LAPORAN TUGAS AKHIR

GRAFIKA KOMPUTER

Disusun Oleh:

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Hyperlink Github: https://github.com/fernandapasa033/Praktikum-Grafika-Komputer.git

MANAJEMEN INFORMATIKA

FAKULTAS FOKASI

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a. Fungsi pembuat objek Meliputi:

i. Fungsi *Vertices*

```
vertices= (
    (1, -1, -1),
    (2, 1, -1),
    (-1, 1, -1),
    (-2, -1, -1),
    (1, -1, 1),
    (2, 1, 1),
    (-2, -1, 1),
    (-1, 1, 1)
    )
```

ii. Fungsi *Surface*

```
surfaces = (
    (0,1,2,3),
    (3,2,7,6),
    (6,7,5,4),
    (4,5,1,0),
    (1,5,7,2),
    (4,0,3,6)
    )
```

iii. Fungsi Rusuk

```
edges = (
    (0,1),
    (0,3),
    (0,4),
    (2,1),
    (2,3),
    (2,7),
    (6,3),
    (6,4),
    (6,7),
    (5,1),
    (5,4),
    (5,7)
    )
```

iv. Fungsi warna

```
colors = (
    (1,0,0),
    (0,1,0),
    (0,0,1),
    (0,1,0),
    (1,1,1),
    (0,1,1),
```

```
    (1,0,0),
    (0,1,0),
    (0,0,1),
    (1,0,0),
    (1,1,1),
    (0,1,1),
    )
```

v. Fungsi mengaitkan setiap rusuk

```
def Cube():
    glBegin(GL_LINES)
    for edge in edges:
        for vertex in edge:
            glVertex3fv(vertices[vertex])
    glEnd()
```

vi. Fungsi menampilkan bangun ruang

```
def main():
    pygame.init()
    display = (800,600)
    pygame.display.set_mode(display,
DOUBLEBUF|OPENGL)
```

vii. Fungsi persepektif (titik terlihat atau tidaknya)

```
gluPerspective(45, (display[0]/display[1]), 0.1,
50.0)
```

viii. Fungsi Membuat bangun ruang multi warna

```
glBegin(GL_QUADS)
    for surface in surfaces:
        x = 0
        for vertex in surface:
            x+=2
            glColor3fv(colors[x])
            glVertex3fv(verticies[vertex])
    glEnd()
```

ix. Fungsi menggerakkan bangun ruang

```
glTranslatef(0.0,0.0, -5)
```

x. Fungsi looping (10s) dan cleaning

```
while True:
        for event in pygame.event.get():
            if event.type == pygame.QUIT:
                pygame.quit()
                quit()

        glRotatef(1, 3, 1, 1)
```

```
glClear(GL_COLOR_BUFFER_BIT|GL_DEPTH_BUFFER_BIT)
        Cube()
        pygame.display.flip()
        pygame.time.wait(10)
```

b. Proses manipulasi yang dilakukan pada objek 3D beserta cuplikan kode untuk melaksanakan proses tersebut

- Fungsi memanipulasi pergerakan objek munggunakan input dari keyboard dan mouse

```
if event.type == pygame.KEYDOWN:
                if event.key == pygame.K_LEFT:
                    glTranslatef(-0.5,0,0)
                if event.key == pygame.K_RIGHT:
                    glTranslatef(0.5,0,0)

                if event.key == pygame.K_UP:
                    glTranslatef(0,1,0)
                if event.key == pygame.K_DOWN:
                    glTranslatef(0,-1,0)

            if event.type == pygame.MOUSEBUTTONDOWN:
                if event.button == 4:
                    glTranslatef(0,0,1.0)

                if event.button == 5:
                    glTranslatef(0,0,-1.0)
```