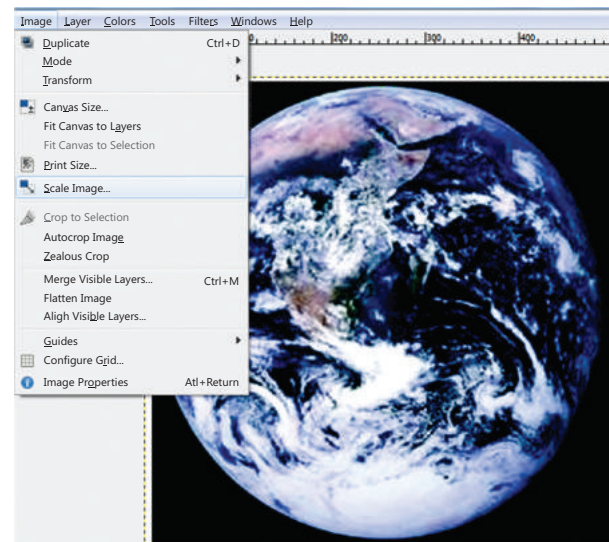
Images using different alignments

3.5 Scale Tool [Shift + T]

The Scale Image command enlarges or reduces the physical size of the image by changing the number of pixels it contains. It changes the size of the contents of the image and resizes the canvas accordingly.

You can access this command from the image menubar through Image → Scale Image.

Step 1: Click on Image → Scale Image



Step 2: Set the width and height and click on scale

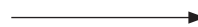
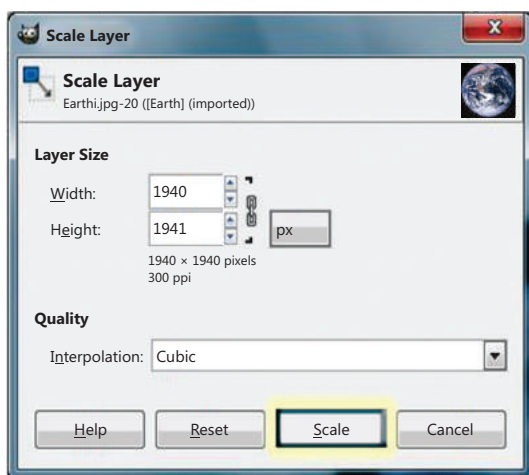


Image after scaling

3.6 Shear Tool [Shift + S]

Shear tool is used to shift one part of an image, a layer, a selection or a path to a direction and the other part to the opposite direction. For instance, a horizontal shearing will shift the upper part to the right and the lower part to the left.

You can use the shear tool in several ways:

In the image-menu through: Tools → Transform Tools → Shear,

By clicking the tool icon:  in Toolbox,

Also by using the Shift+S key combination.



Before using Shear Tool



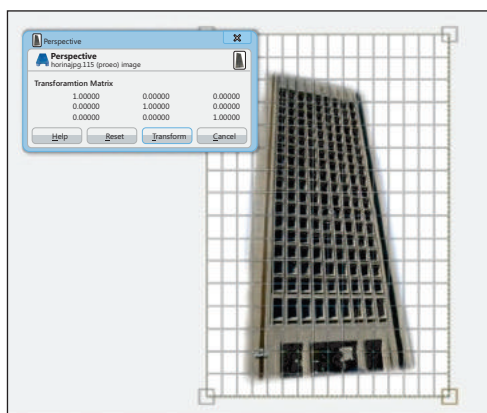
After using Shear Tool

3.7 Perspective Tool

The Perspective Tool is used to change the dimensions of the active layer content, of selection content or of a path.

You can use the Perspective tool in different ways:

By clicking the tool icon: in Toolbox, By using the Shift+P key combination.



After using Perspective

3.8 Flip an Image

When you need the person in the photo looking in the other direction, or you need to top of the image to be the bottom like developing the Mirror image. Right click on the image and follow the menus Tools → Transform Tools → Flip, or use the button on the toolbox.

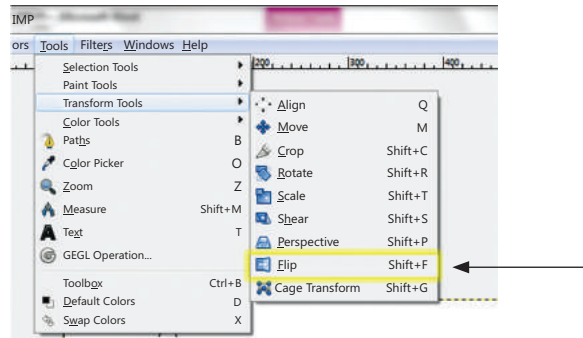


Image before flipping



Image after flipping

3.9 Rotate an image

This tool helps you to revolves the layer, paths and selected portion in the image.

It helps to spin an image in different directions.

Steps to rotate an image are as follows:

Right click on the image, and follow the menus Image → Transforms → Rotate → 90 degrees (or 270 depending on the orientation).

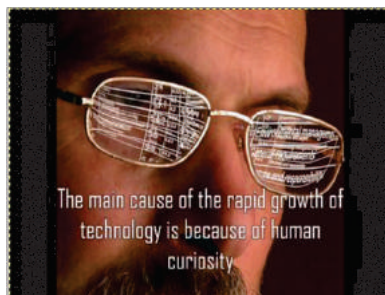
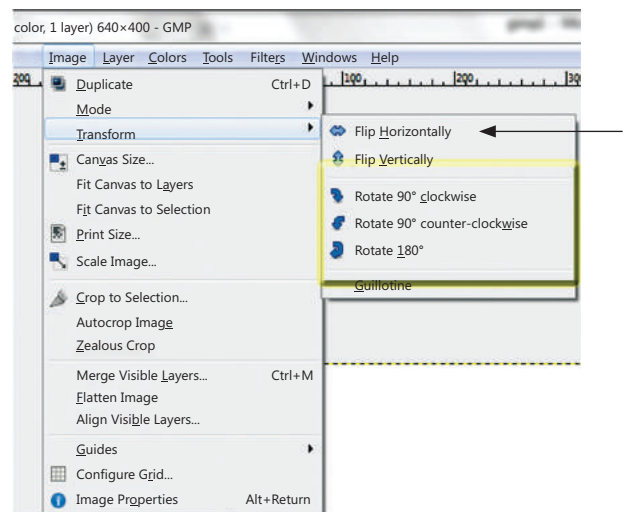


Image before Rotating

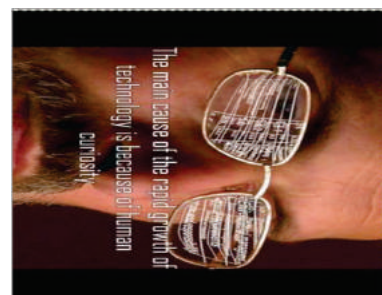



Image after Rotating

3.10 Blend Tool [L]

The Blend tool creates a new color by gradually mixing multiple colours. This tool fills the selected area with a gradient blend of the foreground and background colours. To make a blend, drag the cursor in the direction you want the gradient to go, and release the mouse button when you feel you have the right position and size of your blend. The softness of the blend depends on how far you drag the cursor. The shorter the drag distance, the sharper it will be.

There are different possibilities to activate the tool:

From the image-menu: Tools → Paint Tools → Blend.

By clicking the tool icon .

By clicking on the L keyboard shortcut.

Step 1: Select the foreground and background colour if you want to blend two colours otherwise it will take white & black colour as default.



Step 2: Fill the colour using bucket tool



Step 3: Click on blend tool and select the area till where you want to have blend effect.

3.11 Blur/Sharpen Tool [Shift +U]

Blur mode causes each pixel affected by the brush to be blended with neighbouring pixels, thereby increasing the similarity of pixels inside the brushstroke area.

Sharpen mode causes each pixel to become more different from its neighbours, it increases contrast inside the brushstroke area.

There are different possibilities to activate the tool:

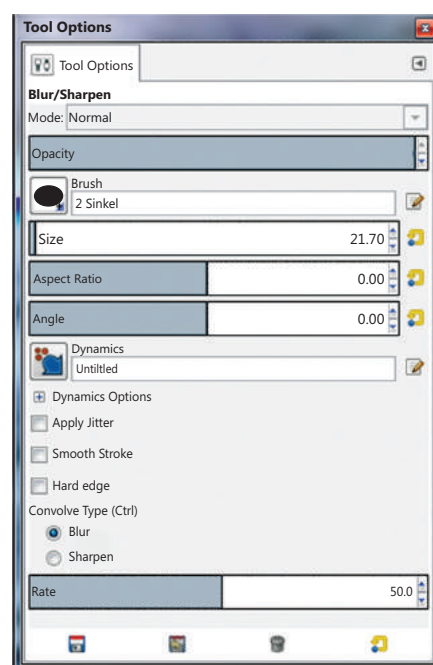
From the image-menu: Tools → Paint tools → Blur/Sharpen.

The Tool can also be selected by clicking the tool icon in the Toolbox.

By using the keyboard shortcut Shift+U.

Holding down the Ctrl key toggles between Blur and Sharpen modes; it reverses the setting shown in the Tool Options.

1. Set convolve type to switch between blur\sharpen.
2. Set the rate
3. Click on the canvas area and keep on dragging the brush until the desired result is obtained.



Blurring can be useful if some element of your image stands out too much, and you would like to soften it. If you want to blur a whole layer, or a large part of one, you will probably be better off using one of the Blur Filters.



Before Blurring the image



After Blurring the image

In “Sharpen” mode, the tool works by increasing the contrast where the brush is applied. Over-application of the tool will produce noise.



Before Sharpening the image



After Sharpening the image

3.12 Smudge Tool [S]

The Smudge tool uses the current brush to smudge colours on the active layer or a selection. It takes color in passing and uses it to mix it to the next colours it meets, on a distance you can set.

You can find the Smudge tool in various ways:

Through Tools → Paint Tools → Smudge. in the image menu, by clicking on the tool icon: in Toolbox, Or by pressing the S key on keyboard.

Using Ctrl with Shift, you can constrain the angle between two successive lines to vary by steps of 15°.



Before smudging the image



After smudging the image

3.13 Dodge/Burn Tool [Shift + D]

The Dodge tool uses the current brush to lighten the colours in your image.

The Burn tool uses the current brush to darken the colours in your image.

The mode will determine which types of pixels are affected.

There are different possibilities to activate the tool:

From the image-menu: Tools → Paint Tools → Dodge / Burn.

The Tool can also be called by clicking the tool icon or by using the Shift+D keyboard shortcut.



Before using the Dodge Tool



After using the Dodge Tool



Before using the Burn Tool



After using the Burn Tool

4. LAYERS

In GIMP terminology, each individual transparency is called a layer. Layer provides a variety of effects that change the appearance of the image. It allows you to work with one element of an image without disturbing the others. Layers are the transparent sheets one on top of the other. You can see through transparent areas of a layer to the layers below.

A new image in Gimp has a single layer. You can add a number of additional layers to add different elements in an image.

4.1 Adding a new layer:

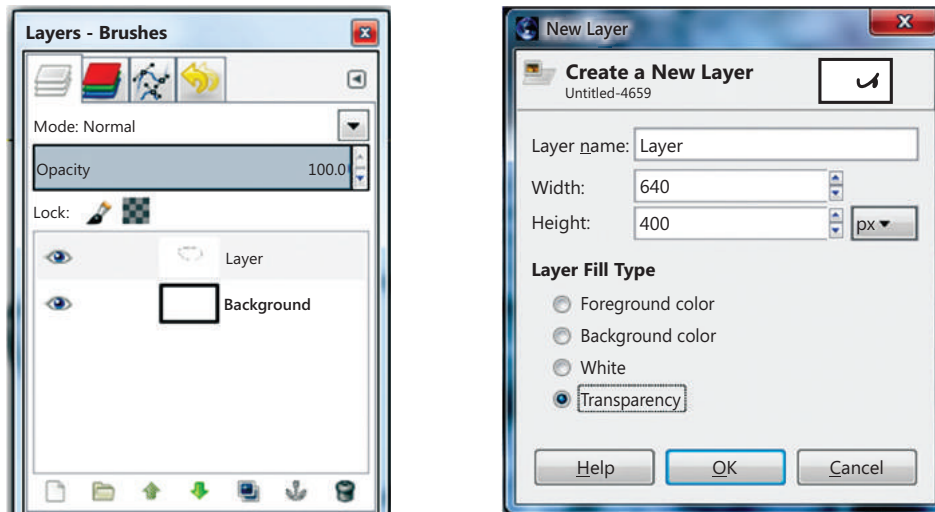
To create a new layer follow the steps:

Layer menu —→ select new layer.

Enter the information for a new layer; transparency is good for overlapping layers or necessary for deleting portions of an image.

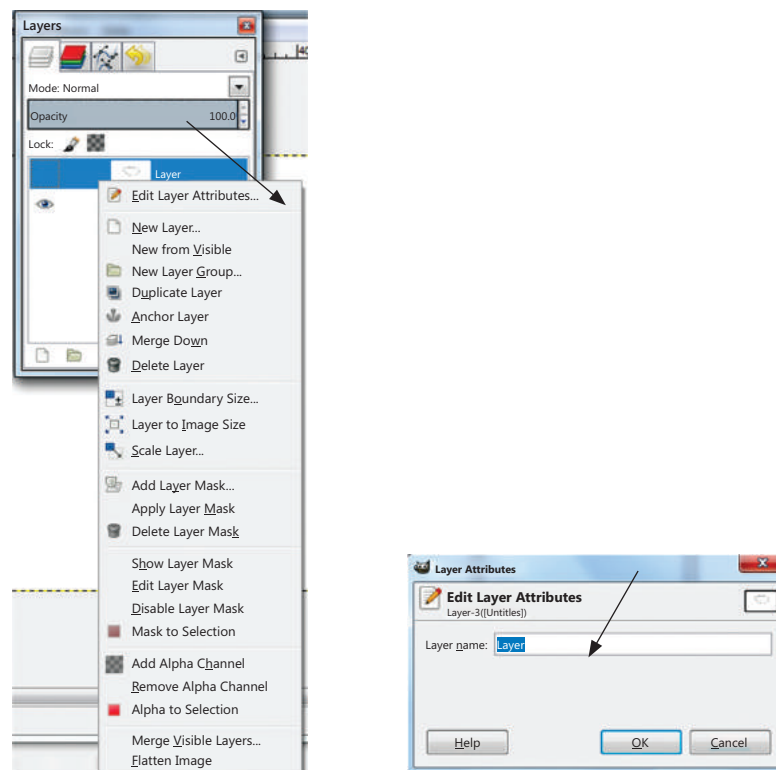
Give the layer a name which will help you to identify it later, such as while changing the background.

After all the information is set, click the OK button.



4.2 Renaming a Layer

To rename a layer after it is created, highlight the layer, right click it and select edit layer attributes, then type in a new name.



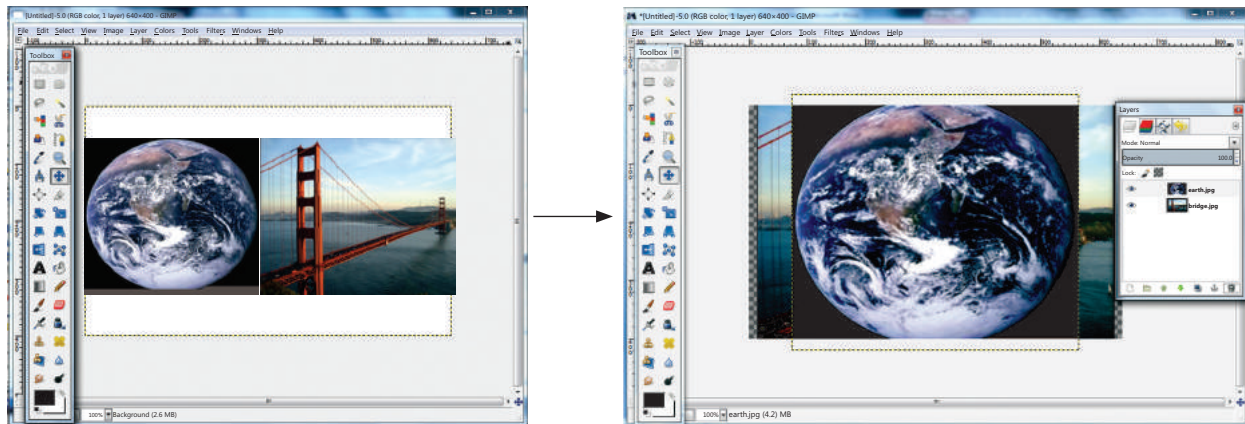
4.3 Deleting a Layer

To delete a layer, select the layer and press the bin like looking button at the bottom of layers tab.

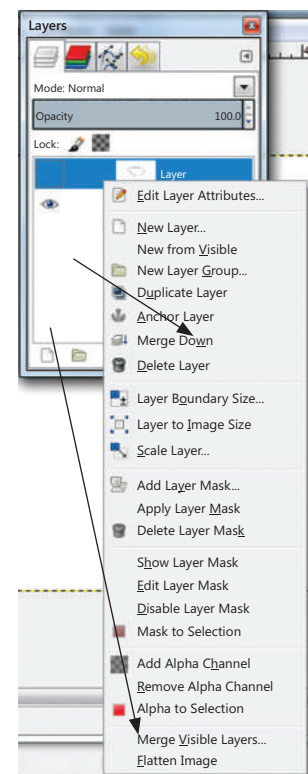
4.4 Merging a Layer

To merge a layer,

Step 1: Open both the images as layers.



Step 2: Right-click the layer and select merge down or merge visible option available in the drop-down menu. The Merge down option merges the selected layer with the layer right below it, whereas the Merge visible option merges all the visible layers.



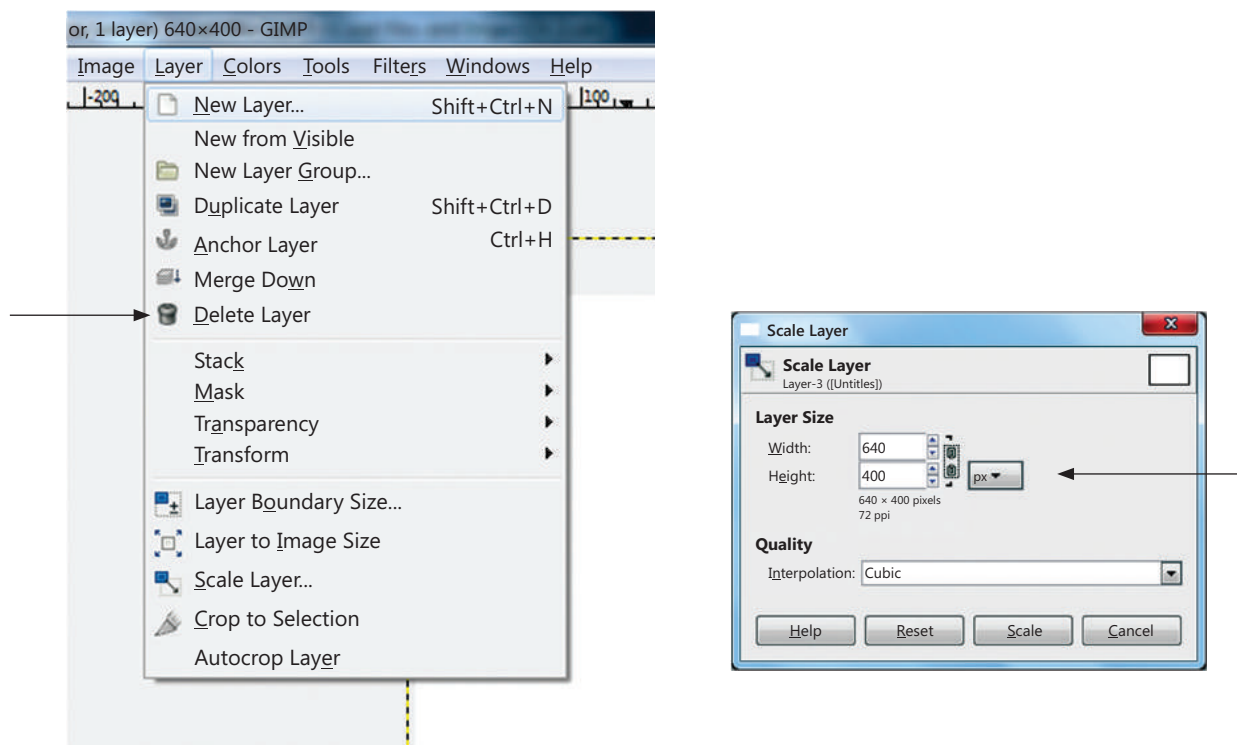
Step 3: Resultant image, after merging the two layers.



4.5 Scaling a layer

The Scale Layer command resizes the layer and its contents. The image loses some of its quality by being scaled. The command displays a dialog where you can set parameters concerning the size of the layer and the image quality.

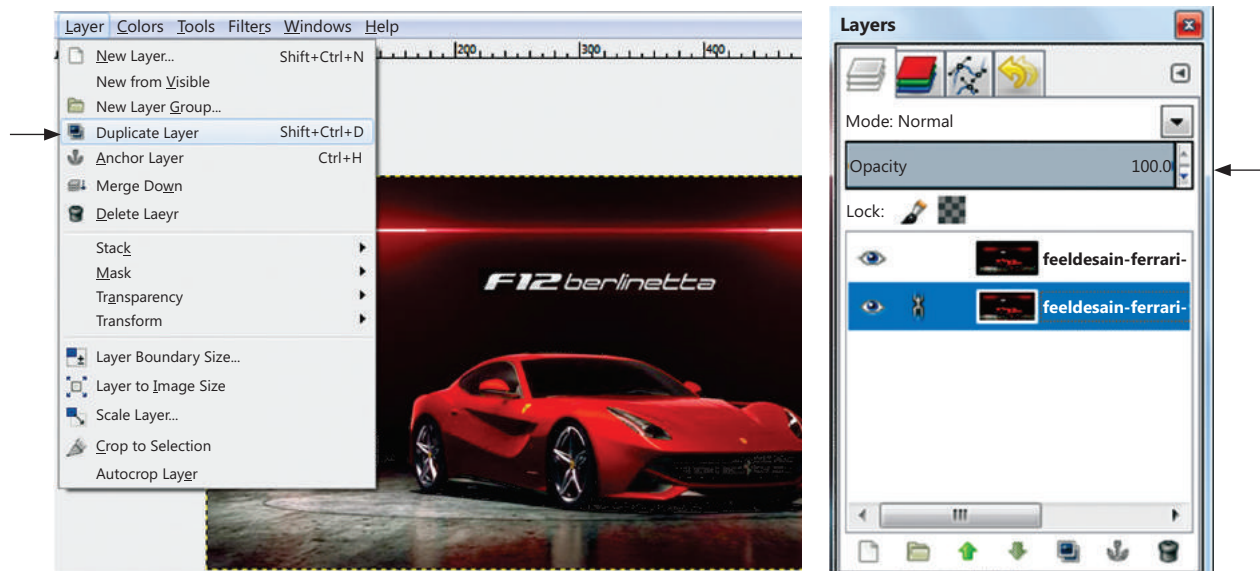
You can access this command from the image menubar through Layer → Scale Layer.



4.6 Duplicating a Layer

The Duplicate Layer command adds a new layer to the image which is identical copy of the active layer. The name of the new layer is the same as the name of the original layer, but with “ copy” appended to it.

You can create a duplicate layer by clicking image menu → Layer → Duplicate Layer, or from the local pop-up menu that you get by right-clicking on the Layer Dialog.



A Copy of your previous layer will be automatically made in the Layers tab.

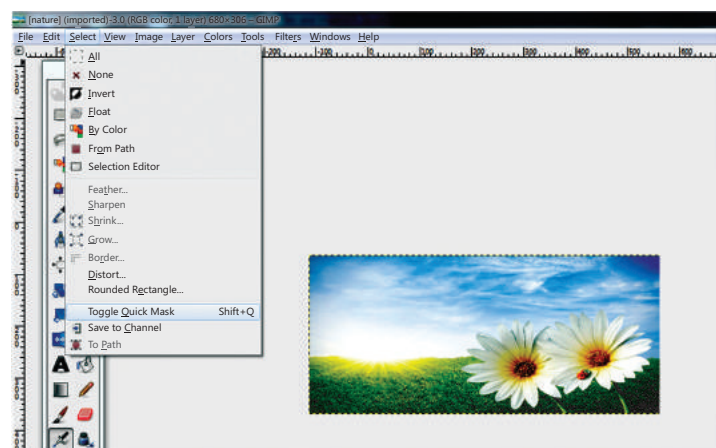
5. MASKING

The Mask is GIMP's way of showing the full structure of the selection. Mask also provides the ability to interact with the selection in new, and substantially ways. Masking layers (similar to the fusion mask in Photoshop) which allows you to work on layers with great ease. With this method it is easy to edit corners without touching the layer.

Step 1. Click the small outlined button at the lower left of the image window to toggle Quickmask on and off. The button switches between Quickmask mode, and marching ant's mode.

You can also use Select → Toggle Quickmask, or Shift + Q, to toggle between Quickmask and marching ants mode.

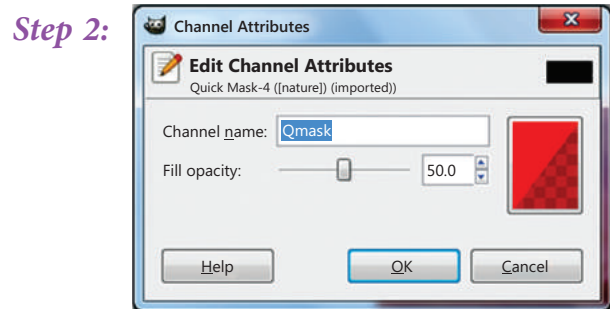
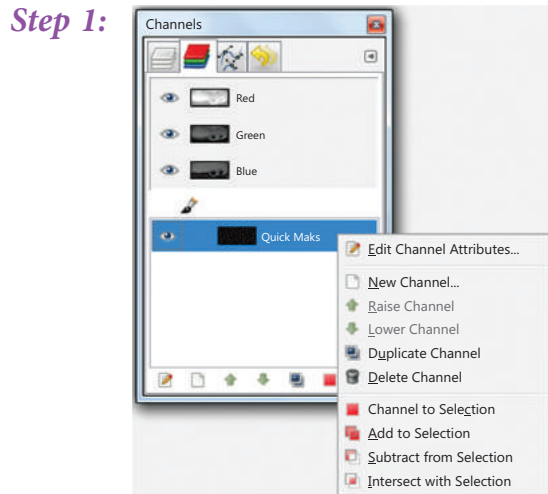
In Quickmask mode, the selection is shown as a translucent screen overlying the image, whose transparency at each pixel indicates the degree to which that pixel is selected.



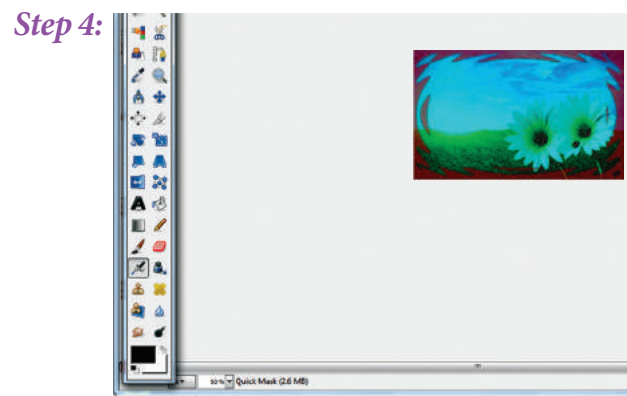
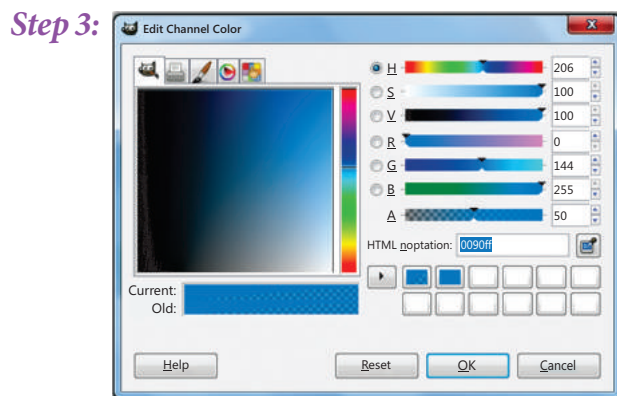
By default the mask is shown in red, but you can change this if another mask colour is more convenient.

5.1 Editing a mask

To edit a mask, go to the channels tab, select “quickmask” channel, right-click to open the drop-down menu and select Edit channel attributes...and change the colour.



Set the settings and press OK



Before Masking



Before Masking

Summary

1. GIMP is a GNU Image Manipulation Program is free and powerful open source image editing tool that provides retouching of photos, authoring of photos and composition of photos.
 2. The Align tool is useful to align the image layers with various image objects.
 3. The Scale Tool is used to scale layers, selections or paths (the Object).
 4. The Shear tool is used to shift one part of an image, a layer, a selection or a path to a direction and the other part to the opposite direction.
 5. The Perspective Tool is used to change the “perspective” of the active layer content, of selection content or of a path.
 6. The Flip tool is used to rotate the image in the other direction to create the image.
 7. The Rotate tool is used to rotate layers within an image.
 8. The Blend Tool is used to fill the selected area with a gradient blend of the foreground and background colours.
 9. The Sharpen tool is used to increase the contrast where the brush is applied.
 10. The Blur tool is used to blur or softened the areas of an image where the brush is applied.
 11. The Smudge tool uses the current brush to smudge colours on the active layer or a selection.
 12. The Dodge tool uses the current brush to lighten the colours in your image.
 13. The Burn tool uses the current brush to darken the colours in your image.
 14. The Eraser tool is used on the canvas to erase things.
 15. The Pencil Tool is used to draw images on the canvas.
 16. The Paint Brush tool lets you draw brush like strokes.
 17. Layers are the transparent sheets one on top of the other.
 18. Masking effect allows you to create merge effects in an image.
 19. If some of your scanned photos do not look colourful enough, you can easily improve their tonal range with the “Auto” button in the Levels tool (Colours→Levels). If there are any color casts, you can correct them with the Curves tool (Colours→Curves).
 20. Not all effects can be applied to all kinds of images. This is indicated by a grayed-out menu-entry. You may need to change the image mode to RGB Image→Mode→RGB), add an alpha-channel (Layer→Transparency→Add Alpha Channel) or flatten it (Image→Flatten Image).
 21. Retouching tools are used for the arrangement of pixels. The following are the retouching tools available in Gimp:
 22. Brush & Pencil Tool
 23. Eraser Tool
 24. Blend Tool
 25. Blur & Sharpen Tool
 26. Smudge
 27. Dodge & Burn Tool
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EXERCISE

A. Multiple choice questions

- _____ tool helps you to add a new layer to the image which is identical copy of the active layer.
(a) Smudge Tool (b) Dodge Tool
(c) Perspective Tool (d) Duplicate Layer
- By default the mask is shown in _____, but you can change this if another mask colour is more convenient.
(a) Red (b) Blue
(c) Green (d) No colour
- In _____ mode, the selection is shown as a translucent screen overlying the image, whose transparency at each pixel indicates the degree to which that pixel is selected.
(a) Default (b) Quickmask
(c) Marching ants (d) Normal
- _____ are the transparent sheets one on top of the other.
(a) Masking (b) Tools
(c) Layers (d) None of the above
- By default the extension of Gimp file is _____.
(a) .Xcf (b) .BMP
(c) .TIFF (d) .PNG
- GPL stands for
(a) General Private license (b) Great Pioneer License
(c) General Public Limited (d) General Public License
- The image loses some of its quality by being _____.
(a) Scaled (b) Merging (c) Renaming (d) Masking
- _____.
(a) Adobe (b) Gimp (c) After Effects (d) Paint Shop Pro X5
- In _____ mode, over-application of the tool will produce noise.
(a) Sharpen (b) Blur (c) Dodge (d) Smudging
- _____ takes colour in passing and uses it to mix it to the next colours it meets.
(a) Sharpen (b) Blur (c) Dodge (d) Smudging

B. Answer the following questions:

- Name the application areas where Gimp can be used.
- Mention all the features of Gimp.
- What do you understand by General Public License (GPL)?

4. Which tool is used to align the objects placed on different layers? Explain all its options.
5. Name the properties needs to be changed while scaling the image.
6. Which tool is used to lighten the pixels in an image?
7. Which tool is used to darken the colour pixels in an image?
8. Differentiate between Shear and Perspective tool.
9. What is the default background and foreground colour of image window?
10. How is blur tool different from smudge tool?
11. Name any four tools used for changing the pixel arrangement in an image.
12. What is the difference between Blur tool and Sharpen tool?
13. How is flipping an image different from rotating an image?
14. Write the steps to apply blend effect on an image?
15. What are Layers? What is the purpose of using Layers?
16. What is the need of merging the Layers?

C. Identify the tools used for the following purpose:

- | | |
|---|-------|
| 1. To resize the layer/image | _____ |
| 2. To move layers | _____ |
| 3. To align the layers with various objects | _____ |
| 4. To create the mirror image | _____ |
| 5. To draw free hand drawings | _____ |
| 6. To lighten the colour pixels of an image | _____ |
| 7. To give wet paint effect in an image | _____ |
| 8. To shift one part of an image/ a layer to a particular direction | _____ |
| 9. To apply different colours without effecting the original image | _____ |
| 10. To remove objects from the canvas | _____ |

D. Application Oriented Questions

1. Shivank has collected pictures of his favourite superhero and wants to make a collage of the superhero in action. Suggest him the way to make collage.
2. Amishi wants to change the background of her class photograph with the school \ building. Help her to do the same.

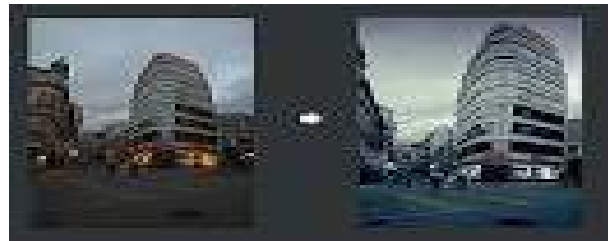
3. Rudraksh has to send his photograph to the passport office for the processing of his Passport but his photograph clicked by the photographer is very dark due to insufficient light. Help him lighten the colour pixel of his photograph as per the requirement.
4. Geetanjali has got a project work in she has been given two images, where one image depicts a girl walking on the grass and other one depicts an ocean. Now she has to project as if the girl is walking on the water surface. Suggest her the way to accomplish the task.
5. Avni wants to change her coloured photograph into white/black photograph along with the borders and corners of the image without affecting the original image. Help her to do the same.
6. Bhuvi is working on her social science project work. She wants to add the image of the Minister but the image is not in the required direction. She needs the mirror image of the photograph. Suggest her the tool to perform the task.
7. Mohit has got a hazy image. He wants to increase the contrast of the image. Suggest him the tool to complete the task.
8. Vasu has inserted an image in a new file. He wants to duplicate the image on the same layer. Suggest him the tool which will fulfil his requirement.

E. Lab Session

1. Collect the photographs of your family members and make a collage of the same. Design a Birthday card for your friend.
 - (a) Add image of a flower and text to the card
 - (b) Fill the background with the texture format



2. Make abstract painting depicting Independence Day. Scan the image of any car and transform the image as shown below.



3. Make a collage depicting the different seasons such as Rainy, Summer, Autumn, Winter. Transform an image using perspective tool.