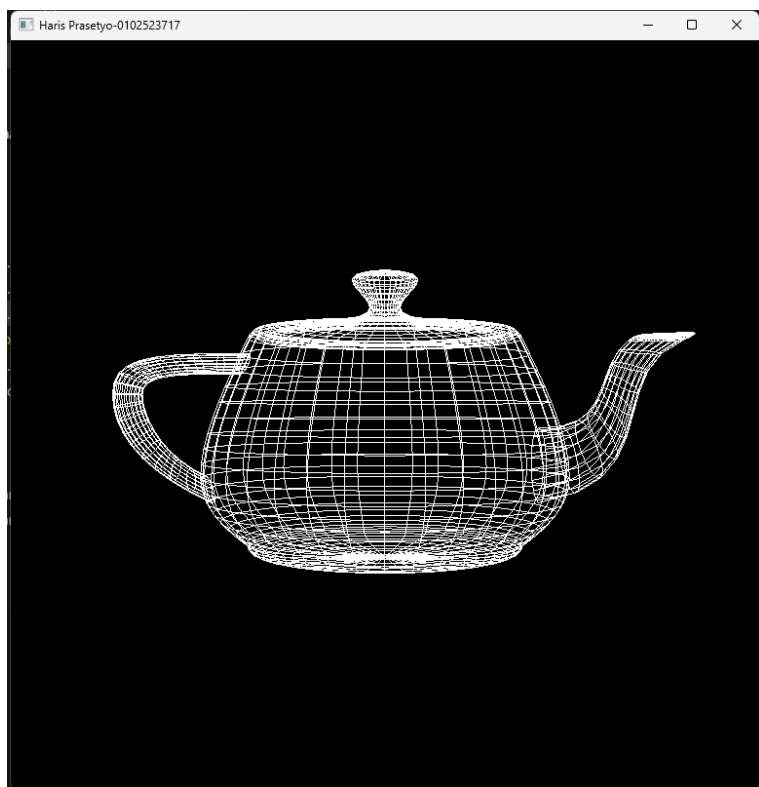
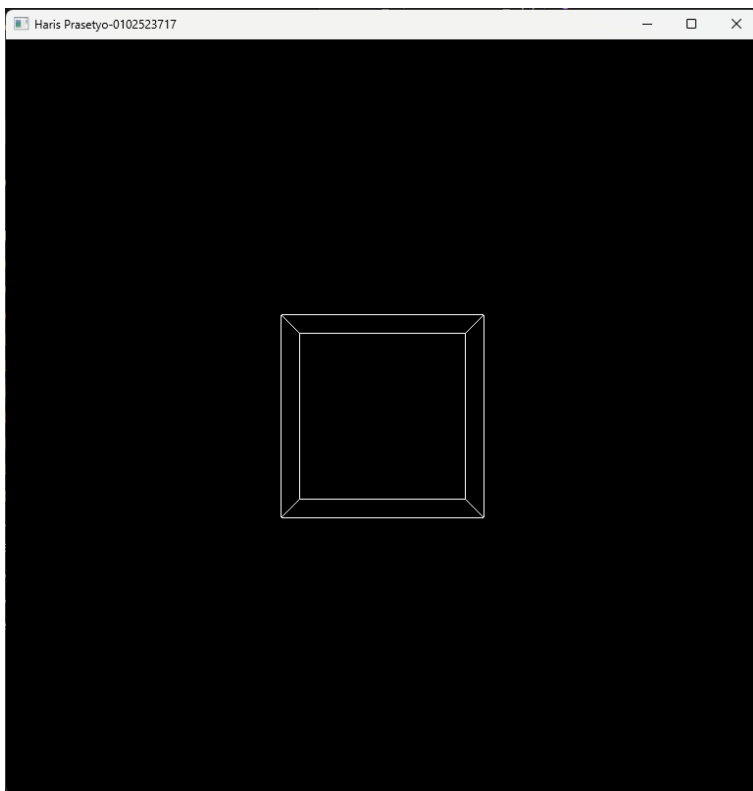
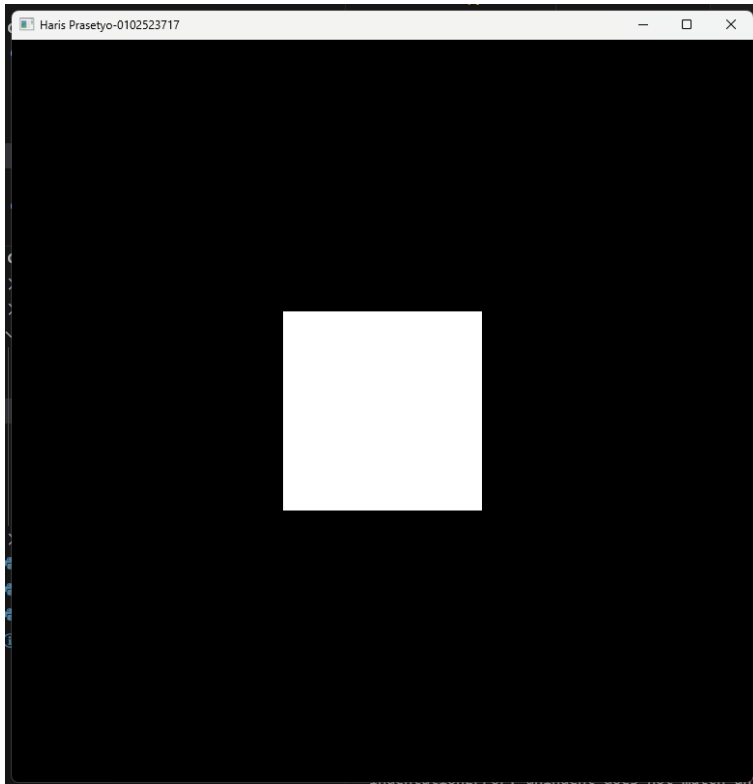


## Latihan 5\_1: Kubus 3D

```
1  import sys
2  import pygame
3  from screeninfo import get_monitors
4  from OpenGL.GL import *
5  from OpenGL.GLU import *
6  from OpenGL.GLUT import *
7  from pygame.locals import *
8
9  def solidTeapot():
10     glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT)
11     glutSolidTeapot(1.0)
12     glutSwapBuffers()
13
14  def wireTeapot():
15     glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT)
16     glutWireTeapot(1.0)
17     glutSwapBuffers()
18
19  def solidCube():
20     glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT)
21     glutSolidCube(1.0)
22     glutSwapBuffers()
23
24  def wireCube():
25     glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT)
26     glutWireCube(1.0)
27     glutSwapBuffers()
28
29  def reshape(width, height):
30     glViewport(0, 0, width, height)
31
32     glMatrixMode(GL_PROJECTION)
33     glLoadIdentity()
34     gluPerspective(45.0, width / height, 0.1, 100.0)
35     glMatrixMode(GL_MODELVIEW)
36     glLoadIdentity()
37     gluLookAt(0.0, 0.0, 5.0, 0.0, 0.0, 0.0, 0.0, 1.0, 0.0)
38
39  def get_display_size():
40     primary_monitor = get_monitors()[0]
41     width = primary_monitor.width
42     height = primary_monitor.height
43     return [width, height]
44
45  def get_window_size(scale=1):
46     display_size = get_display_size()
47     size = round(display_size[0]*scale)
48     if round(display_size[1]*scale) > size :
49         size = round(display_size[1]*scale)
50     return size
51
52  def main():
53     glutInit(sys.argv)
54     glutInitDisplayMode(GLUT_DOUBLE | GLUT_RGB | GLUT_DEPTH)
55
56     scale = 0.4
57     size = get_window_size(scale)
58
59     glutInitWindowSize(size, size)
60     glutCreateWindow(b"Haris Prasetyo-0102523717")
61     glEnable(GL_DEPTH_TEST)
62     glutDisplayFunc(solidCube)
63     glutDisplayFunc(wireCube)
64     glutDisplayFunc(solidTeapot)
65     glutDisplayFunc(solidTeapot)
66     glutReshapeFunc(reshape)
67     glutMainLoop()
68
69  main()
```





Kesimpulan : Kita dapat membuat object sederhana menggunakan fungsi yang disediakan oleh GLUT.

## Latihan5\_2: Bangunan\_Sederhana

```
1  from screeninfo import get_monitors
2  from OpenGL.GL import *
3  from OpenGL.GLUT import *
4  from OpenGL.GLU import *
5
6  def draw_cube(x, y, z, size):
7      glPushMatrix()
8      glTranslatef(x, y, z)
9      glutSolidCube(size)
10     glPopMatrix()
11
12 def draw_sphere(x, y, z, radius, slices=30, stacks=30):
13     glPushMatrix()
14     glTranslatef(x, y, z)
15     glutSolidSphere(radius, slices, stacks)
16     glPopMatrix()
17
18 def display():
19     glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT)
20     glLoadIdentity()
21     gluLookAt(5, 5, 5, 0, 0, 0, 0, 1, 0)
22
23     glColor3f(1.0, 0.0, 0.0) # warna merah
24     draw_cube(-1, 0, 0, 1)
25
26     glColor3f(0.0, 0.0, 1.0) # warna biru
27     draw_cube(1, 0, 0, 1)
28
29     glColor3f(0.0, 1.0, 0.0) # warna hijau
30     draw_sphere(0,0,0, 0.5)
31
32     glutSwapBuffers()
33
34 def reshape(width, height):
35     glViewport(0, 0, width, height)
36     glMatrixMode(GL_PROJECTION)
37     glLoadIdentity()
38     gluPerspective(45, (width / height), 0.1, 100.0)
39     glMatrixMode(GL_MODELVIEW)
40
41 def get_display_size():
42     primary_monitor = get_monitors()[0]
43     width = primary_monitor.width
44     height = primary_monitor.height
45     return [width, height]
46
47 def get_window_size(scale=1):
48     display_size = get_display_size()
49     size = round(display_size[0]*scale)
50     if round(display_size[1]*scale) > size :
51         size = round(display_size[1]*scale)
52     return size
53
54
55 def main():
56     scale = 0.4
57     size = get_window_size(scale)
58
59     glutInitWindowSize(size,size)
60     glutInit(sys.argv)
61     glutInitDisplayMode(GLUT_DOUBLE | GLUT_RGB | GLUT_DEPTH)
62     glutCreateWindow(b"Haris Prasetyo-0102523717")
63     glEnable(GL_DEPTH_TEST)
64
65     glutDisplayFunc(display)
66     glutReshapeFunc(reshape)
67     glutMainLoop()
68
69 main()
```

