

## MULTIMEDIA

Multimedia is the content that uses a combination of different content forms such as text, audio, images, animations, video and interactive content. A multimedia application is an application which was a connection of multiple media sources. For ex : Text, graphics, images, sound, animation and video.

### MULTIMEDIA AUTHORISING TOOLS

It is also known as author ware or programs that helps us to write hypertext or multimedia application. This tools usually enables to create a final application by linking together objects, like paragraph of a text, an illustration or sum.

#### DIFFERENT AUTHORIZING TOOLS ARE

- Multimedia authoring way
- Multimedia director
- Multimedia flash

## FLASH

**Flash** is an interactive multimedia and web authoring software. It has become the professional standard for multimedia and web animation. It is not only used to design complete interactive web sites but also arcade style games and database applications. Flash animations are faster than animated GIFs because Flash uses **vector graphics** instead of **raster graphics** and the file size is very small. Flash was created by Jonathan Gay, an employee of Silicon Beach software Company.

### Raster & Vector Graphics

There are two types of pictures : the first one is image, bitmap or **Raster graphics** and second one is drawing or **vector graphics**. Bitmap images are stored with the details of every pixel in the image. Pixels are tiny dots that form the image. Since bitmap images require bits to represent every pixel, they occupy more memory space and the file size is also large. An image with more pixels indicates high resolution. In vector based drawings all shapes are represented, as mathematical equation.

Flash source file has the extension **.fla**. Generally a flash file is called a flash document. You have to create **.swf** ( shock wave flash) file which is called Flash movie and only this file can be run in the Flash Player.

### Animation

Animation is the process of displaying a series of images one after the other. Each image is called a frame. In flash animations are created in two important ways.

- 1) Frame by frame animation : We can create images or objects for each frame and display the frames at a particular speed. It involves more work and takes more time to complete the animation perfectly.

- 2) Tweened animation : We have to create the object only for the first and last frames of the animation and flash automatically interpolates the intermediate frames for our animation based on the object size , color etc. It is also two types i.e motion tweening and shape tweening .

## How to start flash

- Double click on flash8 icon or goto start -> all program -> Micromedia -> Micromedia Flash 8



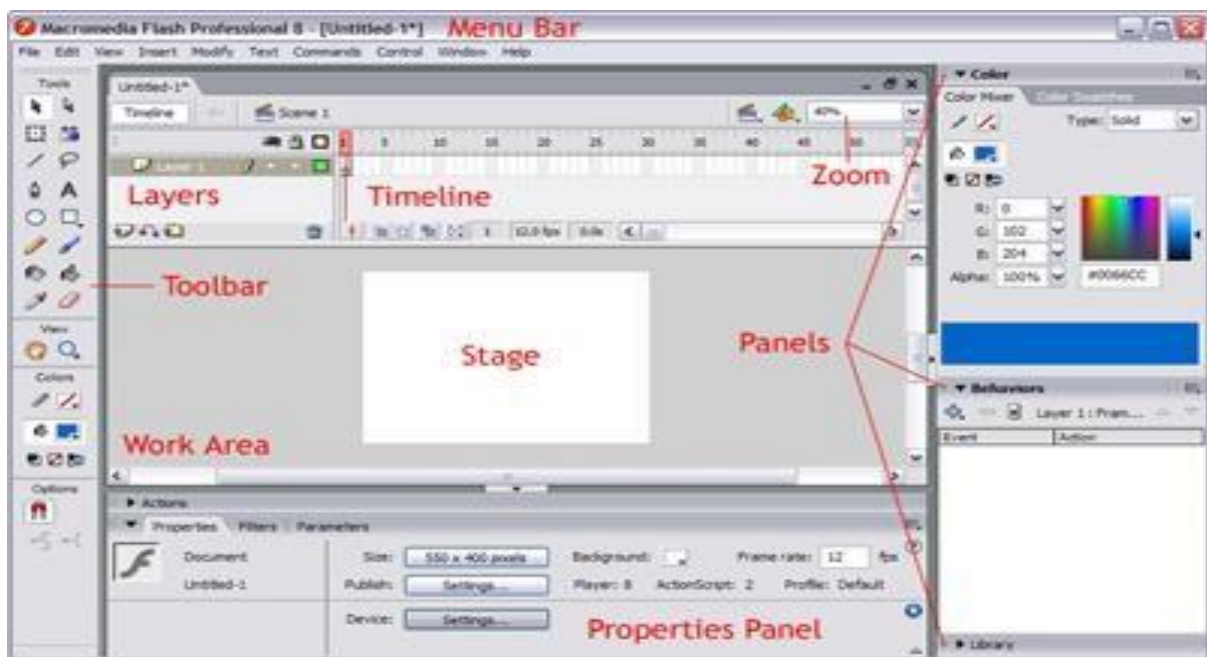
Click on Flash Document for creating a new file

## FLASH SCREEN ENVIRONMENT

The main components of the Flash environment are

- The work area or stage
- Tool bar
- Tool box
- Timeline

- Panels
- Property inspector
- Menus



**Work area & stage :** The stage allows us to place and edit graphics and animations.

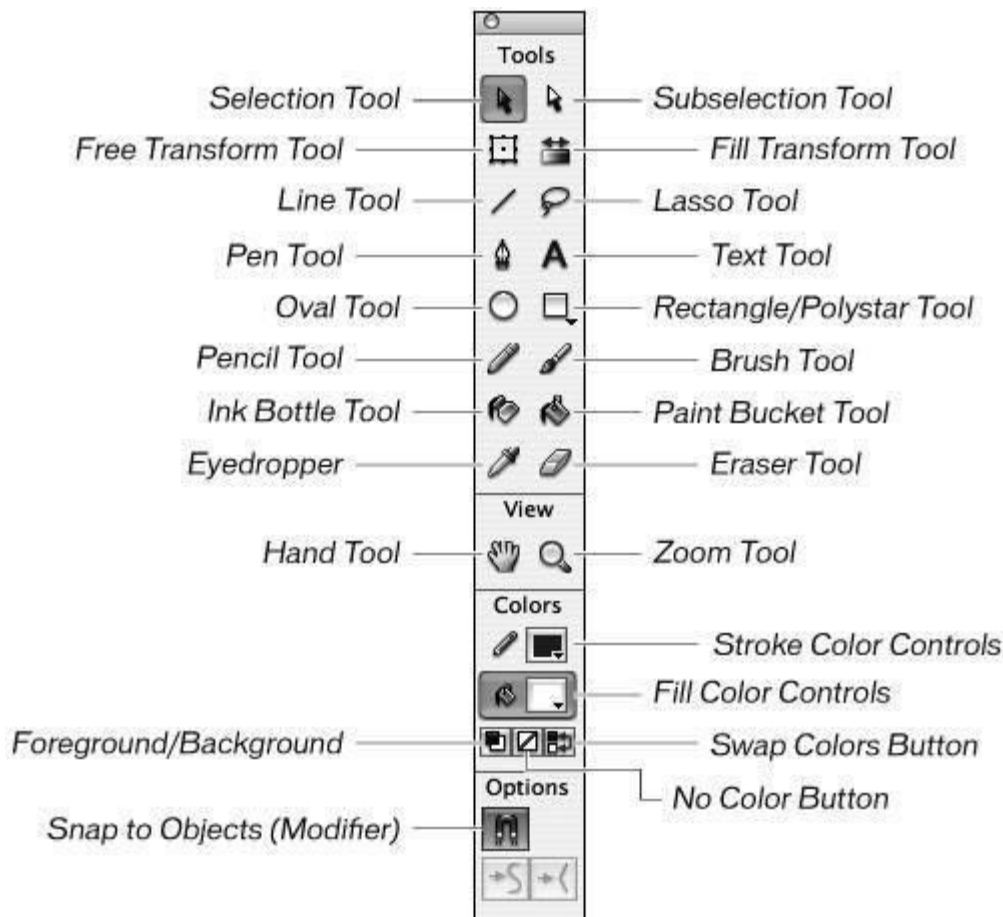
**Toolbar :** A toolbar has many tools of a particular category. The toolbar consists of shortcut buttons to the frequently used menu items.

**ToolBox :** The tools in the toolbox are used to draw and edit graphics on the stage.

**Panel :** It is used to change the setting or attributes of the tool.

**Property Inspector :** It is automatically display the relevant properties of the selected objects.

**Timeline :** Timeline are many layers and each layer has a sequence of frames that contains images. The frame create the animation and the timeline controls the animation.



## Labwork 1

**Draw a butterfly and flip it.**

**Step :**

- 1) Open flash 8 software -> click on flash document 2)
- Create the body of butterfly by using oval tool.
- 3) The wings of butterfly can be draw by using pencil or brush ( brush size can be set as per your requirement)
- 4) Select the arrow tool -> select the wings
- 5) Press right mouse button -> convert to symbol -> Symbol1 -> ok
- 6) Press CTRL+C for copy -> CTRL+V for paste
- 7) Select the recent paste wings -> click in modify -> click in transform -> flip horizontal
- 8) Then drag the flip wings and place it in a particular place.

## Labwork 2

**Procedure to create an animation to represent the growing moon.**

### Step :

1. Open flash 8 software → click on flash document→ go to windows→ properties→ select the properties tool (i.e. property inspector panel) →choose the Background to black.
2. change the stroke color and fill color as white and white under tool bar.
3. Select the oval tool in order to draw the moon. u will get a white circle.
4. Select the white circle on the worksheet using the selection tool→right click→convert to symbol→select movie clip→give suitable name e g: moon1→click ok.
5. Go to filter→click on the + symbol→select glow to apply glowing effect→ select the color to white under glow and adjust the blur x/blur y values.
6. Click on the + symbol again and chose blur-> again adjust the blur x/blur y values.
7. Insert another layer i.e (laryer 2)
8. Change the stroke color as black & fill color as black under tool bar
9. Draw another circle by using oval tool
10. select the new black & black circle by using free transform tool
11. convert to symbol →select movie clip→give suitable name e g: moon2→click ok.
12. select the layer 2 1<sup>st</sup> frame
13. right click → insert key frame → move the circle by pressing right arrow key / up arrow key.
14. repeat the step no. 13 for inserting more key frames and as well as move the circle also ( at least 40 to 50 key frame give us the good output)
15. Finally go to control→ test movie→ u will get a growing moon as the output. (or Press CTRL + Enter)

### Labwork 3

#### Procedure to create an animation to indicate a ball bouncing on steps.

#### Step :

- 1) Open flash 8 software → click on flash document 2)  
Use the rectangle, line tools to draw the stair case.
- 3) Color the staircase just like 3D effect by using radial or linear color
- 4) Draw the ball & color it
- 5) Select the ball by using free transform tool and convert into symbol (Right click -> convert to symbol -> ok)
- 6) Create a new frame by pressing F6 or press right mouse button above of the frame then click on insert key frame.
- 7) After that move the ball little bit down by pressing down arrow key 8) like such a manner repeat the step 6 and 7 for creating 10 to 15 frames.
- 9) To play the movie select the 1<sup>st</sup> frame press CTRL + Enter key .

#### Labwork 4

##### Procedure to simulate movement of a cloud .

###### Step :

1. Open flash 8 software → click on flash document
2. Create a blue background in layer 1
3. Now insert a layer 2 and draw the clouds in this layer.
4. In order to create the clouds, go to tool bar and select pencil option, draw the cloud in layer2
5. Fill the color to the cloud as white , select the cloud by selection tool or free transform tool
6. right click on it- choose convert to symbol option→ give the name as cloud→ select the movie clip option and click ok.
7. Go to filter→click on the + symbol→select glow to apply glowing effect→ select the colour to white→under glow and adjust the blur x/blur y values.
8. Give the appropriate blur effect to the cloud by clicking in + and adjust the blur x / y values .
9. Click in layer 2 → click in frame no 40 of layer 2 → right click →insert key frame → move the could → then click in 1<sup>st</sup> frame of layer 2 → right click → create motion tween (for giving motion to an object)
10. Finally go to control→click on test movies (Press CTRL + ENTER)

#### Labwork 5

##### Procedureto draw the fan blades and to give proper animation.

###### Step

- 1) Open flash 8 software → click on flash document
- 2) Draw a circle → select it by free transform tool → press CTRL+X (cut) → press CTRL+V (for paste the object in the center of the frame).
- 3) Draw the 4 blades of the fan by using any tool e.g. rectangle and use distort option to shape the fan blade.
- 4) Select the circle and all 4 blades → convert to symbol → movie clip → drag the point to the center of the registration point
- 5) Make sure the dot is in the center of the circle.
- 6) Click frame 20 and press **F5(for inserting frame)**
- 7) Move to the properties inspector panel → click in tween option → select motion → then click in rotate option → select CCW
- 8) The press **F6 (for inserting keyframe)**
- 9) Finally go to control→click on test movies (Press CTRL + ENTER)

#### Labwork 6

##### Procedure to display background given (file name : tulip.gif) through your name

###### Step :

1. Open flash 8 software → click on flash document

2. Click in File → import → import to stage → open picture folder → select tulip.JPG → click in open (Here tulip.jpg file is set on background of layer1)
3. Now create a new layer for text entry → click in insert → timeline → layer ( it is layer2) **or** right click on layer 1 option then click insert layer) → select Text tool → click in stage & drag the mouse → open the property inspector panel for changing text font, size, color etc → now type the text as SKDAV.

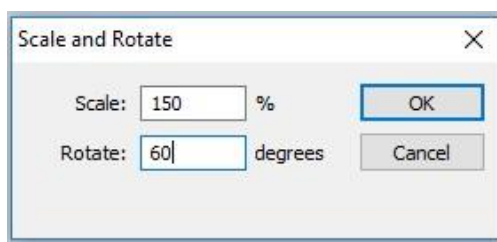
## Labwork 7

**Procedure to position the picture preferably on a plain background of a colour of your choice - positioning includes rotation and scaling. Procedure to adjust the brightness and contrast of the picture so that it gives an elegant look.**

**Step :**

1. Open flash 8 software → click on flash document
2. Change the background to any color in property panel
4. Import a picture file in stage (File → Import → import to stage → open picture folder → select tulip.JPG → click in open (Here tulip.jpg file is set on background of layer1)
3. To change the size of the picture → go to property inspector panel → change the width & height as 150/150.
4. For rotation of picture → select picture → click in modify → click in transform → **rotate & skew** → manually rotate the picture →

### Scale & rotate



click in ok.

5. **For adjust / changing brightness & contrast** -> convert to symbol -> goto property inspector panel -> property -> **color** -> **brightness** -> change the brightness amount
6. **Color – Tint** -> set the color -> set the RGB value
7. **Color – alpha** etc.

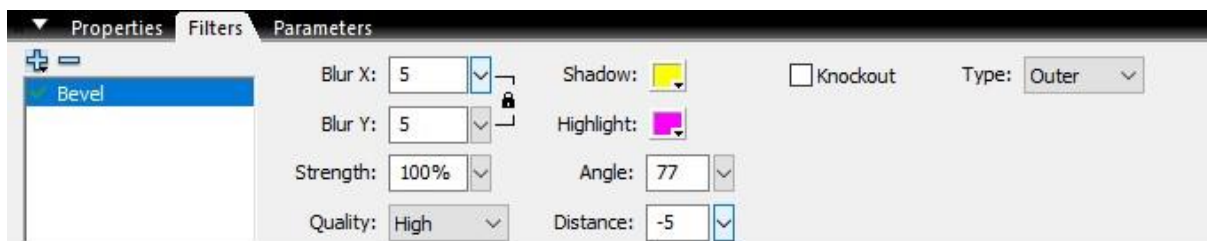


## Labwork 8

**Procedure to type a word and rotate 90° CW & rotate 90° CCW, apply the effects shadow embosses.**

**Step :**

1. Open flash 8 software → click on flash document
2. Select the text tool then type any word → select the word by using free transform tool → modify → transform → rotate 90° CW / click in rotate 90° CCW ( check the 2 different output)
3. **For shadow embosses** → click in filter option from property inspector panel → click in + → select bevel → change the shadow color & highlight color → change Blur x / y value → change strength, quality, angle, distance etc. Then Check the output of the selected text.



## Labwork 9

**Procedure to prepare a cover page for the book in your subject area.**

**Step :**

1. Create a new flash document
2. Goto property inspector panel → click in size → Dimension width as 350 & height as 400 ( for book cover page size)
3. Select the text tool -> type the text in stage → select it by free transform tool →
  - right click → time line effect → effect → blur → ok
  - Right click → time line effect → effect → expand → both
  - Right click → time line effect → effect → explode → ok

above step to apply it in the Text / picture .

## Labwork 10

**Procedure to design a visiting card containing at least one graphic and text information.**





**Bussiness / Company  
name  
LOGO (graphics)  
Contact no Email  
ID company  
slogan.**

1. Create a new flash document
2. Goto property inspector panel → click in size → Dimension width as 400& height as 200 ( for visiting card size)
3. Select the text tool -> type the text in stage → select it by free transform tool→
4. For design the logo → use designing tools like pencil, brush , oval , rectangle etc → select it by free transform tool

Follow the below step to apply it in the Text / picture / LOGO

Design format

- right click → time line effect → effect → blur → ok
- Right click →time line effect → effect → expand → both
- Right click →time line effect → effect →explode → ok

## **PHOTOSHOP**

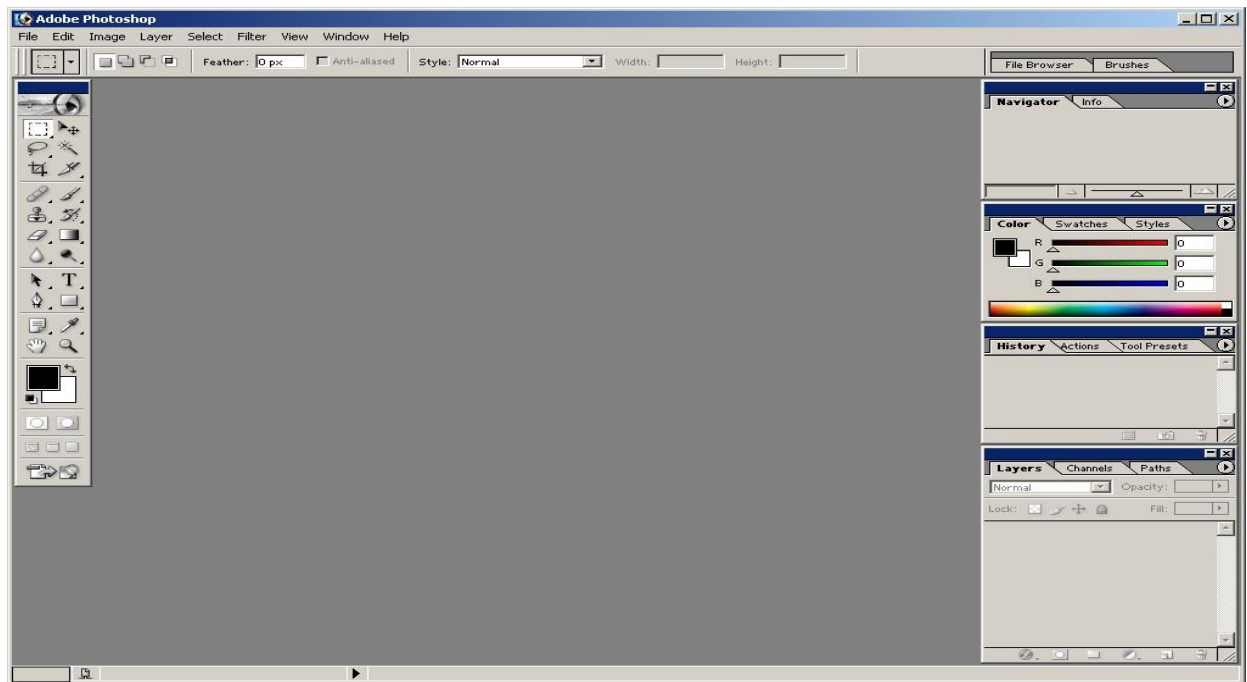
Photoshop is Adobe's photo editing, image creation and graphic design software. Photoshop is an important tool for graphic designers and professionals who have to work with images. The software provides many image editing features for [raster](#) as well as [vector graphics](#).

### **Getting started with photoshop**

Double Click on Abode photoshop icon or goto program menu → select adobe photoshop

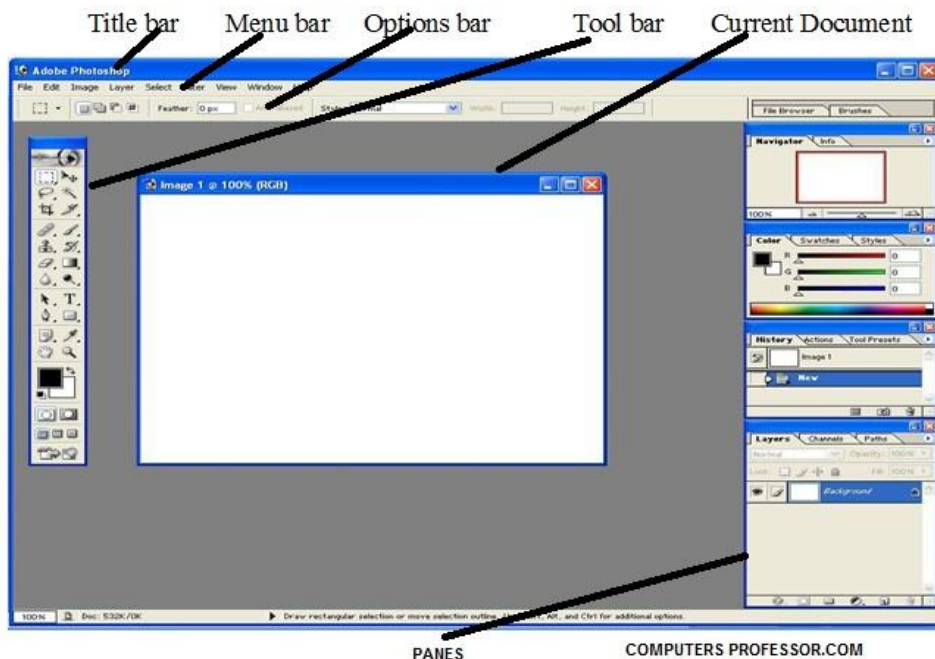
Now the photoshop program window appears on the screen.

Home screen



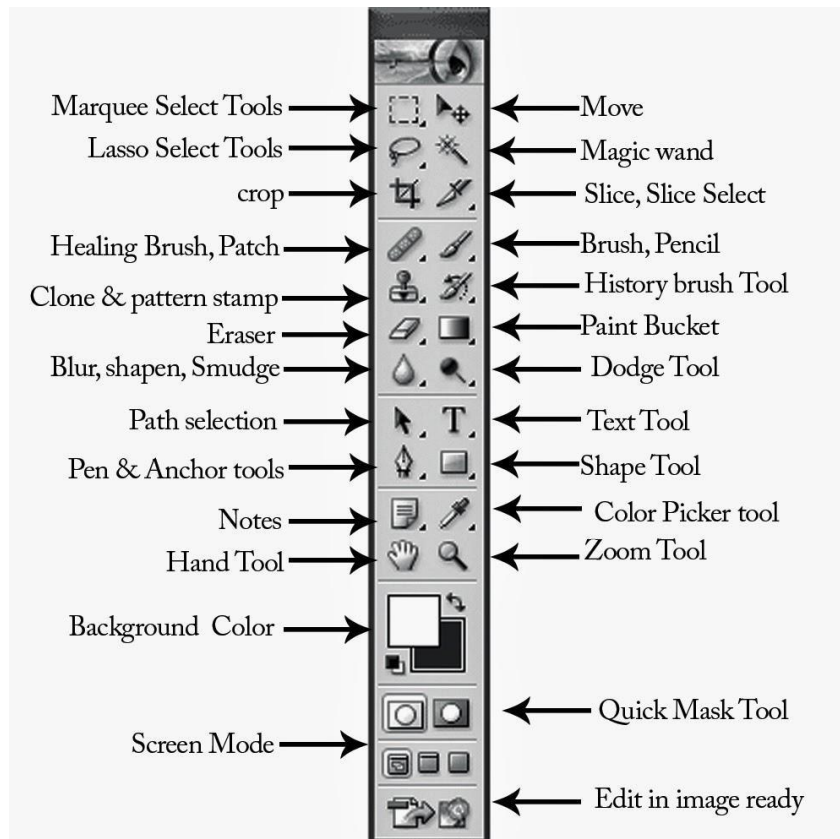
When we open a Photoshop file, it appears with other components of Photoshop on the screen. These components are the basic features of Photoshop using which we can work on an image. The Photoshop program window contains the following components.

## Main Components of Photoshop Environment



- **Menu Bar:** This is the first and most used component of any software. This option consists of various commands used to edit and compose images in the software. File, edit, image, layer, select, filter, view, window & help are the basic commands.
- **Options Bar:** It is a bar that shows several options for specific tools in the tool palette. When the user chooses a certain tool in the tool palette, the options bar showcases various preference for that specific tool
- **Tools Palette:** This palette is present on the left side of the interface. It is a collection of icons that are used for creating and editing images, page elements, and artworks.
- **Document Window:** It displays the current status of the file in which the user is working. These windows can be grouped and docked as per the requirement of the designer.
- **Layer panel:** This panel is the most used panel by all the editors. This panel helps the user to stack different items on the artboard on different layers to keep them organized and make editing more easy and fast.

## Tool box



1. **Rectangular Marquee tool** : To select a rectangular portion of an image.
2. **Moovtool** : It is used for moving image or a portion of the image from one location to another.
3. **Lasso Tool** : Under lasso tool, there is a group of tools which we can use to make freeform selections in an image.
4. **Magic wand tool** : It allows us to select a consistently colored area without selecting the outline of an object. Click on the magic wand tool in the toolbox and then click on the image. All the adjacent area with the similar color gets selected.
5. **Healing brush tool** : It lets you correct imperfections, causing them to disappear into the surrounding image. For ex. It used for reducing the wrinkles under the eye.
6. **Dodge tool** : It is used to lighten or darken areas of an image.
7. **Clone stamp** : This tool allow to copy pixels (with their foreground color) and apply them on other areas in the image. These tools are quite useful to correct old images.
8. **Eraser tool** : It works like an ordinary eraser to delete specific areas from an image.
9. **Blur Tool** : This tool blurs pixels of a selected part of the image to impart a softening look.
10. **Type tool** : It is used for adding text to an image.
11. **Eyedropper tool** : It allows us to select the foreground or the background color from an image. When we click on the image with the Eyedropper tool , the color the area where we clicked becomes the foreground color. The foreground color box in

the toolbox shows the color of the area in the image where we clicked with the eyedropper tool.

**12. Zoom tool :** It enlarges or reduces the view of our image.

**13. Hand tool :** When we enlarge the size of an image, the entire image is not visible in the image windows. Thus to navigate from one part of the image to another, the Hand tool is used. To use the hand tool, click on it in the toolbox. Place the mouse pointer on the image and drag it to navigate through the image.

## Screen Mode

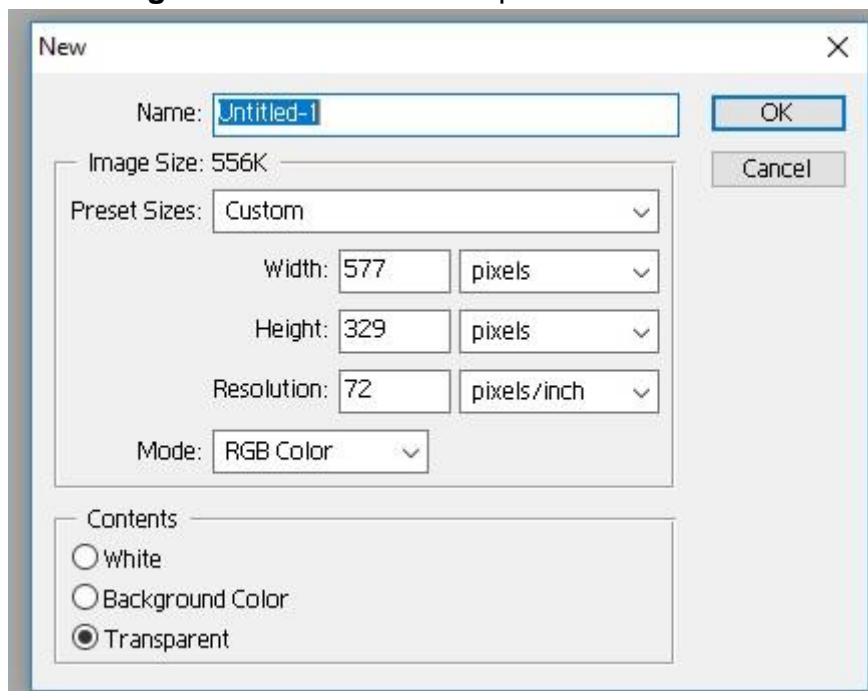
The term screen modes refers to the way of viewing the documents. Photoshop provides three types of screen modes.

1. Standard screen mode
2. Full screen mode with menu bar
3. Full screen mode

## Creating a new file

Click on file → click New (new **dialog box** appears on screen) → click ok

This **dialog box** contains various options like



**Name :** It allows us to give an appropriate name to the new file. By default, Photoshop assigns the name as 'untitled -1' to a new file.

**Width & Height :** These options let us specify the width and height of the new file in any of the 5 units: pixels, inches, centimeters, points, and picas. However, the width option offers one more unit, called columns.

**Resolution :** It is the number of pixels per inch in the final printed image.

**Colormode :** This option is used to specify the number of colors that can appear in an image.

**Background contents :** This option is used to change the background of an image. We can choose any one background from white, background color, and transparent. White option sets the background to white, background color option sets the background of the image to currently selected background color, and transparent option opens a check board pattern for the new image. **Open a file**

Click on file → Click in open → select the file from the list ( under a specified folder) → click on open

## **Saving a new file**

Click on file → Click in save → write the file name ( under a specified folder) → click on save

## **Reverting files**

Many times, we accidentally make unwanted changes to our files. If the number of changes is large , rectifying each and every change consumes a lot of time. This option will ignore all the changes we have made and will transform the file to its last saved version.

Click in file → revert **Closing**

## **files**

Click in File → close.

## **HOW TO SELECT AN AREA , COPY & PASTE THE SELECTION**

OPEN PHOTOSHOP -> Create A new file with background as (white/ color/ transpernt)

**Open a picture file**→file→ open → click in picture folder → select the picture file → open (now the picture file is display in a new window)

**To select an area of picture**→ select lasso tool / rectangular marquee tool → drag the mouse to specify the area in the picture → edit → copy → select new (untitled file) → edit → paste

## HOW TO SELECT AN AREA , MOVE(CUT) & PASTE THE SELECTION

Select the picture by lasso tool / rectangular marquee tool → drag to specify the area in the picture → click in move tool → drag the selected object & leave it in the new file.

## HOW TO CHANGE THE COLOR OF AN OBJECT (paint bucket / gradient tool)

Select the color change area of the object by using lasso tool → select the **paint bucket tool** for changing the color→ select the set foreground color→ click in the select area of the picture.

Or select **Gradient tool**→goto option bar → click in the dropdown option of gradient picker → select the style → select linear gradient / radial gradient / angel gradient (any one) → then drag the mouse just above of the selected area.

## HOW TO CHANGE THE BACKGROUND COLOR OF WORKING AREA (gradient tool)

File → new → transparent → select the gradient tool → select the style from gradient picker(under option bar) → then select the style as linear / radial / angel gradient(under option bar) → drag the mouse in the transparent area.

## HOW TO USE THE TEXT EDITOR.

Open photoshop

Select the Type tool →Click in the layer -> type the text →(SKDAV)

### For edit the text

Goto layer panel → select the layer where text is written → click on tool → drag the mouse above of the typed text →goto option bar → edit your font type, font size, font color, text alignment, and text style. etc. → we can delete it and type any new data also.

## HOW TO CROP IMAGE IN PHOTOSHOP & SHARPEN IMAGE. Crop a photo

1. From the toolbar, select the **Crop Tool**



2. Draw a new **cropping** area or drag the corner and edge handles to specify the **crop** boundaries in your **photo**.
3. Press Enter (Windows) to **crop** the **photo**.

### **Sharpen** a selection of an image

1. With the image layer selected in the Layers panel, draw a selection.
2. Choose the Filter menu, choose Sharpen → Unsharp Mask.
3. In the Unsharp Mask dialog box:
  - Drag the Amount slider to set the strength of the sharpening effect.
  - Drag the Radius slider to set the width of the sharpening effect at image edges.
  - Drag the Threshold slider to the right to minimize sharpening of image elements.

## **HOW TO SAVE IMAGE FOR THE WEB & THEIR FORMAT**

### **Why to save image in web**

Graphic designers, web designers, and others that create content for the web, also create web-ready images such as photos for websites and banner ads. Before uploading these images, the images are optimized to download and display quickly in a web browser. The Save for Web tool in Photoshop is an easy way to prepare [JPEG files](#) for the web. This tool also saves GIF, PNG, and BMP files.

### **How to Save for Web in Photoshop**

1. Open the image you want to save in Photoshop.
2. Select **Image > Image Size**.
3. In the **Width & Height** field, enter a new width & height, select **Pixels**, then select **OK**.

NOTE : Resize the photo to a small size that can be used on a website.

4. Select **File > Save for Web and Devices**.
5. In the **Save for Web** window, go to the **Original**, **Optimized**, **2-Up**, and **4-Up** tabs. These tabs switch between a view of the original photo, the optimized photo with the Save for Web settings applied to it, or a comparison of two or four versions of the photo.

6. Change the **Quality** value. As you lower the quality, the image looks muddier, and the file size goes down. Smaller files mean faster-loading web pages.
7. Change the file type, if needed, to JPEG, GIF, PNG-8, PNG-24, or WBMP.
8. Change the size of the image, if needed. Enter a width or height, or scale it by a percentage.

NOTE : Click the **lock** icon to change the proportion of the image. Otherwise, enter a different width or height to change the other value in proportion.

9. The values below the image preview display the file type, size, and how long the image will take to open on a website. These numbers update as you make changes.
10. When you're satisfied with the photo, select **Save**.
11. Type a name for the photo, then click **Save**.

## HOW TO USE THE LAYERS & THE HISTORY PALETTE. HOW TO PRINT OUR DOCUMENT

### What is Layer

**Layers** is use to perform tasks such as compositing multiple images, adding text to an image, or adding vector graphic shapes. It means we can think of layers as **transparent panes of glass** stacked on top of one another, which allow different parts of each layer to show through. There are several types of layers you'll use in Photoshop, and they fall into two main categories:

- **Content layers:** These layers contain different types of content like **photographs, text, and shapes**.
- **Adjustment layers:** These layers allow you to apply adjustments to the layers like **saturation** or **brightness**.

When using layers, it may be helpful to turn individual layers on and off to see how they affect the image. You can do this by clicking the **eye icon** next to each layer name.

We can view, create, and edit layers with the **Layers** panel. This will generally be found in the lower-right corner of the screen, although you can always go to **Window > Layers** to make sure it's turned on.

**To create a new layer** - Click the **New Layer** button near the lower-right corner of the **Layers** panel. The new layer will appear in the Layers panel. (or click in layer option → new → layer ) , if you want to draw on an image with the Brush tool, you could create a new layer and then draw on that layer.

**EX** :create 3 new layer which contains background image, single photo and text . Now change the opacity & fill % . Check the output how the image is display in transparent manner.

## HISTORY PALETTE

The History palette has multiple uses. Without the history palette, Photoshop would have only one undo. The **History Palette** contains the last 20 changes to your image. Each time you change the image, a new state is added to the **History Palette**

1. Open an image in Photoshop (File → Open).
2. Open the History palette by clicking on the History icon or by choosing Window → History.
3. The top line of the palette contains a thumbnail of the image and is a snapshot of the starting image. The second line indicates the last step (Open).
4. Choose Image → Image Size and set the size to 50 percent for width and height. Press OK.
5. Choose Filter → Filter Gallery. In the option's panel open the Artistic section and select Palette Knife. Adjust the settings as desired, then click OK to apply your changes.
6. Take a look at the History palette. Each of the steps you just completed are listed in the palette. Click the icon for each history step to undo and redo your changes.
7. At any point you can take a snapshot of the current progress by choosing New Snapshot from the palette's pull-down menu.

## How to print the document

Click in File -> print

## PROCEDURE TO REMOVING & ADDING BACKGROUND IMAGES.

### Removing

Select the background area by magic wand tool → click in the remove area (if more than one area u wants to select then press shift+left click) now the area is highlighted → press del key → now the selected are is removed.

### Adding

Select any new foreground color → fill the deleted area by using paint bucket tool or by gradient tool or copy the background from other image also.

## PROCEDURE TO CONVERT COLOR PHOTOS TO BLACK &WHITE .

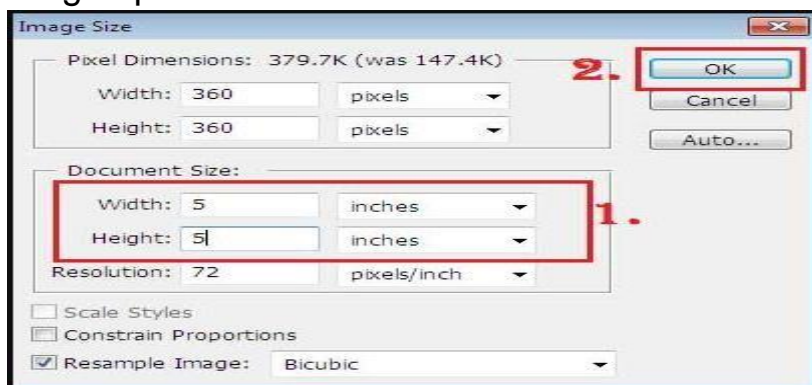
1. Open the photo you want to convert.
2. Choose Image → Mode → Grayscale.
3. When asked if you want to discard color info, click OK. Photoshop converts the colors in the image to black, white, and shades of gray. (this is called a grayscale image)

Or

Choose image → adjustment → Desaturate

## HOW TO CREATE A PASSPORT SIZE IMAGES

Open the image file -> click in image -> image size -> set width (5) , height (5), resolution 300 -> change pixel to inches -> only select the resample image option -> click on OK.



Click in File -> new -> in preset size – A4 size -> ok

Drag the image from image file to new file by moov tool

Select the image (from new file) press alt key + left mouse drag -> now the new image is copied.(repeat it for more passport size image ) Save the image as a **.JPEG**.

## **HOW TO CHANGE EYE & HAIR COLOR**

Create a new file -> paste the image for changing the hair color -> zoom the image -> select the changing area by using lasso tool -> click in layer -> new layer adjustment -> hue / saturation -> click in colorize -> Hue as 9 & saturation as 45 -> click in OK

**Like this way u can change the eye color also.**

## **HOW TO MAKE A GIFsFILE**

Open an image file -> Click in Layer -> Duplicate layer (for creating duplicate copy a layer1) -> may be change the layer name (ex newcopy) -> select it in layer panel -> click in unlock (+) option from layer panel.

Maximize the image -> Scroll the mouse above of the image (newcopy layer) for zooming it -> click in smudge tool -> drag it above of the eye to make close eye.

Click in image ready option on tool bar (Ctrl + shift + M) -> maximize the close eye photo.

Select the background layer (layer1) -> off the display ( click in eye symbol in duplicate layer(new copy) from layer panel)

Click in duplicate current frame from image ready below panel -> now another image is display in the image ready panel

Click in eye symbol of (new copy layer) i.e indicator layer visibility from layer panel

Change the time sec. to 0.2 -> play it -> stop it

## **HOW TO ADD RAIN DROP IN PHOTOSHOP IMAGE.**

Create a new file -> open another 2 image file ( scenery, rain drop)  
Select the scenery -> move to the new file 1st layer -> select the rain drop image -> move to the new file i.e layer 2-> now check the images in layer panel -> select the rain drop file -> change the opacity & fill option

## 1. Write a program using function & Fill the Circle with Red color.

```
#include <stdio.h>
#include <conio.h>
#include <graphics.h>
#include <dos.h>
void main()
{
    int gdriver = DETECT, gmode ;
    initgraph(&gdriver, &gmode, "C:\\TURBOC3\\BGI");
    setfillstyle(SOLID_FILL, RED); circle(200, 200, 50);
    floodfill(202, 202, 15); getch();
}
```

## Difference between DDA Line algorithm and Bresenham's Line Algorithm.

1. DDA algorithm use floating point, i.e. real arithmetic.
2. DDA uses multiplication & division its operation
3. DDA is slowly than Bresenham's line algorithm in line drawing because it uses real arithmetic (floating point operation)
4. DDA is not accurate and efficient as Bresenham's Line algorithm
5. DDA can draw circle and curves but are not accurate as Bresenham's line algorithm.

1. Bresenham's use fixed point i.e., integer arithmetic
2. Bresenham's uses only subtraction and addition its operation
3. Bresenham's is faster than DDA in line because it involves only addition subtraction in its calculation and uses only integer arithmetic.
4. Bresenham's line is more accurate and efficient at DDA.
5. Bresenham's can draw circle and curves with more accuracy than DDA.

## 2. Program to implement line using Bresenham's algorithm.

```
#include <stdio.h>
#include <graphics.h>
void drawline(int x0, int y0, int x1, int y1)
{
```

```

int dx, dy, p, x, y;
dx=x1-x0;
dy=y1-y0;
x=x0;    y=y0;
p=2*dy-dx;

while(x<x1)
{
    if(p>=0)
    {
        putpixel(x,y,7);
        y=y+1;
        p=p+2*dy-2*dx;
    }

    else
    {
        putpixel(x,y,7);
        p=p+2*dy;}
        x=x+1;
    }
}

void main()
{
    intgdriver=DETECT, gmode, error, x0, y0, x1, y1;  initgraph(&gdriver,
    &gmode, "c:\\turbo3\\bgi");
    printf("Enter co-ordinates of first point: ");  scanf("%d%d",
    &x0, &y0);
    printf("Enter co-ordinates of second point: ");
    scanf("%d%d", &x1, &y1);
    drawline(x0, y0, x1, y1);
}

```

### **3. Program to implement line using DDA algorithm.**

```

#include<graphics.h>
#include<conio.h> #include<stdio.h>
void main()
{
    intgd = DETECT, gm ,i;

```



```

float x,y,dx,dy,steps; int
x0,x1,y0,y1;
initgraph(&gd, &gm, "C:\\Turboc3\\BGI");
setbkcolor(WHITE);
x0 = 100 , y0 = 100 , x1 =
200, y1 = 200; dx
= (float)(x1 - x0); dy
= (float)(y1-y0);
if (dx >= dy)
{
    steps = dx;
}
else
{
    steps = dy;
}

dx = dx/steps;
dy = dy/steps;
x = x0; y =
y0; i=1 ;
while (i<=steps)
{
    putpixel(x,y,RED);
    x += dx; y+=
dy; i = i+1;
    delay(50);
}
getch();
closegraph();
}

```

#### 4. Program to implement circle using mid-point algorithm

```

#include<stdio.h>
#include<graphics.h>
void drawcircle(int x0, int y0, int radius)
{
    int x = radius;

```

```

int y = 0; int
err = 0;
while(x>=y)
{
putpixel(x0 +x, y0+y, 7);
putpixel(x0 +y, y0+x, 7) ;

putpixel(x0 -y, y0+x, 7) ; putpixel(x0
-x, y0+y, 7) ;

putpixel(x0 -x, y0 -y, 7);
putpixel(x0 -y, y0 -x, 7);

putpixel(x0 +y, y0-x, 7) ; putpixel(x0
+x, y0-y, 7) ;

    if (err<=0)
    {
        y+=1;      err
+= 2*y+1 ;
    }    if (err
>0)    {      x-
=1;      err -= 2*x
+1;
    }
}
}
void main()
{
intgd = DETECT, gm, error, x,y,r;
initgraph(&gd, &gm, "C:\\TURBOC3\\BGI" );

printf("enter raidus of circle :"); scanf("%d", &r);

printf("enter co-ordinates of center(x and y) ");
scanf ("%d %d",&x, &y); drawcircle
(x,y,r);
}

```