1. **STROKE**

**a) Flowchart**

**START**

**DRAW THE WORKSPACE AREA**

**CHOOSE THE OPTIONS**

**1)ROMAN**

**2)MONO ROMAN**

**MESSAGE abcdefghi**

**ABCDEFGHI**

**READ THE DATA**

**DRAW THE WORKSPACE AREA**

**DRAW THE DATA**

**STOP**

**b) Source Code**

**#include <string.h>**

**#include <GL/glut.h>**

**#include<Windows.h>**

**void \*font = GLUT\_STROKE\_ROMAN;**

**void \*fonts[] =**

**{GLUT\_STROKE\_ROMAN, GLUT\_STROKE\_MONO\_ROMAN};**

**char defaultMessage[] = "GLUT means OpenGL.";**

**char \*message = defaultMessage;**

**int angle = 0;**

**void selectFont(int newfont)**

**{**

**font = fonts[newfont];**

**glutPostRedisplay();**

**}**

**void selectMessage(int msg)**

**{**

**switch (msg) {**

**case 1:**

**message = "abcdefghijklmnop";**

**break;**

**case 2:**

**message = "ABCDEFGHIJKLMNOP";**

**break;**

**}**

**}**

**void tick(void)**

**{**

**angle -= 2;**

**glutPostRedisplay();**

**}**

**void display11(void)**

**{**

**int len, i;**

**glClear(GL\_COLOR\_BUFFER\_BIT);**

**glPushMatrix();**

**glRotatef(angle, 0.0, 0.0, 1.0);**

**glTranslatef(-750, 0, 0);**

**len = (int) strlen(message);**

**for (i = 0; i < len; i++) {**

**Sleep(20);**

**glutStrokeCharacter(font, message[i]);**

**}**

**glPopMatrix();**

**glutSwapBuffers();**

**}**

**/\*int main(int argc, char \*\*argv)**

**{**

**int i, submenu;**

**glutInit(&argc, argv);**

**for (i = 1; i < argc; i++) {**

**if (!strcmp(argv[i], "-mono")) {**

**font = GLUT\_STROKE\_MONO\_ROMAN;**

**}**

**}**

**glutInitDisplayMode(GLUT\_DOUBLE | GLUT\_RGB);**

**glutInitWindowSize(600, 600);**

**glutCreateWindow("anti-aliased stroke font");**

**glMatrixMode(GL\_PROJECTION);**

**glLoadIdentity();**

**gluOrtho2D(0, 2000, 0, 2000);**

**glMatrixMode(GL\_MODELVIEW);**

**glEnable(GL\_LINE\_SMOOTH);**

**glEnable(GL\_BLEND);**

**glBlendFunc(GL\_SRC\_ALPHA, GL\_ONE\_MINUS\_SRC\_ALPHA);**

**glLineWidth(3.0);**

**glTranslatef(1000, 1000, 0);**

**glClearColor(0.0, 0.0, 0.0, 1.0);**

**glColor3f(1.0, 1.0, 1.0);**

**glutDisplayFunc(display11);**

**glutIdleFunc(tick);**

**submenu = glutCreateMenu(selectMessage);**

**glutAddMenuEntry("abc", 1);**

**glutAddMenuEntry("ABC", 2);**

**glutCreateMenu(selectFont);**

**glutAddMenuEntry("Roman", 0);**

**glutAddMenuEntry("Mono Roman", 1);**

**glutAddSubMenu("Messages", submenu);**

**glutAttachMenu(GLUT\_RIGHT\_BUTTON);**

**glutMainLoop();**

**return 0; /\* ANSI C requires main to return int. \*/**

**}**

**\*/**