CGV Practical : 1

AIM: Study of Basic Graphics Functions in OpenGL Programming by using C++ language

1. **glutInit(&argc, argv)**
2. **glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB)**
3. **glutInitWindowSize(640,480)**
4. **glutInitWindowPosition(100,15)**
5. **glutCreateWindow("Example")**
6. **glutMainLoop()**
7. **glPointSize(2.0**
8. **glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);**
9. **glColor3f(0.5f, 0.5f, 0.5f);**
10. **glBegin(GL_POLYGON); glEnd();**
11. **glVertex2i(20, 20);**
12. **glRectf(30, 30, 100, 100);**

13. **glFlush();**
14. **glClearColor(0.0, 0.0, 0.0, 0.0);**
15. **glMatrixMode(GL_MODELVIEW); &glMatrixMode(GL_PROJECTION);**
16. **glLoadIdentity();**
17. **gluOrtho2D(0.0, 500.0, 0.0, 400.0);**
18. **glutSwapBuffers();**
19. **glTranslatef(-1.5f, 0.0f, -6.0f);**
20. **glViewport(0, 0, width, height);**
21. **gluPerspective(45.0f, aspect, 0.1f, 100.0f);**
22. **glClearDepth(1.0f);**
23. **glEnable(GL_DEPTH_TEST);**
24. **glRotatef(angleCube, 1.0f, 1.0f, 1.0f);**
25. **glShadeModel(GL_SMOOTH);**
26. **glHint(GL_PERSPECTIVE_CORRECTION_HINT, GL_NICEST);**
27. **glEnable(GL_CULL_FACE); & glCullFace(GL_BACK);**
28. **glLineWidth(5);**

Code :

```
namespace gp1
{
	void main(int argc, char** argv)
	{
		glutInit(&argc, argv);
		glutInitDisplayMode(GLUT_RGB);
		glutInitWindowPosition(200, 100);
		glutInitWindowSize(500, 500);
		glutCreateWindow("21172012015_Malay Patel");
	}
}
namespace gp2 {
	void display();
	void main(int argc, char** argv)
	{
		glutInit(&argc, argv);
		glutInitDisplayMode(GLUT_RGB);
		glutInitWindowPosition(100, 100);
		glutInitWindowSize(500, 500);
		glutCreateWindow("21172012015_Malay Patel");
		glutDisplayFunc(display);
		glutMainLoop();
	}
	void display()
	{
	}
}
namespace gp3 {
	void display();
	void init()
	{
		glClearColor(1.0, 0.9, 0.6, 1.0);
```

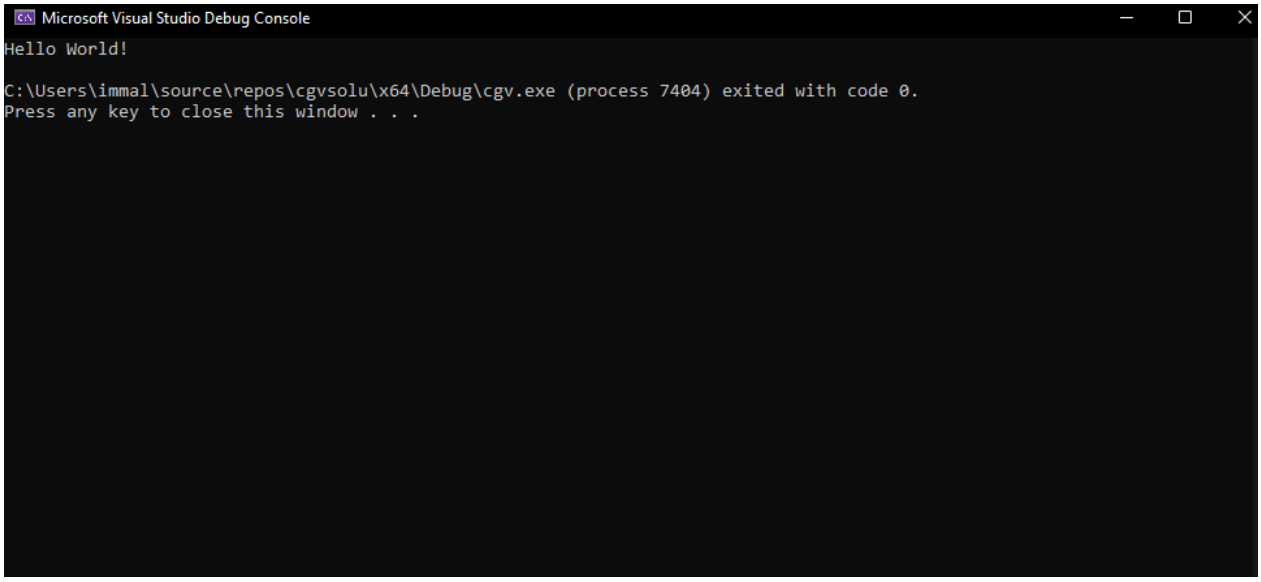
```
	}
	void main(int argc, char** argv)
	{
		glutInit(&argc, argv);
		glutInitDisplayMode(GLUT_RGB);
		glutInitWindowPosition(100, 100);
		glutInitWindowSize(500, 500);
		glutCreateWindow("21172012015_Malay Patel");
		glutDisplayFunc(display);
		init();
		glutMainLoop();
	}
	void display()
	{
		glClear(GL_COLOR_BUFFER_BIT);
		glLoadIdentity();
		glFlush();
	}
}
namespace gp4 {
	void display();
	void reshape(int, int);
	void init()
	{
		glClearColor(1.0, 0.9, 0.6, 1.0);
	}
	void main(int argc, char** argv)
	{
		glutInit(&argc, argv);
		glutInitDisplayMode(GLUT_RGB);
		glutInitWindowPosition(100, 100);
		glutInitWindowSize(500, 500);
		glutCreateWindow("21172012015_Malay Patel");
		glutDisplayFunc(display);
		glutReshapeFunc(reshape);
		init();
		glutMainLoop();
	}
	void display()
	{
		glClear(GL_COLOR_BUFFER_BIT);
		glLoadIdentity();
		glFlush();
	}
	void reshape(int w, int h)//resize clipping area
	{
		glViewport(0, 0, (GLsizei)w, (GLsizei)h);
		//everything's draw inside it
		glMatrixMode(GL_PROJECTION);//change mode or rotation or scaling
		glLoadIdentity();//reset all parameters
		gluOrtho2D(-10, 10, -10, 10);
		glMatrixMode(GL_MODELVIEW);//change mode
	}
}
namespace gp5 {
	void display();
	void reshape(int, int);
	void init()
	{
		glClearColor(1.0, 0.9, 0.6, 1.0);
```

```
	}
	void main(int argc, char** argv)
	{
		glutInit(&argc, argv);
		glutInitDisplayMode(GLUT_RGB);
		glutInitWindowPosition(100, 100);
		glutInitWindowSize(500, 500);
		glutCreateWindow("21172012015_Malay Patel");
		glutDisplayFunc(display);
		glutReshapeFunc(reshape);
		init();
		glutMainLoop();
	}
	void display()
	{
		glClear(GL_COLOR_BUFFER_BIT);
		glLoadIdentity();
		glPointSize(10.0);
		glBegin(GL_POINTS);
		glVertex2f(55, 5);
		glVertex2f(-5, -5);
		glEnd();
		//glBegin(GL_POLYGON);
		//glVertex2f(9, 9);
		//glVertex2f(0, 5);
		//glVertex2f(4, -3);
		//glVertex2f(-4.0, -3.0);
//glEnd();
		glFlush();
	}
	void reshape(int w, int h)//resize clipping area
	{
		glViewport(0, 0, (GLsizei)w, (GLsizei)h);
		//everything's draw inside it
		glMatrixMode(GL_PROJECTION);//change mode or rotation or scaling
		glLoadIdentity();//reset all parameters
		gluOrtho2D(-10, 10, -10, 10);
		glMatrixMode(GL_MODELVIEW);//change mode
	}
}
namespace gp6 {
	void display();
	void reshape(int, int);
	void init()
	{
		glClearColor(1.0, 0.9, 0.6, 1.0);
	}
	void timers(int);
	float x_position = -10.0;
	void main(int argc, char** argv)
	{
		glutInit(&argc, argv);
		glutInitDisplayMode(GLUT_RGB);
		glutInitWindowPosition(100, 100);
		glutInitWindowSize(500, 500);
		glutCreateWindow("21172012015_Malay Patel");
		glutDisplayFunc(display);
		glutReshapeFunc(reshape);
		glutTimerFunc(1000, timers, 0);
		init();
```

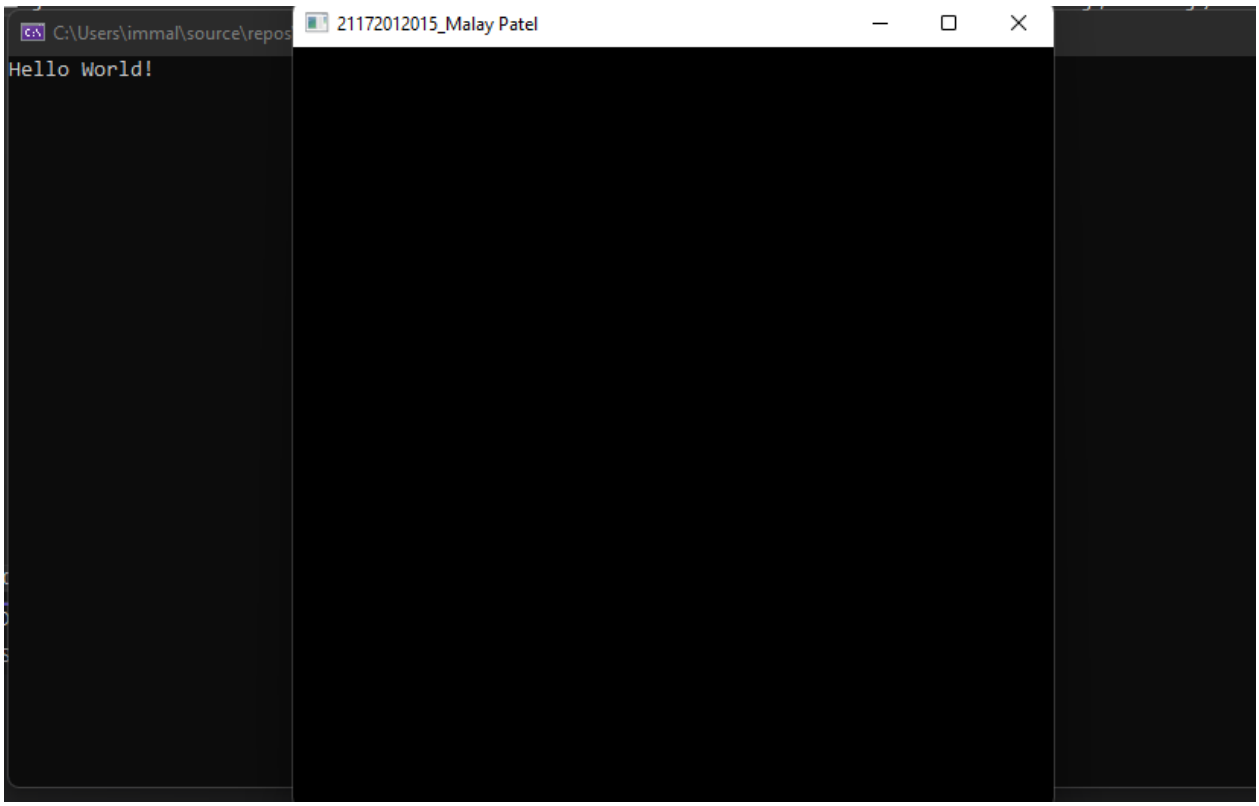
```
	glutMainLoop();
}
void display()
{
	glClear(GL_COLOR_BUFFER_BIT);
	glLoadIdentity();
	//glPointSize(10.0);
	//glBegin(GL_POINTS);
	//glVertex2f(55, 5);
	//glVertex2f(-5, -5);
	//glEnd();
	glBegin(GL_POLYGON);
	glVertex2f(x_position, 1.0);
	glVertex2f(x_position, -1.0);
	glVertex2f(x_position + 2.0, -1.0);
	glVertex2f(x_position + 2.0, 1.0);
	glEnd();
	glutSwapBuffers();
}
void reshape(int w, int h)//resize clipping area
{
	glViewport(0, 0, (GLsizei)w, (GLsizei)h);
	//everything's draw inside it
	glMatrixMode(GL_PROJECTION);//change mode or rotation or scaling
	glLoadIdentity();//reset all parameters
	gluOrtho2D(-10, 10, -10, 10);
	glMatrixMode(GL_MODELVIEW);//change mode
}
void timers(int)
{
	glutPostRedisplay();
	glutTimerFunc(1000 / 60, timers, 0);
	if (x_position < 8)
		x_position += 0.15;
}

}
```

OUTPUT:

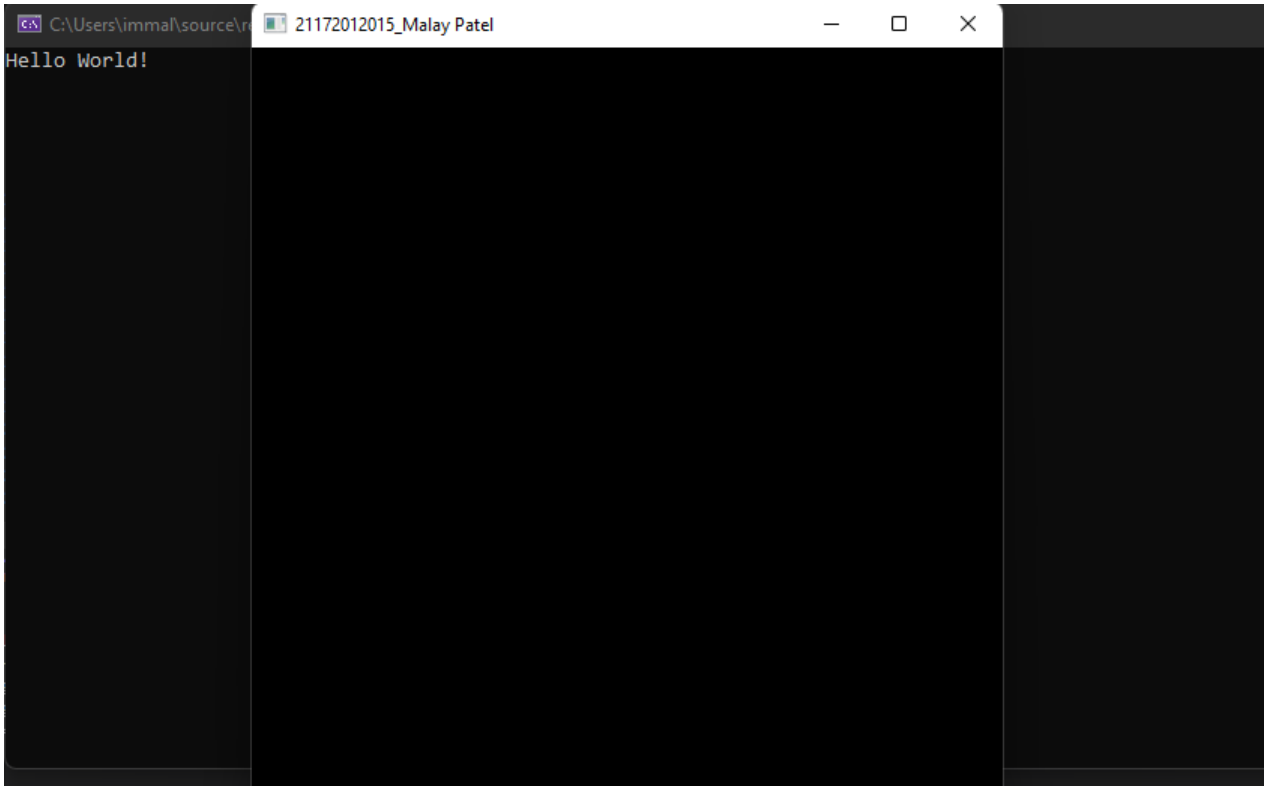
gp1


Microsoft Visual Studio Debug Console
Hello World!
C:\Users\immal\source\repos\cgvsolu\x64\Debug\cgv.exe (process 7404) exited with code 0.
Press any key to close this window . . .

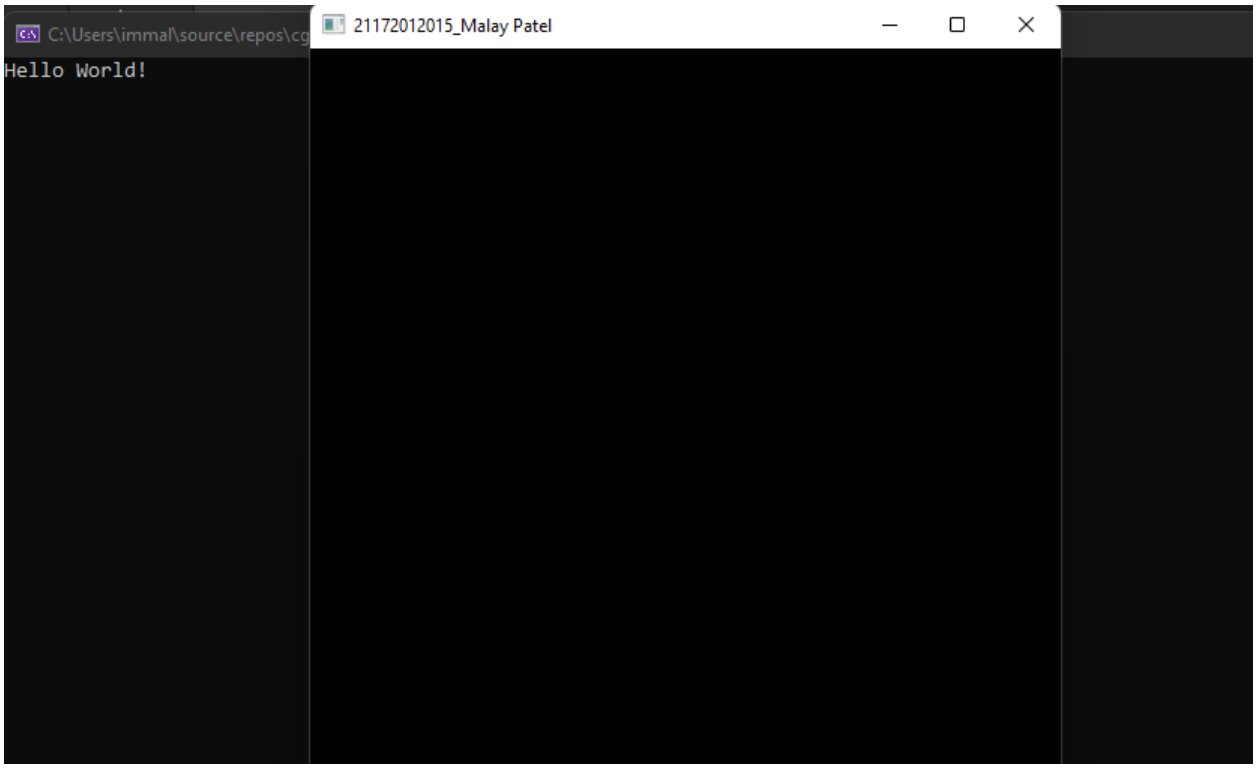
gp2


C:\Users\immal\source\repos
Hello World!
21172012015_Malay Patel

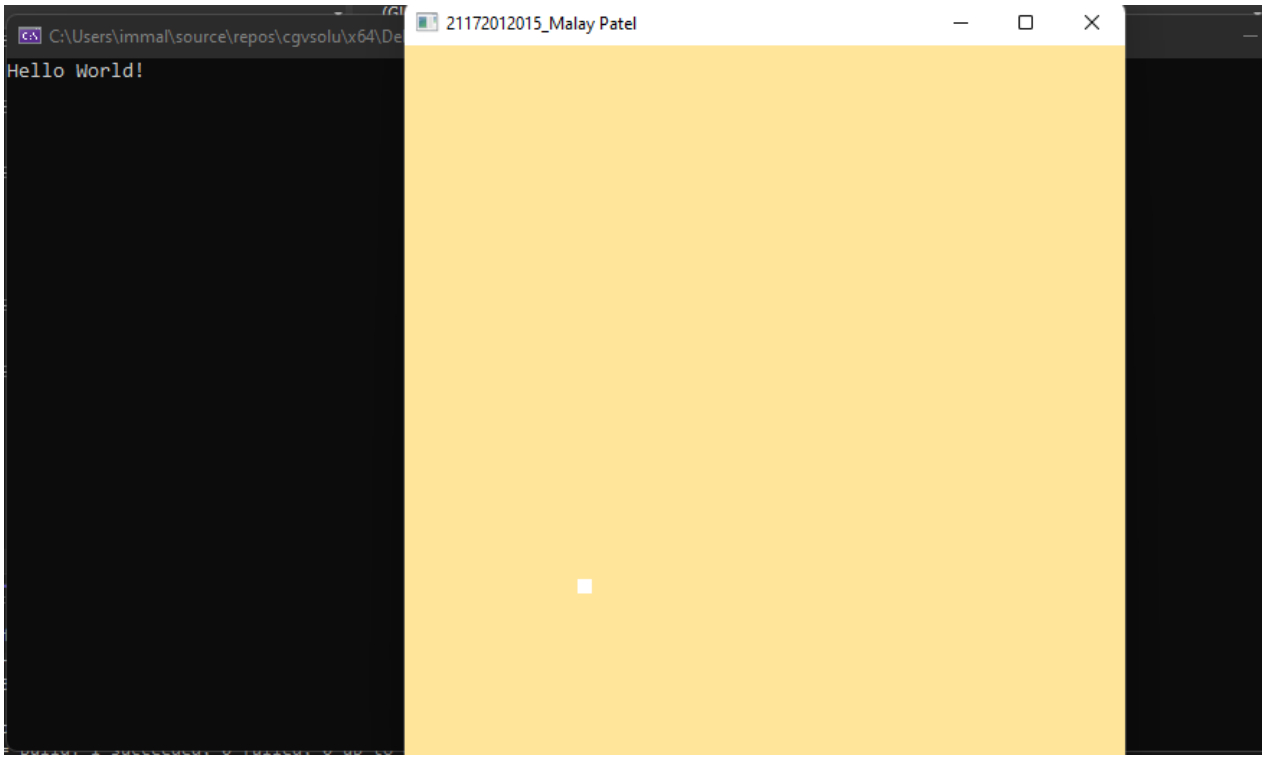
gp3



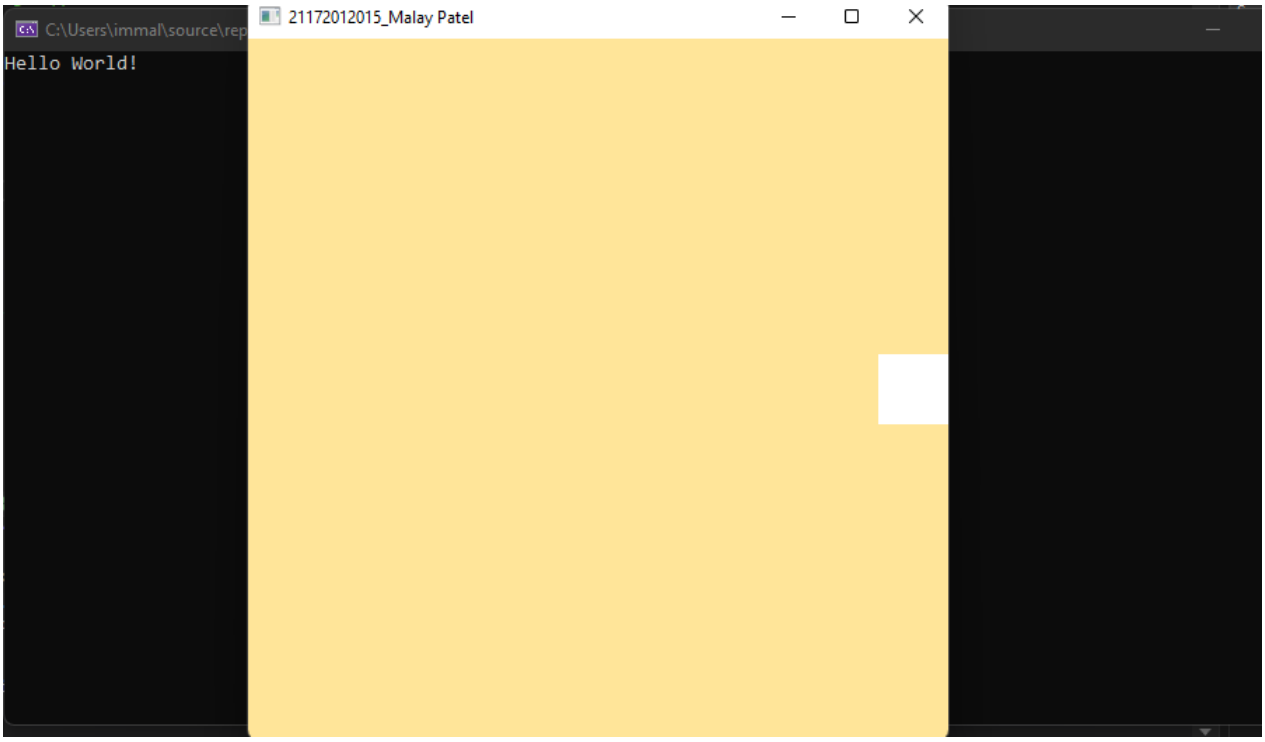
gp4


C:\Users\immal\source\repos\cg
21172012015_Malay Patel
Hello World!

gp5


C:\Users\immal\source\repos\cgvsolu\x64\De
Hello World!
21172012015_Malay Patel

gp6


C:\Users\immal\source\rep
Hello World!
21172012015_Malay Patel