

Computer Graphics & Multimedia Lab

Total Periods	60	Maximum Marks	75 Marks
Lab. Periods:	4 Periods /week	Term Works	25 Marks
Examination	3hours	End Semester Examination	50 Marks

LIST OF PRACTICALS:

Graphics

1. Program to implement a line using slope intercept formula.
2. Program to implement line using DDA algorithm.
3. Program to implement line using Brenham's algorithm.
4. Program to implement circle using mid-point algorithm.
5. Program to implement translation of a line and triangle.
6. Program to implement rotation of a line and triangle.
7. Program to implement scaling transformation.
8. Write a program using function & Fill the Circle with Red colour.

Photoshop

1. The concept of Photoshop.
2. How to open a document. How to save the document .
3. How to create a new document with the needed resolution.
4. How to select an area, copy and paste the selection.
5. How to save images for the web and their formats.
6. The use of layers and the history palette. How to print our document.
7. How to use the text editor. How to Crop Image in Photoshop & Sharpen Image?
8. Procedure to Removing & Adding Backgrounds images. Procedure to Convert Colour Photos to Black & White.
9. How to Create a Passport size images? How to Change Eye Colour & Hair Colour?
10. How to Add Rain in Photoshop? How to make a GIFs File?

Flash

1. Procedure to create an animation to represent the growing moon.
2. Procedure to create an animation to indicate a ball bouncing on steps.
3. Procedure to simulate movement of a cloud. Procedure to draw the fan blades and to give proper animation. Procedure to display the background given (filename: tulip.jpg) through your name.
4. Procedure to create an animation with the following features.
5. Procedure to design a visiting card containing at least one graphic and text information.
6. Procedure to prepare a cover page for the book in your subject area. Plan your own design. Procedure to adjust the brightness and contrast of the picture so that it gives an elegant look.
7. Procedure to position the picture preferably on a plain background of a colour of your choice - positioning includes rotation and scaling.
8. Procedure to type a word and apply the effects shadow embosses.

Computer Graphics is defined as creation of pictures with the help of a computer. The end product of the computer graphics is basically a picture and may be a business graph, architectural design or engineering drawing.

In computer graphics, two or three-dimensional pictures can be created. Many hardware devices and algorithms have been developed for improving the speed of picture generation over time.

Definition of Computer Graphics

It is the use of computers to create and manipulate pictures on a display device and comprises of software techniques to create, store, modify and display pictures.

Why computer graphics used?

Suppose a CEO of a manufacturing company wants Sales Data of the products of his company for past five years. For this huge amount of information has to be processed and stored requiring a lot of time and memory. Moreover, statistical data will be tough to understand by all stakeholders of the company. In such a situation graphics is a better alternative. Using Graphics tools like charts and graphs, any amount of data can be represented in pictorial form which can be more easily understood with just a single look.

Modern-day Interactive computer graphics work using the concept of two-way communication between computer users. The computer receives signals from the input device and the picture is modified accordingly.

Types of Computer Graphics

Raster Graphics: In raster, graphics pixels are used for an image to be drawn. It is also known as a bitmap image.

Vector Graphics: In vector graphics, mathematical formulae are used to draw different types of shapes, lines and objects.

Applications

Computer Aided Design - These are used in electrical automobiles, electro-mechanical, mechanical and electronic devices. For example gears and bolts.

Computer Art – MS Paint.

Presentation Graphics – It is used to summarize financial, statistical, scientific, commercial, business or economic data using Bar graphs, line graphs and pie-charts.

Entertainment- It is used in motion pictures, music videos, television shows and gaming.

Education and training- It is used to understand the operations of complex systems. It is also used in specialized systems such as training for captains, pilots and so on.

Visualization- To study trends and patterns. For example- Analysing satellite photo of earth.

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RECOMMENDED BOOKS

Sl.No	Name of Authors	Title of the Book	Name of the publisher
1	MALAY K. PAKHIRA	Computer Graphics, Multimedia and Animation	PHI
2	D. P. MUKHERJEE	FUNDAMENTALS OF COMPUTER GRAPHICS AND MULTIMEDIA	PHI

Experiment:- 1

Aim of the experiment:

Program to implement a line using slope intercept formula.

Slope intercept form is $y=mx+b$, where m is slope and b is the y -intercept. We can use this form of a linear equation to draw the graph of that equation on the x - y coordinate plane.

It is the simplest form of conversion. First of all scan P1 and P2 points. P1 has co-ordinates (x_1', y_1') and (x_2', y_2') .

Then $m = (y_2', y_1') / (x_2', x_1')$ and $b = y_1' + mx_1'$

If value of $|m| \leq 1$ for each integer value of x . But do not consider x_1^1 and x_2^2

If value of $|m| > 1$ for each integer value of y . But do not consider y_1^1 and y_2^2

Example: A line with starting point as $(0, 0)$ and ending point $(6, 18)$ is given. Calculate value of intermediate points and slope of line.

Solution: P1 $(0,0)$ P7 $(6,18)$

$x_1=0$
 $y_1=0$
 $x_2=6$
 $y_2=18$

$M = \Delta y / \Delta x = y_2 - y_1 / x_2 - x_1 = 18 - 0 / 6 - 0 = 3$

We know equation of line is

$y = m x + b$
 $y = 3x + b \dots \dots \dots \text{equation (1)}$

put value of x from initial point in equation (1), i.e., $(0, 0)$ $x=0, y=0$

$0 = 3 \times 0 + b$
 $0 = b \Rightarrow b=0$

put $b = 0$ in equation (1)

$y = 3x + 0$
 $y = 3x$

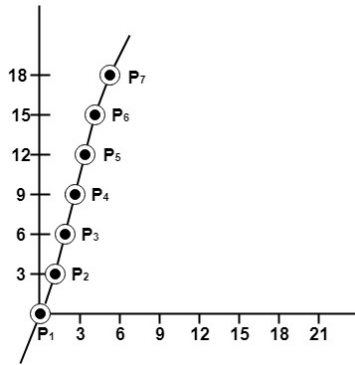
Now calculate intermediate points

Let $x = 1 \Rightarrow y = 3 \times 1 \Rightarrow y = 3$
Let $x = 2 \Rightarrow y = 3 \times 2 \Rightarrow y = 6$
Let $x = 3 \Rightarrow y = 3 \times 3 \Rightarrow y = 9$
Let $x = 4 \Rightarrow y = 3 \times 4 \Rightarrow y = 12$
Let $x = 5 \Rightarrow y = 3 \times 5 \Rightarrow y = 15$
Let $x = 6 \Rightarrow y = 3 \times 6 \Rightarrow y = 18$

So points are P1 $(0,0)$

P2 $(1,3)$

P3 $(2,6)$
P4 $(3,9)$
P5 $(4,12)$
P6 $(5,15)$
P7 $(6,18)$



Program

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<math.h>
void main()
{
float m,x1,y1,x2,y2;
int x,y;
int gdriver=DETECT,gmode,gerror;
clrscr();
printf(" PROGRAM FOR THE LINE INTERCEPT \n");
printf(" Enter the value of x1");
scanf("%f",&x1);
printf(" Enter the value of y1");
scanf("%f",&y1);
printf(" Enter the value of x2");
scanf("%f",&x2);
printf(" Enter the value of y2");
scanf("%f",&y2);
initgraph(&gdriver,&gmode,"c:\\turbo3\\bgi");
m=(y2-y1)/(x2-x1);
for(x=1;x<=x2;x++)
{
y=m*(x-x1)+y1;
putpixel(x,y,15);
delay(50);
}
getch();
closegraph();
}
```

Experiment:- 2

Aim of the Experiment:

Program to implement line using DDA algorithm.

DDA Algorithm

Step1: Start Algorithm

Step2: Declare x1,y1,x2,y2,dx,dy,x,y as integer variables.

Step3: Enter value of x1,y1,x2,y2.

Step4: Calculate $dx = x2 - x1$

Step5: Calculate $dy = y2 - y1$

Step6: If $ABS(dx) > ABS(dy)$

Then $step = abs(dx)$

Else

Step7: $xinc = dx / step$

$yinc = dy / step$

assign $x = x1$

assign $y = y1$

Step8: Set pixel (x, y)

Step9: $x = x + xinc$

$y = y + yinc$

Set pixels (Round (x), Round (y))

Step10: Repeat step 9 until $x = x2$

Step11: End Algorithm

Program

```
#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:\\TC\\BGI");
```

```
    setbkcolor(WHITE);
```

```
    x0 = 100 , y0 = 200, x1 = 500, y1 = 300;
```

```
    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;  
    }  
    getch();  
    closegraph();  
}
```


Experiment:- 3

Aim of the Experiment:

Program to implement line using Bresenham's algorithm.

Bresenham's Line Algorithm:

Step1: Start Algorithm

Step2: Declare variable $x_1, x_2, y_1, y_2, d, i_1, i_2, dx, dy$

Step3: Enter value of x_1, y_1, x_2, y_2

Where x_1, y_1 are coordinates of starting point

And x_2, y_2 are coordinates of Ending point

Step4: Calculate $dx = x_2 - x_1$

Calculate $dy = y_2 - y_1$

Calculate $i_1 = 2 * dy$

Calculate $i_2 = 2 * (dy - dx)$

Calculate $d = i_1 - dx$

Step5: Consider (x, y) as starting point and x_{end} as maximum possible value of x .

If $dx < 0$

Then $x = x_2$

$y = y_2$

$x_{end} = x_1$

If $dx > 0$

Then $x = x_1$

$y = y_1$

$x_{end} = x_2$

Step6: Generate point at (x, y) coordinates.

Step7: Check if whole line is generated.

If $x \geq x_{end}$

Stop.

Step8: Calculate co-ordinates of the next pixel

If $d < 0$

Then $d = d + i_1$

If $d \geq 0$

Then $d = d + i_2$

Increment $y = y + 1$

Step9: Increment $x = x + 1$

Step10: Draw a point of latest (x, y) coordinates

Step11: Go to step 7

Step12: End of Algorithm

Program

```
#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;
    }
}
int main()
{
    int gdriver=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);
    return 0;
}

```

Experiment:- 4

Aim of the Experiment:

Program to implement circle using mid-point algorithm.

Mid-Point Algorithm:

Step1: Put $x=0$, $y=r$ in equation 2

We have $p=1-r$

Step2: Repeat steps while $x \leq y$

Plot (x, y)

If $(p < 0)$

Then set $p = p + 2x + 3$

Else

$p = p + 2(x-y)+5$

$y = y - 1$ (end if)

$x = x + 1$ (end loop)

Step3: End

Program

```
#include <graphics.h>
```

```
#include <stdlib.h>
```

```
#include <math.h>
```

```
#include <stdio.h>
```

```
#include <conio.h>
```

```
#include <iostream.h>
```

```
class bresen
```

```
{
```

```
    float x, y, a, b, r, p;
```

```
    public:
```

```
    void get ();
```

```
    void cal ();
```

```
};
```

```
void main ()
```

```
{
```

```
    bresen b;
```

```
    b.get ();
```

```
    b.cal ();
```

```
    getch ();
```

```
}
```

```
Void bresen :: get ()
```

```
{
```

```
    cout<<"ENTER CENTER AND RADIUS";
```

```
    cout<< "ENTER (a, b)";
```

```
    cin>>a>>b;
```

```
    cout<<"ENTER r";
```

```
    cin>>r;
```

```
}
```

```
void bresen ::cal ()
```

```
{
```

```
    /* request auto detection */
```

```
    int gdriver = DETECT, gmode, errorcode;
```

```
    int midx, midy, i;
```

```
    /* initialize graphics and local variables */
```

```
    initgraph (&gdriver, &gmode, " ");
```

```
    /* read result of initialization */
```

```

errorcode = graphresult ();
if (errorcode != grOK) /*an error occurred */
{
    printf("Graphics error: %s \n", grapherrormsg (errorcode);
    printf ("Press any key to halt:");
    getch ();
    exit (1); /* terminate with an error code */
}
x=0;
y=r;
putpixel (a, b+r, RED);
putpixel (a, b-r, RED);
putpixel (a-r, b, RED);
putpixel (a+r, b, RED);
p=5/4-r;
while (x<=y)
{
    If (p<0)
    p+= (4*x)+6;
    else
    {
        p+=(2*(x-y))+5;
        y--;
    }
    x++;
    putpixel (a+x, b+y, RED);
    putpixel (a-x, b+y, RED);
    putpixel (a+x, b-y, RED);
    putpixel (a-x, b-y, RED);
    putpixel (a+x, b+y, RED);
    putpixel (a+x, b-y, RED);
    putpixel (a-x, b+y, RED);
    putpixel (a-x, b-y, RED);
}
}

```

Experiment:- 5

Aim of the Experiment:

Program to implement translation of a line and triangle.

a. Program to show the translation of a line

```
#include<conio.h>
#include<graphics.h>
#include<stdio.h>
void main()
{
    int gd=DETECT,gm;
    // declaring two array
    // Translation vector already initialized
    int l[2][2],v[2]={10,15},i=0,j;
    clrscr();
    initgraph(&gd,&gm,"C:\\TURBOC3\\BGI");
    printf("Enter the initial and final coordinates of a line ");

    // Getting input from user, having 2D array where 1st row represents initial point
    // And Second row represents final coordinate
    while(i<2)
    {
        printf("x%d and y%d = ",i,i);
        j=0;
        scanf("%d",&l[i][j]);
        scanf("%d",&l[i][j+1]);
        i++;
    }
    // Line before translation
    line(l[0][0],l[0][1],l[1][0],l[1][1]);
    setcolor(BLUE);
    // Line after translation
    line(l[0][0]+v[0],l[0][1]+v[1],l[1][0]+v[0],l[1][1]+v[1]); // Adding Translation vector in it to change
    the position
    getch();
    closegraph();
}
```

b. Program to show the translation of a triangle

```
/* translation */#include<conio.h>
#include<graphics.h>
#include<stdio.h>
void main()
{
    int gd=DETECT,gm;
    int x,y,x1,y1,x2,y2,tx,ty;
    clrscr();
    initgraph(&gd,&gm,"C:\\TURBOC3\\BGI");
    printf("\n Please enter first coordinate of the triangle = ");
    scanf("%d %d", &x,&y);
    printf("\n Enter second coordinate of the trinagle = ");
    scanf("%d %d",&x1,&y1);
    printf("\n Enter third coordinate of the triangle = ");
    scanf("%d %d",&x2,&y2);
    printf("\n\t\t***** TRIANGLE before & after translation *****");
    line(x,y,x1,y1);
```

```
line(x1,y1,x2,y2);
line(x2,y2,x,y);
printf("\n Now enter the translation vector = ");
scanf("%d %d",&tx,&ty);

setcolor(RED);
line(x+tx,y+ty,x1+tx,y1+ty);
line(x1+tx,y1+ty,x2+tx,y2+ty);
line(x2+tx,y2+ty,x+tx,y+ty);
getch();
closegraph();
}
```

Experiment:- 6

Aim of the Experiment:

Program to implement rotation of a line and triangle.

a. Program to rotate a line

```
#include<stdio.h>
#include<graphics.h>
#include<math.h>
int main()
{
    int gd=0,gm,x1,y1,x2,y2;
    double s,c, angle;
    initgraph(&gd, &gm, "C:\\TC\\BGI");
    setcolor(RED);
    printf("Enter coordinates of line: ");
    scanf("%d%d%d%d",&x1,&y1,&x2,&y2);
    cleardevice();
    setbkcolor(WHITE);
    line(x1,y1,x2,y2);
    getch();
    setbkcolor(BLACK);
    printf("Enter rotation angle: ");
    scanf("%lf", &angle);
    setbkcolor(WHITE);
    c = cos(angle *3.14/180);
    s = sin(angle *3.14/180);
    x1 = floor(x1 * c + y1 * s);
    y1 = floor(-x1 * s + y1 * c);
    x2 = floor(x2 * c + y2 * s);
    y2 = floor(-x2 * s + y2 * c);
    cleardevice();
    line(x1, y1 ,x2, y2);
    getch();
    closegraph();
    return 0;
}
```

b. Program to rotate a Triangle

```
#include<stdio.h>
#include<graphics.h>
#include<math.h>
main()
{
    int gd=0,gm,x1,y1,x2,y2,x3,y3;
    double s,c, angle;
    initgraph(&gd, &gm, "C:\\TURBOC3\\BGI");
    setcolor(RED);
    printf("Enter coordinates of triangle: ");
    scanf("%d%d%d%d%d%d",&x1,&y1,&x2,&y2, &x3, &y3);
    setbkcolor(WHITE);
    cleardevice();
    line(x1,y1,x2,y2);
    line(x2,y2, x3,y3);
    line(x3, y3, x1, y1);
    getch();
    setbkcolor(BLACK);
```

```
printf("Enter rotation angle: ");
scanf("%lf", &angle);
setbkcolor(WHITE);
c = cos(angle *M_PI/180);
s = sin(angle *M_PI/180);
x1 = floor(x1 * c + y1 * s);
y1 = floor(-x1 * s + y1 * c);
x2 = floor(x2 * c + y2 * s);
y2 = floor(-x2 * s + y2 * c);
x3 = floor(x3 * c + y3 * s);
y3 = floor(-x3 * s + y3 * c);
cleardevice();
line(x1, y1 ,x2, y2);
line(x2,y2, x3,y3);
line(x3, y3, x1, y1);
getch();
closegraph();
return 0;
}
```


Experiment:- 7

Aim of the Experiment:

Program to implement scaling transformation.

// C program to demonstrate scaling of objects

```
#include<stdio.h>
```

```
#include<graphics.h>
```

```
// Matrix Multiplication to find new Coordinates.
```

```
// s[ ][ ] is scaling matrix. p[ ][ ] is to store points that needs to be scaled.
```

```
// p[0][0] is x coordinate of point.
```

```
// p[1][0] is y coordinate of given point.
```

```
void findNewCoordinate(int s[ ][2], int p[ ][1])
```

```
{
```

```
    int temp[2][1] = { 0 };
```

```
    for (int i = 0; i < 2; i++)
```

```
        for (int j = 0; j < 1; j++)
```

```
            for (int k = 0; k < 2; k++)
```

```
                temp[i][j] += (s[i][k] * p[k][j]);
```

```
    p[0][0] = temp[0][0];
```

```
    p[1][0] = temp[1][0];
```

```
}
```

```
// Scaling the Polygon
```

```
void scale(int x[], int y[], int sx, int sy)
```

```
{
```

```
    // Triangle before Scaling
```

```
    line(x[0], y[0], x[1], y[1]);
```

```
    line(x[1], y[1], x[2], y[2]);
```

```
    line(x[2], y[2], x[0], y[0]);
```

```
    // Initializing the Scaling Matrix.
```

```
    int s[2][2] = { sx, 0, 0, sy };
```

```
    int p[2][1];
```

```
    // Scaling the triangle
```

```
    for (int i = 0; i < 3; i++)
```

```
    {
```

```
        p[0][0] = x[i];
```

```
        p[1][0] = y[i];
```

```
        findNewCoordinate(s, p);
```

```
        x[i] = p[0][0];
```

```
        y[i] = p[1][0];
```

```
    }
```

```
    // Triangle after Scaling
```

```
    line(x[0], y[0], x[1], y[1]);
```

```
    line(x[1], y[1], x[2], y[2]);
```

```
    line(x[2], y[2], x[0], y[0]);
```

```
}
```

```
// Driver Program
```

```
int main()
```

```
{  
    int x[] = { 100, 200, 300 };  
    int y[] = { 200, 100, 200 };  
    int sx = 2, sy = 2;  
  
    int gd, gm;  
    detectgraph(&gd, &gm);  
    initgraph(&gd, &gm, " ");  
  
    scale(x, y, sx,sy);  
    getch();  
  
    return 0;  
}
```

Experiment:- 8

Aim of the Experiment:

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

```
#include <graphics.h>
#include <stdio.h>
int main()
{
    // gm is Graphics mode which is a computer display mode that generates image using
    pixels.
    // DETECT is a macro defined in "graphics.h" header file
    int gd = DETECT, gm, color;

    // initgraph initializes the graphics system by loading a graphics driver from disk
    initgraph(&gd, &gm, "");

    // Draws circle in white color center at (100, 100) and radius as 50
    circle(100, 100, 50);

    // setcolor function
    setcolor(RED);

    // Draws circle in red color center at (200, 200) and radius as 50
    circle(200, 200, 50);

    getch();

    // closegraph function closes the graphics mode and deallocates all memory allocated by
    // graphics system .
    closegraph();

    return 0;
}
```

PHOTOSHOP

1. The concept of Photoshop

Photoshop is Adobe's photo editing, image creation and graphic design software which provides many image editing features for raster (pixel-based) images as well as vector graphics. It uses a layer-based editing system that enables image creation and alteration with multiple overlays that support transparency.

2. How to open a document. How to save the document

Opening a Document

1. Choose **File > Open**.
2. Select the name of the **file** you want to **open**. If the **file** does not appear, select the option for showing all **files** from the **Files Of Type** (Windows) or **Enable** (Mac OS) pop-up menu.
3. Click **Open**.

Saving a Document

Choose File→Save to store the current file with its present name.

Choose File→Save As to store a file already saved with a different name, or even a file with the same name but in a different location. The dialog box appears.

1. Navigate to the folder where you want to store the file.
2. Type a name in the File Name (Save As on the Mac) text box.
3. Select a format from the Format drop-down list. Some file formats have special capabilities and requirements.
4. Click Save to store the image.

3. How to create a new document with the needed resolution.

Choose File→New→Blank File in any workspace or press Ctrl+N (cmd+N). Either way, the New dialog box opens.



Use the New dialog box to create a new, blank document in Elements. Select the attributes for the new file like *Name, Preset, Size, Dimensions, Resolution, Color Mode, Background Contents, Image Size*, Click OK after setting the file attributes to create the new document.

4. How to select an area, copy and paste the selection.

Move tool can copy selections as you drag them within or between images, or copy and move selections using the Copy, Copy Merged, Cut, and Paste commands.

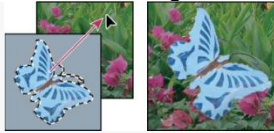
When you paste a selection or layer between images with different resolutions, the pasted data retains its pixel dimensions. This can make the pasted portion appear out of proportion to the new image. Use the **Image Size** command to make the source and destination images the same resolution before copying and pasting, or use the Free Transform command to resize the pasted content.

Copy a selection

1. Select the area you want to copy.
2. Choose Edit > Copy, or Edit > Copy Merged.

Copy a selection while dragging

1. Select the Move tool , or hold down Ctrl (Windows) or Command (Mac OS) to activate the Move tool.
 2. Hold down Alt (Windows) or Option (Mac OS), and drag the selection you want to copy and move.
- from the active image window into the destination image window.



Dragging a selection into another image

Paste one selection into or outside another

1. Cut or copy the part of the image you want to paste.
2. In the same image or another, select the area you want to paste into or outside. If you're pasting outside, select an area smaller than the copied selection.
3. Do either of the following:
 - Choose **Edit > Paste Special > Paste Into**. The contents of the source selection appear within the destination selection.
 - Choose **Edit > Paste Special > Paste Outside**. The contents of the source selection appear around the destination selection.



Using the Paste Into command

1. Select the **Move** tool , or hold down the Ctrl (Win) or Command (Mac) key to activate the Move tool. Then drag the source contents until the part you want appears through the mask.
2. To specify how much of the underlying image shows through, click the layer mask thumbnail in the Layers panel, select a painting tool, and edit the mask:
 - To hide more of the image underlying the layer, paint the mask with black.
 - To reveal more of the underlying image, paint the mask with white.
 - To partially reveal the underlying image, paint the mask with gray.
3. If you are satisfied with your results, you can choose **Layer > Merge Down** to merge the new layer and layer mask with the underlying layer and make the changes permanent.

How to copy and paste between applications

You can use the Cut, Copy, or Paste commands to copy selections from Photoshop and paste them into other applications, or to paste artwork from other applications into Photoshop.

5. How to save images for the web and their formats.

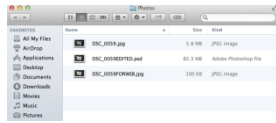
Quick File Format Guide

	Pros	Cons
JPEG	Great for putting photos on the web.	More padding. Compression is irreversible.
GIF	Low file size, lossless compression. Great for logos or simple art.	Only works with images that have less than 256 colors. Very bad for photos.
TIFF	Lossless compression. Perfect image quality. Ideal for print.	Big file size.
PNG	Great image quality. Can be used on web and print.	Not very well supported.

Saving options

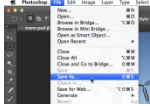
- **PSD:** This is the **default file type** for Photoshop documents, It will save your **layers** and all of the other information in your image so you can easily re-edit it later.
- **Common file formats:** You can save images in a variety of common file types, including **JPEG** and **PNG**.

- **Save for Web:** If you're planning to upload an image to the Web, like on a blog or website, you'll want to use the **Save for Web** feature which allows you to save images that are **optimized for the Web**

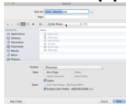


To save a file with Save As:

1. With the image open in Photoshop, select **File > Save As**.

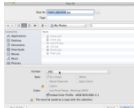


2. A dialog box will appear. Type the desired **file name**, then choose a **location** for the



file.

3. Click the **Format** menu, then choose the desired **file format**.

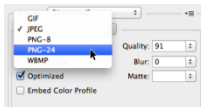


4. Click **Save**.

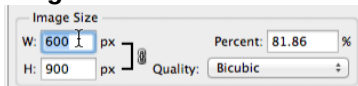
Using Save for Web

When you use the Save for Web feature, we need to make a few decisions about the image we are saving:

- **File format:**



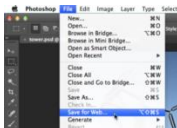
- **Image size:**



- **Quality**

To save for the Web:

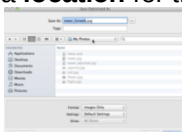
1. Select **File > Save for Web**.



2. The **Save for Web** dialog box will appear. Select the desired **file type** and **quality level**.



3. If needed, **resize the image** by typing the desired dimensions under **Image Size**.
4. Click **Save**. A new dialog box will appear. Type the desired **file name** and choose a **location** for the file, then click **Save**.



6. The use of LAYERS and the HISTORY PALETTE. How to print our document.

What are layers?

Layers are like **glass panes** stacked on top of one another, which allow different parts of each layer to show through. Layers are of two categories:

- **Content layers:** These layers contain different types of content, like **photographs and texts**.
- **Adjustment layers:** These layers allow to apply adjustments to the layers below them, like **saturation** or **brightness**. Adjustment layers are a type of **nondestructive editing** because they don't actually change anything about the original image.

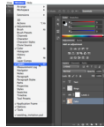
When using layers we can turn individual layers on/off by clicking the **eye icon** next to each layer name.

Why use layers?

Layers give flexibility and control because you can **edit each layer independently**

Layer basics

You can view, create, and edit layers with the **Layers** panel, found in the lower-right corner of the



screen,

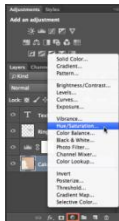
To create an adjustment layer:

1. In the **Layers** panel, select the layer below where you want the adjustment layer to



appear

2. Click the **Adjustment** button at the bottom of the **Layers** panel, then choose the desired adjustment.

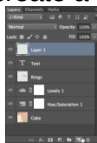


3. The adjustment layer will appear, and you can then customize the adjustment in the **Properties** panel.



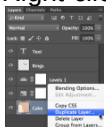
To create a blank layer:

To create a new layer, click the **New Layer** button near the lower-right corner of the **Layers** panel.

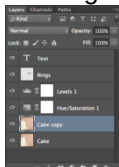


To create a duplicate layer:

1. Right-click the layer, then select **Duplicate Layer...**

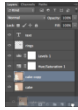


2. A dialog box will appear. Click **OK**. The duplicate layer will appear.



To delete a layer:

Select the layer and press the **Delete** key on your keyboard. You can also click and drag the layer to the **Trash Can** in the lower-right corner of the **Layers** panel.



Showing and hiding layers

To hide a layer, simply click the **eye icon** next to the desired layer. Click it again to show the layer.

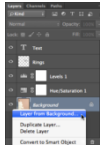


Reordering layers

The order in which layers are stacked will determine how the document looks. To reorder a layer, simply click and drag the layer to the desired position in the **Layers** panel.



If you want to reorder the **Background layer** of the image, you will need to right-click it and select **Layer from Background**. This will convert the background to a regular layer, which can be reordered.



Editing layers

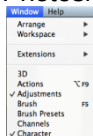
The main advantage of layers is that you can **edit or adjust each layer individually** without affecting the rest of the file.

Editing text layers

If you want to edit a text layer, double-click the **layer icon** in the **Layers** panel. You can then change the text, choose a different font, or modify the text size and color.



PALETTES are groups of tools used to edit and manipulate your image. Photoshop contains over two dozen palettes that can be shown or hidden by using the **Window** menu and selecting the palette you wish to reveal. Palettes with a checkmark beside their names indicate that they are open in your Photoshop workspace and selecting those checkmarked palettes will hide them.



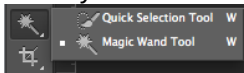
The Tools Palette : This palette houses all of Photoshop's tools.



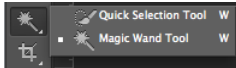
1. Click on the tool icon to select that tool.



2. Hover your cursor over the tool icon to reveal its name and (keyboard shortcut).

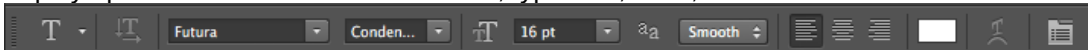


3. Click and hold down on any tool icon that has a **white triangle in the bottom right** to reveal related tools nested underneath.



The Options Palette

Whenever you select a tool from the Tools Palette, the Options Palette will display all of the options for that selected tool. For example, if you select the **Type Tool**, the Options Palette will display options related to text such as font, type size, color, and more



The Options Palette is located at the very top of your Photoshop window just below your **Menu**..

Note : If you ever find your Tools or Options palettes missing, go to **Window** in your **Menu** and select either **Tools** or **Options** from the list to reveal the palettes.

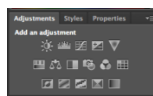
The Layers and Adjustments Palette

The Layers Palette is the home of all of your layer information. It lists all layers in an image, and a thumbnail of layer contents appears to the left of the layer name. You use the Layers Palette to create, hide, display, copy, merge, and delete layers.

The Adjustments Palette is where you would select adjustments that you wish to apply to layers. This palette includes many different adjustments including exposure, color balance, saturation, and brightness / contrast.



Layers Palette



Adjustments Palette

The Color Palette

The Color Palette is where you can select and change your foreground and background colors that will be used with brushes and fills. To change the color, select either foreground and background color box in the Color Palette by clicking on it. Then, use either sliders or click in the spectrum below the sliders to select a new color. You can also double click on a color box to bring up the Color Picker



Color Palette

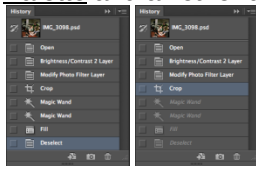


Selecting a Color from the Color Picker

The History Palette – Saving a Snapshot

The History Palette is a log of all the actions you perform within Photoshop. By default, 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. To jump to a particular state, click on that state name in the History Palette and all other actions after that state will become greyed out and italicized.



[Left image: Shows the current state and recent actions performed | Right image: Shows going back to a previous state]

Note: If you go back to a previous state and then perform a new action, you will record over all previous actions and edits.

The Snapshot command lets you take a *snapshot* of any state in the History Palette of your image. The new snapshot is added to a list of snapshots located at the top of History Palette. To create a snapshot:

1. Select the state that you want to capture.
2. Click the *New Snapshot* icon () at the bottom of History Palette

Note: When you close the image file, the snapshots and states in the History Palette are not saved

Setup Files for Print

1. Document Size Specifications
2. Resolution
3. Typography
4. Color
5. Saving Your File

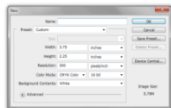
1. Document Size Specifications

Before using a file to print, you should set up a new document with the correct dimensions for a bleed. If your artwork is less than .5" from the edge, you cannot stretch it to fit, you must design it from the beginning to be print-ready.

To create a new print-ready document:

Click File > New...

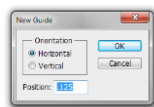
In the Width: and Height: boxes, type in your document size in inches (including bleed). Choose "inches" from the pixels box if inches is not already selected.



Click OK

To set up the Bleed zone:

Click View > New Guide...



Click Horizontal

Type in Position field: .125

Click OK

Repeat the steps above choosing Vertical .125

Repeat the steps above again now adding .125 to the size of your final desired page. For example, if you have a 3.5" by 2" horizontal business card, you'll have 3.625" and 2.125".

You will see 4 light-blue lines, the space inside these lines is where you can put text and important imagery, you must fill the canvass but anything beyond these lines will be cut off.

To set up the Safety Zone:

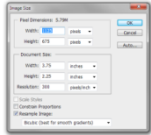
Follow the instructions above for the Bleed zone, substituting .25" for .125", the resulting area is the safety zone where it is safe to place your design free from the possibility of being cut off.

2. Resolution

To ensure your outputted PDF from is at 300DPI:

Click Image > Image Size...

In the Resolution: box, type in 300 (if it is not already set to 300)

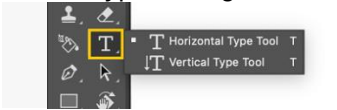


To see an approximation of the resolution quality that will be printed, zoom in to 300%

7. How to use the text editor. How to Crop Image in Photoshop & Sharpen Image?

How to add or place text

1. Open a photo or Photoshop document (PSD).
2. From the toolbar, select the **Type** tool  or simply press 'T'. The **Horizontal Type Tool** with which you can add text horizontally is selected by default. If you want to add text vertically, click the Type tool again and select **Vertical Type Tool** from the context menu.



3. Click anywhere on the canvas to type it. In Photoshop, this is called point text. The other type of text in Photoshop is called paragraph text which is used when you want to type a paragraph. Click and drag the cursor on the canvas to create a bounding box in which you can type your paragraph. This helps you efficiently edit and align the paragraph later.

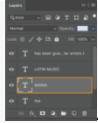


Add titles or headings with point text



Add paragraphs with paragraph text

Note: A type layer gets automatically created when you create point or paragraph text and can be identified in the Layers panel with the T icon.



A type layer in the Layers panel

4. Type your text. To save your changes, click  in the options bar.



The options bar in Windows

Note:

- You can turn off the sample text. Simply choose **Edit > Preferences > Type**, deselect **Fill new type layers with placeholder text**, and click OK.

How to select text

1. Open the Photoshop document with the text you want to edit. **Note:** The text must be on a type layer.
2. To select the entire text or paragraph on a type layer, select the Move tool  in the toolbar and double-click the text you want to select. To select one or more characters on a type layer, simply select the Type tool in the toolbar and then click and drag the cursor over the characters you want to select.
3. Once you have selected your text, you can edit your text, change color of text, resize text, copy and paste text, and more.

How to edit text

1. Open the Photoshop document with the text you want to edit. **Note:** The text must be on a type layer.
2. Select the Type tool in the toolbar.
3. Select the text you want to edit.
4. The options bar in the top has options to edit your font type, font size, font color, text alignment, and text style.



A. Change horizontal text to vertical text and vice-versa **B.** Change font style **C.** Change font size **D.** Change pixelation of text edge (anti-aliasing) **E.** Change text alignment **F.** Change text color **G.** Cancel changes **H.** Save changes

- Finally, click in the options bar to save your edits.

How to copy and paste text

You can copy and paste text in your Photoshop document (PSD) from other documents like a Word file, a PDF file, a web page, or another Photoshop file (PSD).

Copy and paste text from a non-Photoshop file

- In your non-Photoshop file such as a Word file, PDF, or web page, click and drag the cursor over the text to select it.
- Press Control+C (on Windows) to copy the selected text.
- Open the Photoshop document (PSD) in which you want to paste the copied text and then select the Type tool in the toolbar.
- Select the type layer from the Layers panel in which you want to paste the text. If you don't have type layers or want to add another type layer, see steps 2 and 3 in [how to add text](#).
- Choose **Edit > Paste** or press Control+V (on Windows) to paste your text. To undo, choose **Edit > Undo Paste Text**.

Copy and paste from another Photoshop document (PSD)

- Open the PSD you want to copy the text from.
- Select the text you want to copy and choose **Edit > Copy** or simply press or Control+C (on Windows).
- Open the PSD you want to paste the text in and select a type layer. If you don't have type layers or want to add another type layer, see steps 2 and 3 in [how to add text](#).
- Choose **Edit > Paste** to paste your text in the center of your canvas. You can also choose **Edit > Paste Special > Paste in Place** to place the text as it was in the PSD from which you had copied.

How to resize text

Resize the entire text on a type layer

- Open the Photoshop document with the text you want to edit. **Note:** The text must be on a type layer.
- Select the Move tool in the toolbar.
- In the options bar, Check that **Layer** and icon are selected.
- Ensure that the highlighted fields are selected in Windows*
- Click to select the text you want to resize.
- In the transform box that appears, drag one of the anchor points to resize your text proportionally. You can also do the following when you drag an anchor point:
 - Hold down the Shift key to resize your text non-proportionally.
 - Hold down the Alt key to keep the center of your text in the same place when you resize text.
 - Hold down the Control (on Windows) to explore skewed angles when you resize your text.
- Finally, click in the options bar to save your edits.

Resize one or more characters on a type layer

To change the size of specific letters, numbers, or words in your text, you can do this:

- Open the Photoshop document with the text you want to edit.
- Select the Type tool in the toolbar.
- Select text that you want to resize.
- In the field of the options bar, select the text size option you want. **Note:** If you have a paragraph text and are unable to view the entire paragraph after resizing it, drag the corners of the bounding box.
- Click in the options bar and you're done! To cancel your changes, click in the options bar.



Resize text in two ways - use the Move tool or specify a text size value in the options bar

How to move text

To move your text around on the Photoshop canvas:

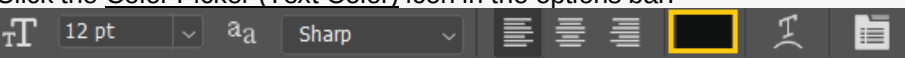
1. Open the Photoshop document with the text you want to edit.
2. Select the type layer that has the text you want to move.
3. Select the Move tool  in the toolbar.
4. In the options bar, ensure **Layer** is selected and then click the text you want to move.
5. Click and move the transform box and then release it to place the text where you want.

How to change color of text

Change the color of your entire text

1. Open the Photoshop document with the text you want to edit.
 2. Select the Type tool in the toolbar and click the text for which you want to change color. The entire text in the type layer is selected.
 3. Click the Color Picker (Text Color) icon in the options bar.
- 
4. Move the color slider as you want and pick your color. You can see your text color change in real time as you pick different colors.
 4. Once you're happy with your text color, click OK.

Change the color of one or more characters in your text

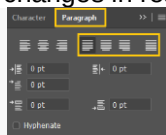
1. Open the Photoshop document with the text you want to edit.
 2. Select the Type tool in the toolbar.
 3. Click and drag the cursor over the characters you want to select.
 4. Click the Color Picker (Text Color) icon in the options bar.
- 
5. Move the color slider as you want and pick your color. You can see your text color change in real time as you pick different colors.
 6. Once you're happy with the text color, click OK.

How to align and justify text

1. Open the Photoshop document with the text you want to edit.
2. Select the type layer from the Layers panel that has the paragraph you want to justify. If you want to justify a specific paragraph on a type layer, then select it. **Note:** If you have a word or a few words (that is point text), you need to convert it to paragraph text first to justify it. To change point text to paragraph text, select the type layer and choose **Type >**

Convert To Paragraph Text

3. Choose **Window > Paragraph** to view the Paragraph panel.
4. In the Paragraph panel, you can view the various Justify options. Select an option to view the changes in real time.

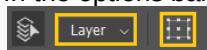


Align your paragraph text with Justify options in the Paragraph panel

5. After you've finalized your Justify option, click  in the options bar and you're set!

How to rotate text

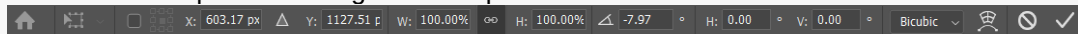
1. Open the Photoshop document with the text you want to edit.
2. Select the Move tool  in the toolbar.
3. In the options bar, Check that **Layer** and  icon are selected.



Select Layer and Show transform controls icon in Windows

4. Click the text you want to rotate. You can then view the transform box around your text.

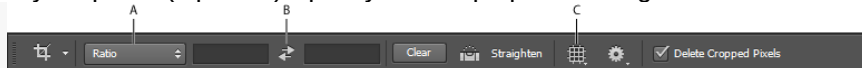
5. Hover near the corners of the transform box. The cursor changes to a two-sided arrow.
6. Click and drag the curved arrow to rotate the text the way you want. You can also specify values in the options bar to get a more precise rotation.



7. Click ☒ in the options bar and you're done!

CROP A PHOTO

1. From the toolbar, select the Crop Tool . Crop borders display on the edges of the photo.
2. Draw a new cropping area or drag the corner and edge handles to specify the crop boundaries in your photo. (Optional) Specify the Crop options using the Control bar.



A. Aspect Ratio menu **B. Swap Width and Height values** **C. Overlay Options**

Size and proportions Choose a ratio or size for the crop box. You can also choose a preset, enter your own, or even define your own preset values for later use.

Overlay Options Choose a view to display overlay guides while cropping. Guides such as Rule of Thirds, Grid, and Golden Ratio are available. To cycle through all the options, press O.

Crop Options Click the Settings (gear) menu to specify additional crop options.

Use Classic mode Enable this option if you want to use the Crop tool like it was in previous versions of Photoshop (CS5 and earlier).

Auto Center Preview Enable this option to place the preview in the center of the canvas.

Show Cropped Area Enable this option to display the area that is cropped. If this option is disabled, only the final area is previewed.

Enable Crop Shield Use the crop shield to overlay the cropped areas with a tint. You can specify a color and opacity.

Delete cropped pixels Disable this option to apply a non-destructive crop and retain pixels outside the crop boundaries. Enable this option to delete any pixels that are outside the crop area. These pixels are lost and are not available for future adjustments.

SHARPEN IMAGE AREAS

The Sharpen tool increases contrast along edges. The more you paint over an area with the tool, the more sharpening increases.

1. Select the Sharpen tool . (If the tool isn't visible, hold down the Blur  tool.)
2. In the options bar:
 - Choose a brush tip and set options for the blending mode and strength.
 - Select Sample All Layers to sharpen using data from all visible layers. If this is deselected, the tool uses data from only the active layer.
 - Select Protect Detail to enhance details and minimize pixelated artifacts. .
2. Drag over the part of the image you want to sharpen.

8. Procedure to Removing & Adding Backgrounds images. Procedure to Convert Color Photos to Black & White.

HOW TO ADD BACKGROUND IN PHOTOSHOP

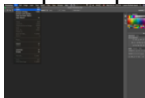
1. SEPARATE THE FOREGROUND AND BACKGROUND
 1. The first step is to select the foreground object. Click the "Quick Selection Tool" from the tool bar. You can also press "W" on your keyboard.
 2. Click and drag inside the area of the image you would like to select. This tells Photoshop which parts to include based on the contrast levels in the photo.
2. FINE-TUNE THE SELECTION
 1. Zoom into the image.
 2. Make the brush size smaller.
 3. Click and drag to add parts of the foreground object to your selection.
3. CHOOSE "SELECT AND MASK"
 1. Click "Select and Mask" on the top menu.

2. Then, click "View Mode" in the "Properties" panel. This will give you the ability to change how you see your selection.
3. Finally, add "Overlay" to help you pick a color that contrasts with your image.
4. **REFINE THE SELECTION**
To refine the selection, follow these steps:
 1. Zoom into the image. This will allow you to check the edges of the selection. Look for areas that haven't been selected, were incorrectly selected, or have rough edges.
 2. Smooth out the edges of the wall and body with the "Brush Tool" and paint in to add to the selection.
 3. Use the "Refine Edge" tool to touch up hair or any soft edges.
 4. Check "Smart Radius," which can be found under "Edge Detection" in the panel. "Smart Radius" allows Photoshop to make a distinction between the soft and hard edges.
 5. Use the "Refine Edge" brush on the outer edge of the hair. At this point, begin brushing. Strands of hair should start to add to the selection.
5. **REMOVE COLOR FRINGE**
 1. Click "Output Settings" in the right panel.
 2. Select "Decontaminate Colors" to remove any remaining color fringe.
 3. Choose "New Layer with Layer Mask" from the "Output Settings."
 4. Press "OK" to return to the main image. You will see a new layer added.
6. **PASTE IN THE NEW BACKGROUND**
Use the "Hand" tool to position the layer.
 1. Resize the image if needed with the "Free Transform" tool on the tool bar. You can also press "Command + T" for Mac ("Control + T" for PCs).
 2. Drag the corners or sides inward to make it smaller. Be sure to hold the "Shift" key to maintain the aspect ratio.
7. **FIX THE FOREGROUND COLORS**
The last step to take to add a background in Photoshop is to fix the foreground colors.
 1. Select the foreground layer. Make sure you do not select the mask, just the image.
 2. Click "Image," hover over "Adjustments," and select "Match Color."
 3. Access "Source" and select the image.
 4. Choose which layer to fix under "Layer." You can decide whether to match the foreground to the new background or vice-versa.
 5. Check the "Neutralize" box to remove color casts from the chosen layer.
 6. Adjust the "Luminance" and "Intensity" options until the foreground and background match.
8. **SAVE THE IMAGE**
With the foreground and background blended, the adjustment is complete. You can now save your image as a PSD file. This will ensure to preserve the layer information.

REMOVING BACKGROUND

Step 1: Open Photoshop CS6

Step 2: Open the Image to Edit



Select **FILE** from the menu bar, then click **OPEN**. Browse for your image file, **SELECT** the image, then click **OPEN**.

Step 3: Select Layer From Background



1. In the **Layers Panel**, **RIGHT CLICK** the **LAYER** named Background.
2. Click **LAYER FROM BACKGROUND**. **RENAME** your layer to the name of your choice.
3. Press **OK**.

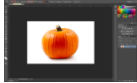
Without removing the layer from background, your background cannot be transparent.

Step 4: Select the Magic Wand Tool on the Vertical Toolbar



On the **left vertical toolbar**, **right click** the **fourth icon from the top (wand icon)** and select the **Magic Wand Tool**.

Step 5: Adjust Your Selection Settings on the Top Horizontal Toolbar

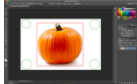


Select **ADD TO SELECTION**, change your sample size to **POINT SAMPLE**, change your tolerance to **32**, and **CHECK** anti-alias, contiguous, and sample all layers.

About Selection Tools

- **New Selection:** Useful to generate a single, new selection.
- **Add to Selection:** Useful to select multiple objects or multiple parts of an object.
- **Subtract from Selection:** Useful to correct mistakes or remove parts of the selection.
- **Intersect with Selection:** Useful to select intersecting parts of an image.
- **Tolerance:** A tolerance of 32 would select our current selection, plus any pixels that are up to 32 shades darker or 32 shades brighter.
- **Anti-alias:** When selected, smooths out edges by applying a slight blur to them.
- **Contiguous:** When selected, only pixels that fall within the acceptable tone and color determined by the tolerance option and are side by side will be selected.
- **Sample All Layers:** When selected, all layers, regardless of if they're active or not, will be included in your selection.

Step 6: Make Your Initial Background Selection With the Magic Wand Tool



To accurately select your background, **CLICK** a portion of **the background FAR from your object** to make your initial selection. You should see **animated dotted lines** indicating your selection (see figure above). You should only need to click once to select a good portion of your background. If you have selected most of your background, proceed to Step 7.

Step 7: Refine Your Selection With the Quick Selection Tool



In this step, you will select the remaining details of your background that you may have missed in Step 6.

To **REMOVE** a portion of your selection, **RIGHT CLICK** the WAND icon on the vertical toolbar. Click **QUICK SELECTION TOOL**. On the horizontal toolbar, click the **SUBTRACT FROM SELECTION** icon.

To **ADD** smaller portions to your selection, follow the instructions above to select and resize the **QUICK SELECTION TOOL**. Click the **Add to Selection** icon.

Choosing a brush size: Use a smaller brush size for details and use a large brush size for larger areas. To change the size of your brush, click the **DOWNWARDS ARROW** to the right of the **Subtract from Selection** icon, then drag the slider to the right (larger) or left (smaller).

Once a brush size is selected, **CLICK** and **DRAG** the Quick Selection Tool to **ADD** or **REMOVE** portions of your selection.

Troubleshooting:

- To **UNDO** your last move, either press **Ctrl+Z**
- To **REDO** what you just undid, press **Ctrl+Shift+Z** (Windows)
- To **RESTART** your selection and restart, either press **Ctrl+D** (Windows), or right click and choose **DESELECT**. The animated dotted lines should disappear.
- To **ZOOM** in or out for better viewing, first, press **Z** to select the Zoom tool. To **ZOOM IN**, click anywhere on the workspace. To **ZOOM OUT**, hold the **Alt** (Windows) or **Option** (Mac) key while clicking anywhere on the workspace. This will not affect your image or selection.

Step 8: Finalize Your Selection



Refine your selection until the entire background is neatly selected. **The animated dotted line should outline your canvas and the object.** If any part of the animated dotted line overlaps with the object, you may accidentally delete a portion of the object.

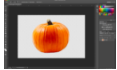
If your line overlaps the object or does not outline the canvas, continue to refine your selection as detailed in Step 7. If your line neatly outlines the canvas and object (see image above), proceed to Step 9.

Step 9: Press BACKSPACE (Windows) or DELETE (Mac) to Remove Your Background



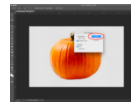
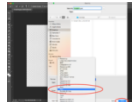
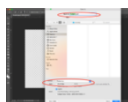
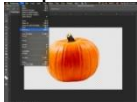
Once you press delete, you should see a gray and white checkerboard pattern where your background once was. This background indicates transparency; therefore, if you place the image into a Microsoft Word document, PowerPoint presentation, or on a website, the image will stand alone without a white background.

Step 10: Press Ctrl+D (Windows) to Deselect Your Selection



The animated dotted line should disappear and you should still have the checkerboard pattern in place of your previous background.

Step 11: Save Your Image As a PNG File



In the Menu bar, hover over **FILE** and click **SAVE AS**. You can change the name of your file, then click the **FORMAT** dropdown menu. Change your format to **PNG**. When presented with **PNG Options**, click **OK**.



Step 13: Troubleshooting

Problem	Probable Cause	Solution
Error Message: Could not use the magic wand because no layers are selected.	No layers are selected.	Click the layer in the Layer Panel to select the layer you would like to work with.
The image is too close or too far away to make an accurate selection.	The canvas is zoomed in too close or zoomed out too far.	To Zoom for better viewing, first, press the Z key. To Zoom In , click anywhere on the workspace. To Zoom Out , hold the Alt (Windows) or Option (Mac) key while clicking anywhere on the workspace. This will not affect your image or selection.
Cannot locate the Magic Wand Tool.	Hidden within the multiple tool function.	Locate the vertical toolbar . Right click on the fourth icon from the top. Select the Magic Wand Tool .
Deleted image rather than background.	Image selected rather than background.	To restore your image, press Ctrl+Z (Windows) or ⌘ Cmd+Z (Mac) until your image is restored with the animated dotted line around your selection. Right click within your selection, click Select Inverse . Press BACKSPACE (Windows) or DELETE (Mac) to remove your background.

PROCEDURE TO CONVERT COLOR PHOTOS TO BLACK & WHITE.

1. Choose Image→Adjustments→Black & White.
 - a. Your Black and White dialog box appears. In addition, Photoshop automatically applies a default conversion to your image.



2. Adjust the conversion to your liking by doing one of the following:
 - a. *Choose a Preset:* Select a preset conversion from the pop-up menu..
 - b. *Click Auto:* This option analyzes your image's color values and then converts to grayscale, while trying to maximize your gray tonal values. Again, this conversion can be used as a starting point.

- c. *Adjust the sliders:* Drag the sliders left to darken and right to lighten the tones. Note that your mouse turns into an eyedropper when you move or click over your image. Click areas of your image to highlight that dominant color in your dialog box. Click and drag on the image itself with the eyedropper to move the color slider for that color, making it darker or lighter.
- 3. If desired, select the Tint button to apply a tone of color to the black-and-white image.
 - a. Adjust the Hue and Saturation sliders to choose a tint color and intensity of that color. Click the color swatch to access the Color Picker, where you can select another color.

FLASH

1. Flash, also known as Adobe Flash is a multimedia software platform used for creation of fully interactive animations.
2. Originally developed by FutureWave, Flash was first known as FutureSplash Animator. When Macromedia purchased the product in 1996, it became Macromedia Flash. Later, Adobe acquired Macromedia in 2005 and renamed it as Adobe Flash.
3. Developers could create rich web applications, embedded web browser video players, desktop and mobile applications, mobile games, interactive video players, application user interfaces, rich online advertisements, e-learning modules, marketing collateral, business presentations and entertainment or business applications using elements like animations, graphic illustrations/motion graphics, streaming video, audio and text to deliver engaging user experiences over various platforms.
4. If an end user encountered Flash content on a website but did not have the player installed, the web browser would prompt them to install it first.
5. All Flash source files were in Adobe's proprietary FLA format and contained bitmap images, audio files or FLV video files. FLA files were editable, could be compiled into Flash movie files (SWF) using Adobe Animate and were played in a standalone Flash Player within a website. While, FLV video files could be used from within SWF files or played through an external player, like Windows Media Player. Flash audio output was usually encoded in MP3 or Advanced Audio Coding. In 2007, Adobe added MPEG-4 standards to Flash video.
6. Developers could control a Flash object's actions and behaviors using the Behavior and Timeline panel ActionScript which is an event-based language enabled developers to create interactive onscreen or web environments that can respond to user input through an input device, such as a keyboard or mouse. Flash also included :
 - **Library panel** where all imported items, graphics, motion tweens, audio, video, symbols and other objects are stored
 - **Canvas.** where developers placed all of the viewable objects.
 - **Properties panel** to control and select property options, depending on object type.
7. Flash files were smaller than normal video clips or bitmap images because they used vector graphics and program code which meant that video streams used less bandwidth
8. In 2017, Adobe announced that it would stop supporting Flash on Dec. 31, 2020. On this date, Adobe stopped offering support. Adobe said that open standards including HTML5, WebGL and WebAssembly which all major browser vendors are now integrating into their browsers, serve as viable alternatives to Adobe Flash.
9. **How to start Flash?**
 - Click on the Start button on the computer.
 - Select or search for Programs on the sub-menu.
 - In the Programs section, click on the Adobe section.
 - Now select Adobe Flash.

Experiment :-1

Aim of the Experiment

Procedure to create an animation to represent the growing moon.

- a. Open flash 8 software -> click on flash document->go to windows->properties->select the properties tool -> choose the Background to black.
- b. Go to fill color under tool bar-> select the white color.
- c. Select the oval tool in order to draw the moon. u will get a white circle.
- d. Select the oval tool in order to draw the moon. u will get a white circle.
- e. Select the white circle on the worksheet using the selection tool->right click->convert to symbol-> select movie clip->give suitable name e g: moon->click ok.
- f. 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.
- g. Click on the + symbol again and chose blur-> again adjust the blur x/blur y values.
- h. Place the moon where ever you want on the work area. Double click on layer 1 and rename as MOON.
- i. Insert another layer->rename it as Animation.
- j. Select the fill color to black-> select oval tool and draw a circle on the moon to cover the moon->select the newly added circle-> right click-> convert to symbol-> movie clip-> name it as Animation.
- k. Go to filter-> select + symbol->give the glow and blur effect as did for moon.
- l. Select the 150th frame in moon layer->right click->insert key frame. repeat the same for Animation layer.
- m. Click on the 149th key frame of animation layer ->right click->press create motion-> select the animation movie clip and move slowly across the moon.
- n. Finally go to control-> test movie-> u will get a growing moon as the output.

Experiment :-2

Aim of the Experiment

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

- a. Go to start- macromedia- click on flash document
- b. Select the line tool and draw the steps. color it using the paint bucket tool
- c. Select the circle from the tool bar and create a circle on the work area.
- d. Now fill the color to the circle using the paint bucket tool from the tool bar.
- e. Go to frames right click on the first frame and choose insert key frame. Slightly move the ball. Repeat the same procedure by adding new key frames to show the ball change the shape of the ball slightly when it touches the surface.
- f. In order to change the shape use the free transform tool.
- g. Go to control and click on test movies .you will observe the ball bouncing on steps.

Experiment :-3

Aim of the Experiment

Procedure to simulate movement of a cloud.

- a. go to start- macromedia- click on flash document
- b. create a blue background in layer 1
- c. Now insert a layer 2 and draw the clouds in this layer.
- d. In order to create the clouds, go to tool bar and select pencil option, draw the cloud in layer2
- e. fill the color to the cloud, right click on it- choose convert to symbol option- give the name as cloud
- f. select the movie clip option and click ok.
- g. Go to filter->click on the + symbol->select glow to apply glowing effect-> select the colour to white
- h. under glow and adjust the blur x/blur y values.
- i. give the appropriate blur effect to the cloud.
- j. go to frames, insert key frame on both the layer, create the motion tween on 2nd layer and move the clouds
- k. finally go to control->click on test movies