Practical – 6

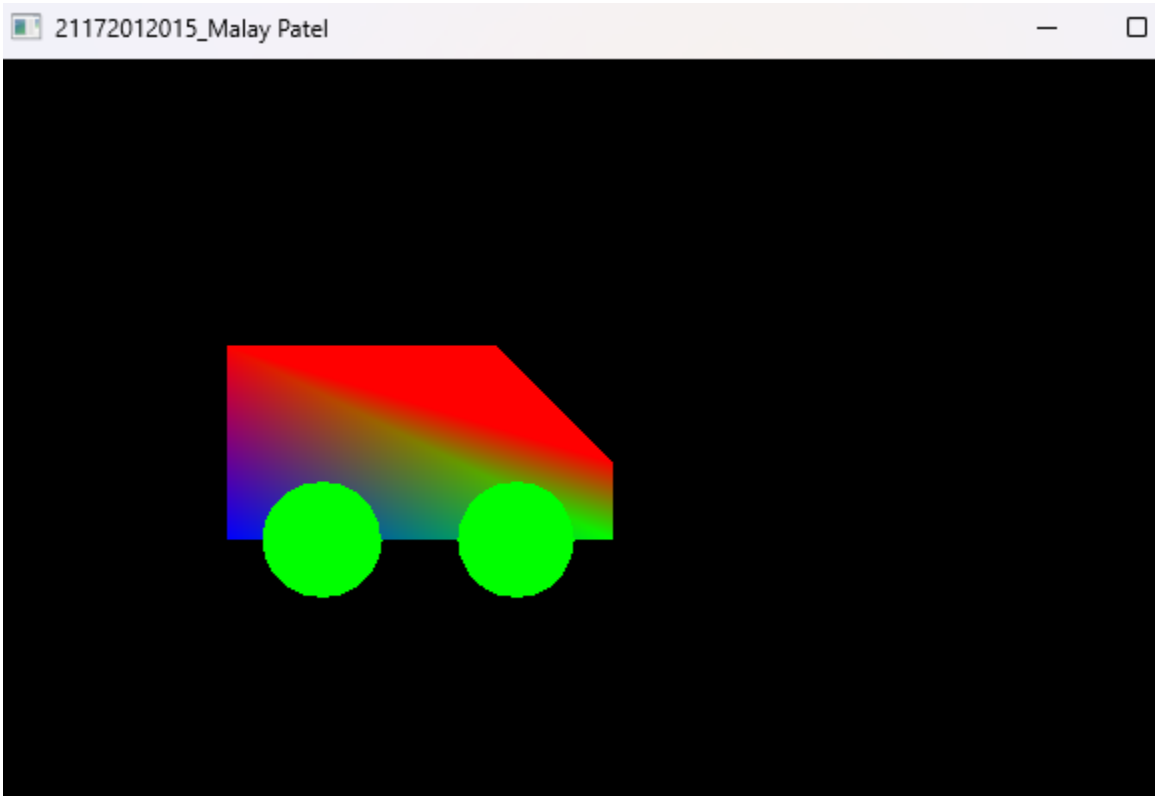
AIM: Study to 2DTransformation

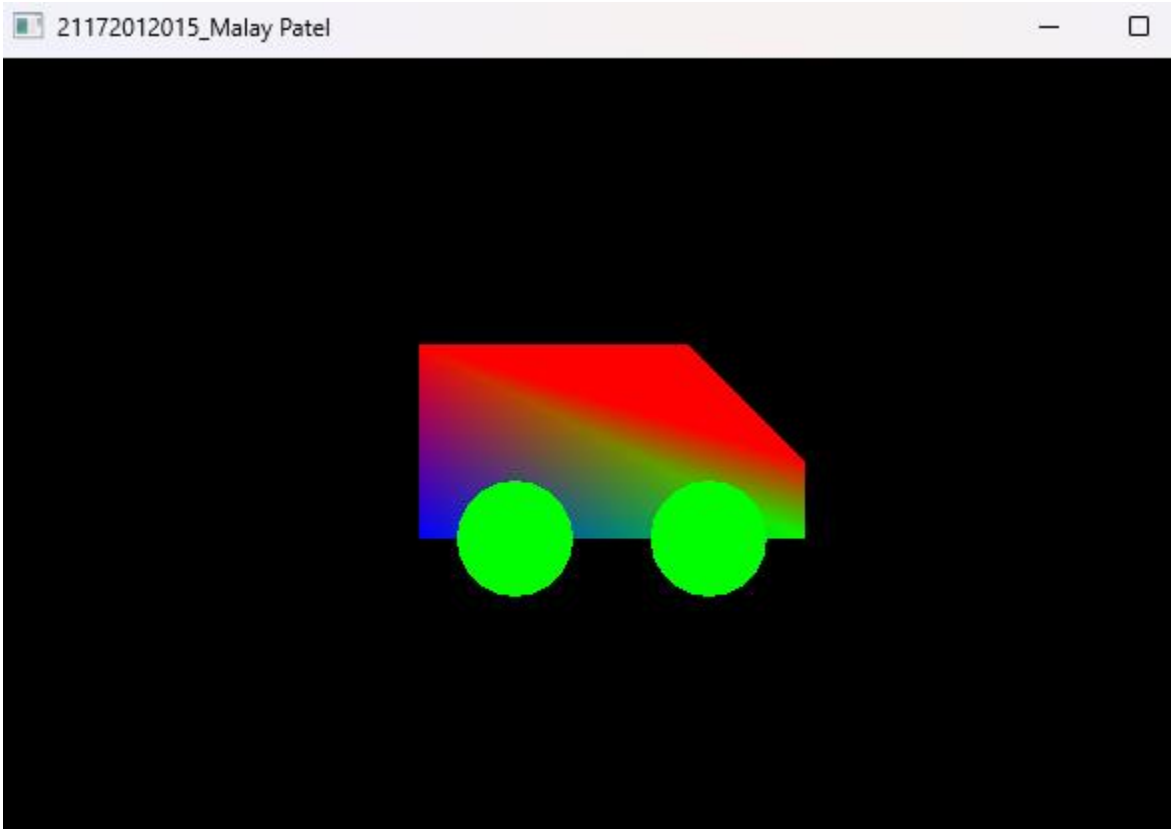
Code:

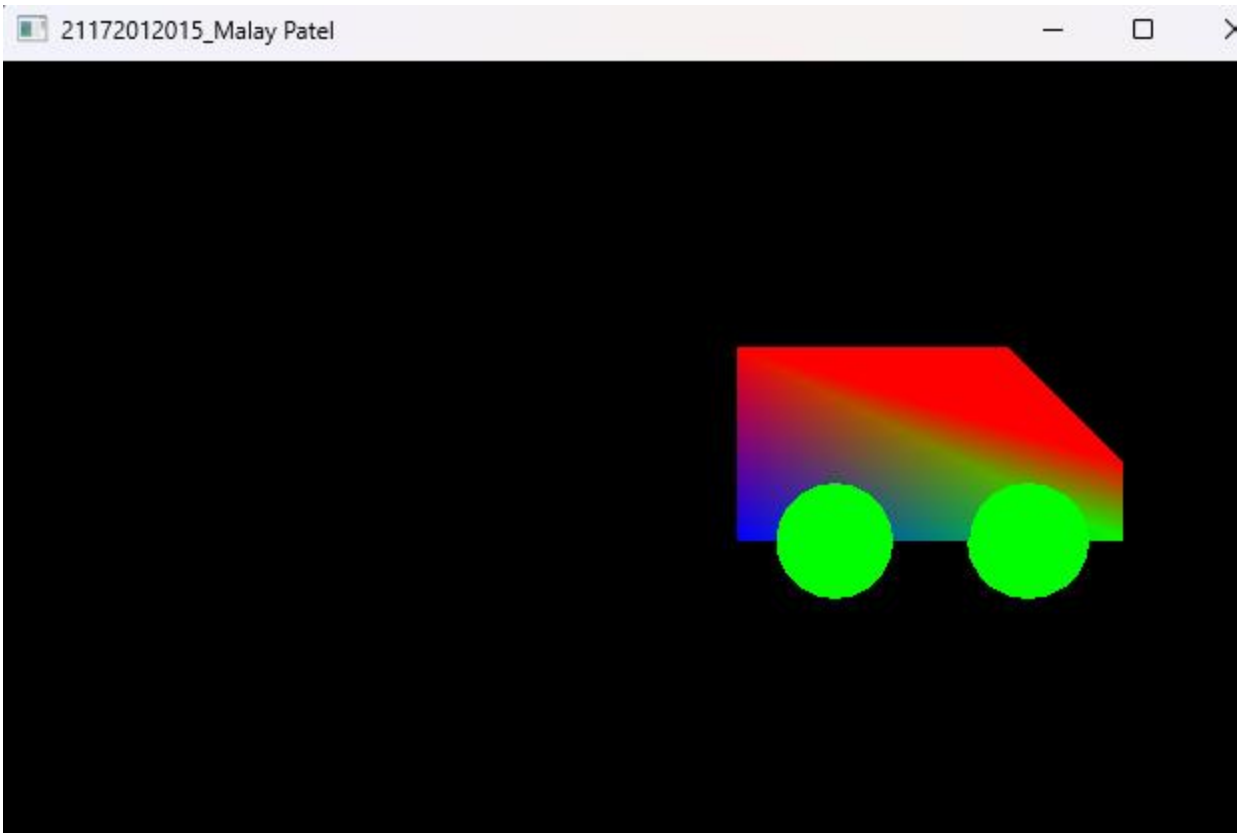
```
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
#include <string.h>
#include <iostream>
#include <conio.h>
#include<dos.h>
#define ESCAPE 27
#define outcode int
#include <GL/gl.h>
#include <stdlib.h>

#include <windows.h>
#include <stdlib.h>

namespace gp6_1 {
	int window;
	float rtri = 0.0f;
	float rquad = 0.0f;
	void InitGL(int Width, int Height)
	{
		// This Will Clear The Background Color To Black
		glClearColor(0.0f, 0.0f, 0.0f, 0.0f);
		glClearDepth(1.0); // Enables Clearing Of The Depth Buffer
		glDepthFunc(GL_LESS); // The Type Of Depth Test To Do
		glEnable(GL_DEPTH_TEST); // Enables Depth Testing
		glShadeModel(GL_SMOOTH); // Enables Smooth Color Shading
		glMatrixMode(GL_PROJECTION);
		glLoadIdentity(); // Reset The Projection Matrix
		gluPerspective(45.0f, (GLfloat)Width / (GLfloat)Height, 0.1f,
			100.0f);
		glMatrixMode(GL_MODELVIEW);
	}
	void ReSizeGLScene(int Width, int Height)
	{
		if (Height == 0) // Prevent A Divide By Zero If The Window Is Too Small
			Height = 1;
		glViewport(0, 0, Width, Height); // Reset The Current Viewport And
Perspective Transformation
		glMatrixMode(GL_PROJECTION);
		glLoadIdentity();
		gluPerspective(45.0f, (GLfloat)Width / (GLfloat)Height, 0.1f,
			100.0f);
		glMatrixMode(GL_MODELVIEW);
```

```
	}
	float ballX = -0.5f;
	float ballY = 0.0f;
	float ballZ = 0.0f;
	void drawBall(void) {
		glColor3f(0.0, 1.0, 0.0); //set ball colour
		glTranslatef(ballX, ballY, ballZ); //moving it toward the screen a bit
on creation
		glutSolidSphere(0.3, 20, 20); //create ball.
		glTranslatef(ballX + 1.5, ballY, ballZ); //moving it toward the screen
a bit on creation
		glutSolidSphere(0.3, 20, 20); //
	}/* The main drawing function. */
	void DrawGLScene()
	{
		glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);
		glLoadIdentity();
		glTranslatef(rtri, 0.0f, -6.0f);
		glBegin(GL_POLYGON); // start drawing a polygon
		glColor3f(1.0f, 0.0f, 0.0f); // Set The Color To Red
		glVertex3f(-1.0f, 1.0f, 0.0f); // Top left
		glVertex3f(0.4f, 1.0f, 0.0f);
		glVertex3f(1.0f, 0.4f, 0.0f);
		glColor3f(0.0f, 1.0f, 0.0f); // Set The Color To Green
		glVertex3f(1.0f, 0.0f, 0.0f);
		glColor3f(0.0f, 0.0f, 1.0f); // Set The Color To Blue
		glVertex3f(-1.0f, 0.0f, 0.0f);
		//glVertex3f();
		glEnd();
		drawBall();
		rtri += 0.005f;
		if (rtri > 2)rtri = -2.0f;
		rquad -= 15.0f;
		glutSwapBuffers();
	}
	void keyPressed(unsigned char key, int x, int y)
	{
		if (key == ESCAPE)
		{
			// glutDestroyWindow(window);
			exit(0);
		}
	}
	void main(int argc, char** argv)
	{	glutInit(&argc, argv);
		glutInitDisplayMode(GLUT_RGBA | GLUT_DOUBLE | GLUT_ALPHA |
			GLUT_DEPTH);
		glutInitWindowSize(640, 480); glutInitWindowPosition(0, 0);
		/* Open a window */
		window = glutCreateWindow("21172012015_Malay Patel");
		glutDisplayFunc(&DrawGLScene);
		glutIdleFunc(&DrawGLScene);
		glutReshapeFunc(&ReSizeGLScene);
		glutKeyboardFunc(&keyPressed);
		InitGL(640, 480);
		glutMainLoop();
	    }
	 }
```

OUTPUT:






21172012015_Malay Patel