

INSTRUCTIONS

This labsheet is divided into two exercises as follows:

EXERCISE 1 : Displaying Texts

1. Open the CodeBlock.
2. Create a new GLUT project.
3. Write down the following codes:

```
1  #include <windows.h>
2  #include <GL/glut.h>
3  #include <fstream>
4
5  int width = 600;
6  int height = 400;
7
8  void init()
9  {
10     glClearColor(0,0,0,0);
11     glMatrixMode(GLUT_SINGLE | GLUT_RGB);
12     glLoadIdentity();
13     glOrtho(0, width, 0, height, 0.0, 1.0);
14 }
15
```

```

16 void renderBitmap(float x, float y, void *font, char *string)
17 {
18     char *c;
19
20     glRasterPos2f(x, y);
21     for(c=string; *c!='\0'; c++)
22     {
23         glutBitmapCharacter(font, *c);
24     }
25 }
26
27 void displayTexts()
28 {
29     char buf[100] = {0};
30
31     glColor3f(1,1,1);
32     sprintf(buf, "MY CONTACT INFO");
33     renderBitmap(10, 370, GLUT_BITMAP_TIMES_ROMAN_24, buf);
34     sprintf(buf, "=====");
35     renderBitmap(10, 350, GLUT_BITMAP_TIMES_ROMAN_24, buf);
36
37     glColor3f(0,1,0);
38     sprintf(buf, "NAME : MUHAMAD NAJIB BIN ZAMRI");
39     renderBitmap(10, 320, GLUT_BITMAP_HELVETICA_18, buf);
40     sprintf(buf, "ADDRESS : Taman Pulai Utama, Skudai, Johor.");
41     renderBitmap(10, 280, GLUT_BITMAP_HELVETICA_18, buf);
42     sprintf(buf, "PHONE : +6012-4579063");
43     renderBitmap(10, 240, GLUT_BITMAP_HELVETICA_18, buf);
44     sprintf(buf, "EMAIL : najibzamri@gmail.com");
45     renderBitmap(10, 200, GLUT_BITMAP_HELVETICA_18, buf);
46 }
47
48 void display()
49 {
50     displayTexts();
51     glFlush();
52 }
53
54 int main(int argc, char **argv)
55 {
56     glutInit(&argc, argv);
57     glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
58     glutInitWindowSize(width, height);
59     glutInitWindowPosition(100, 100);
60     glutCreateWindow("Displaying TEXTS!");
61     init();
62     glutDisplayFunc(display);
63     glutMainLoop();
64     return 0;
65 }

```

4. Sample output:



EXERCISE 2 : Playing an Audio

1. Download the audio file: nokia-tune.wav.
2. Create a new folder at partition C. For example: **C:\zmisc**
3. Copy the downloaded audio file and paste it at folder **C:\zmisc**. Please remember the path or directory location of the audio file because we will use it in the code later. For example:
C:\zmisc\nokia-tune.wav
4. Create a new GLUT project.
5. Write down the following codes:

```
1  #include <windows.h>
2  #include <GL/glut.h>
3  #include <fstream>
4
5  int width = 600;
6  int height = 400;
7
8  void init()
9  {
10     glClearColor(0,0,0,0);
11     glMatrixMode(GLUT_SINGLE | GLUT_RGB);
12     glLoadIdentity();
13     glOrtho(0, width, 0, height, 0.0, 1.0);
14 }
15
```

```

16 void renderBitmap(float x, float y, void *font, char *string)
17 {
18     char *c;
19
20     glRasterPos2f(x, y);
21     for(c=string; *c!='\0'; c++)
22     {
23         glutBitmapCharacter(font, *c);
24     }
25 }
26
27 void displayTexts()
28 {
29     char buf[100] = {0};
30
31     glColor3f(1,1,1);
32     sprintf(buf, "TEST MY AUDIO");
33     renderBitmap(10, 370, GLUT_BITMAP_TIMES_ROMAN_24, buf);
34     sprintf(buf, "=====");
35     renderBitmap(10, 350, GLUT_BITMAP_TIMES_ROMAN_24, buf);
36
37     glColor3f(0,1,0);
38     sprintf(buf, "AUDIO TITLE : Nokia Tune");
39     renderBitmap(10, 320, GLUT_BITMAP_HELVETICA_18, buf);
40     sprintf(buf, "AUDIO FORMAT : WAV");
41     renderBitmap(10, 280, GLUT_BITMAP_HELVETICA_18, buf);
42     sprintf(buf, "DURATION : 4 seconds");
43     renderBitmap(10, 240, GLUT_BITMAP_HELVETICA_18, buf);
44
45     glColor3f(0,1,1);
46     sprintf(buf, "Press [A] to play an audio.");
47     renderBitmap(10, 140, GLUT_BITMAP_HELVETICA_18, buf);
48     sprintf(buf, "Press [S] to stop playing audio.");
49     renderBitmap(10, 120, GLUT_BITMAP_HELVETICA_18, buf);
50 }
51
52 void display()
53 {
54     displayTexts();
55     glFlush();
56 }
57

```

```

58 static void keyboard(unsigned char key, int x, int y)
59 {
60     switch (key)
61     {
62         case 'a':    //play
63         case 'A':
64             PlaySound("C:\\zmisc\\nokia-tune.wav", NULL, SND_ASYNC);
65             break;
66
67         case 's':    //stop
68         case 'S':
69             PlaySound(NULL, 0, 0);
70             break;
71     }
72     glFlush();
73     glutPostRedisplay();
74 }
75
76 int main(int arg, char **argv)
77 {
78     glutInit(&arg, argv);
79     glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
80     glutInitWindowSize(width, height);
81     glutInitWindowPosition(100, 100);
82     glutCreateWindow("Playing AUDIO!");
83     init();
84     glutDisplayFunc(display);
85     glutKeyboardFunc(keyboard);
86     glutMainLoop();
87     return 0;
88 }

```

6. Sample output:

