unit Unit1;

interface

uses

Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,

Dialogs,Opengl,SPF, ExtCtrls, StdCtrls,math,keyboard;

type

TForm1 = class(TForm)

Timer1: TTimer;

Image1: TImage;

Image2: TImage;

procedure FormCreate(Sender: TObject);

procedure FormResize(Sender: TObject);

procedure FormPaint(Sender: TObject);

procedure Timer1Timer(Sender: TObject);

procedure FormKeyPress(Sender: TObject; var Key: Char);

private

{ Private declarations }

public

{ Public declarations }

end;

var

Form1: TForm1;

hdc: Longint;

rot\_cube,rot\_triangle: Single;

quadratic:GLUquadricObj;

// baraye harakat

z2,x3,y3,t,z,zy,x1,y1,y,z1,z3,balapayin,joloaghab: double;

//baraye load kardane obj

fileName : string;

// baraye ijade nor az araye estefade mikonim.

LightAmbient: array [0..3] of GLfloat = ( 0.5, 0.5, 0.5, 1.0 );

LightDiffuse: array [0..3] of GLfloat = ( 1.0, 1.0, 1.0, 1.0 );

LightPosition: array [0..3] of GLfloat = ( 0.0, 0.0, 1.0, 1.0 );

LightPosition1: array [0..3] of GLfloat = ( 0.0, 0.0, 1.0, 1.0 );

spotdir: array [0..2] of glfloat = (0,-1,0);

spotdir1: array [0..2] of glfloat = (0,0,-1);

// baraye ijad baft az yek araye estefade mikonim

i:integer;

texture: array [0..50] of GLuint;

// moteghayer haye marbot be list namayeshi

// har sheyi ke dar list namayeshi hast niaz

// be yek shenase darad ke dar inja tarif mishavad

// va az noe meghdare adadi GLuint mibashad

mosalas,mokab: GLuint;

obj1,light,light1,light2,light3,light4,light5,light6,light7: GLuint;

flag: boolean;

switch1: boolean;

flag1: boolean;

switch2: boolean;

implementation

{$R \*.dfm}

//---------------------

// farakhani zir barnamehaye ijade baft

//=====================

procedure glGenTextures(n: GLsizei;

var textures: GLuint); stdcall; external opengl32;

procedure glBindTexture(target: GLenum;

texture: GLuint); stdcall; external opengl32;

function gluBuild2DMipmaps(target: GLenum;

components, width, height: GLint;

format,atype: GLenum;

Data: Pointer): GLint; stdcall; external glu32;

procedure getRGB(num : Longint; var r,g,b : Integer);

begin

b := trunc((num And 16711680)/ 65536);

g := trunc((num And 65280)/ 256);

r := num And 255 ;

end;

procedure LoadGLTextures (pictoload : TImage);

var

x,y : Longint;

c,mapwidth,mapheight : Longint;

red,green,blue : Integer;

texture1:array[0..127,0..127,0..2] of GLubyte;

begin

pictoload.AutoSize:= true;

mapheight:=pictoload.Height;

mapwidth:=pictoload.Width;

for x := 0 to mapwidth-1 do

for y := 0 to mapheight-1 do

begin

c := ColorToRGB(pictoload.Canvas.Pixels[x,y]);

getRGB(c,red,green,blue);

texture1[x,mapheight -y -1,0]:=red;

texture1[x,mapheight -y -1,1]:=green;

texture1[x,mapheight -y -1,2]:=blue;

end;

pictoload.Visible:=false;

glGenTextures(3, texture[i]);

glBindTexture(GL\_TEXTURE\_2D, texture[i]);

glTexParameteri(GL\_TEXTURE\_2D,GL\_TEXTURE\_MAG\_FILTER,GL\_LINEAR);

glTexParameteri(GL\_TEXTURE\_2D,GL\_TEXTURE\_MIN\_FILTER,

GL\_LINEAR\_MIPMAP\_NEAREST);

gluBuild2DMipmaps(GL\_TEXTURE\_2D, 3, mapwidth, mapheight,

GL\_RGB, GL\_UNSIGNED\_BYTE, @texture1);

end;

//-------------------------

//-------------------------

procedure cube(x:Single; y:Single; z:Single; coord1:Integer; coord2:integer; tex:Integer);

begin

glBindTexture(GL\_TEXTURE\_2D,texture[tex]);

glBegin(GL\_QUADS);

//front

glNormal3f(0,0,-1);

glTexCoord2f(0,coord2); glVertex3f(-x,-y,-z);

glTexCoord2f(coord1,coord2); glVertex3f(-x,y,-z);

glTexCoord2f(coord1,0); glVertex3f(x,y,-z);

glTexCoord2f(0,0); glVertex3f(x,-y,-z);

//back

//glColor3f(0.8,0,0);

glNormal3f(0,0,1);

glTexCoord2f(0,0); glVertex3f(-x,-y,z);

glTexCoord2f(coord1,0); glVertex3f(-x,y,z);

glTexCoord2f(coord1,coord2); glVertex3f(x,y,z);

glTexCoord2f(0,coord2); glVertex3f(x,-y,z);

//right

//glColor3f(0.7,0,0);

glNormal3f(1,0,0);

glTexCoord2f(0,0); glVertex3f(x,y,-z );

glTexCoord2f(coord1,0); glVertex3f(x,y,z );

glTexCoord2f(coord1,coord2); glVertex3f(x,-y,z );

glTexCoord2f(0,coord2); glVertex3f(x,-y,-z );

//left

//glColor3f(0.6,0,0);

glNormal3f(-1,0,0);

glTexCoord2f(0,0); glVertex3f(-x,y,-z );

glTexCoord2f(coord1,0); glVertex3f(-x,y,z );

glTexCoord2f(coord1,coord2); glVertex3f(-x,-y,z );

glTexCoord2f(0,coord2); glVertex3f(-x,-y,-z );

//top

//glColor3f(0.5,0,0);

glNormal3f(0,1,0);

glTexCoord2f(0,0); glVertex3f(-x,y,-z );

glTexCoord2f(coord1,0); glVertex3f(-x,y,z );

glTexCoord2f(coord1,coord2); glVertex3f(x,y,z );

glTexCoord2f(0,coord2); glVertex3f(x,y,-z );

//down

//glColor3f(0.4,0,0);

glNormal3f(0,-1,0);

glTexCoord2f(0,0); glVertex3f(-x,-y,-z );

glTexCoord2f(coord1,0); glVertex3f(-x,-y,z );

glTexCoord2f(coord1,coord2); glVertex3f(x,-y,z );

glTexCoord2f(0,coord2); glVertex3f(x,-y,-z );

glEnd;

end;

//=========================

//-----------------------

// list namayeshi

//=======================

procedure BuildList;

begin

mosalas:=glGenLists(40);

glNewList(mosalas,GL\_COMPILE);

//glBindTexture(GL\_TEXTURE\_2D,texture[0]);

glBegin(GL\_TRIANGLES);

glNormal3f(0,1,0);

//front

glColor3f(0,0.9,0);

glTexCoord2f(0,1); glVertex3f(-2.5,-2.5,2.5);

glTexCoord2f(1,1); glVertex3f(2.5,-2.5,2.5);

glTexCoord2f(1,0); glVertex3f(0,2.5,0);

//right

glColor3f(0,0.8,0);

glTexCoord2f(0,0); glVertex3f(2.5,-2.5,2.5);

glTexCoord2f(0,1); glVertex3f(2.5,-2.5,-2.5);

glTexCoord2f(1,1); glVertex3f(0,2.5,0);

//back

glColor3f(0,0.7,0);

glVertex3f(2.5,-2.5,-2.5);

glVertex3f(-2.5,-2.5,-2.5);

glVertex3f(0,2.5,0);

//payini

glColor3f(0,0.6,0);

glVertex3f(-2.5,-2.5,-2.5);

glVertex3f(-2.5,-2.5,2.5);

glVertex3f(0,2.5,0);

glEnd;

glEndList;

mokab:=2;

glNewList(mokab,GL\_COMPILE);

//glBindTexture(GL\_TEXTURE\_2D,texture[0]);

glBegin(GL\_QUADS);

//front

glNormal3f(0,0,-1);

glTexCoord2f(0,1); glVertex3f(-2.5,-2.5,-2.5);

glTexCoord2f(1,1); glVertex3f(-2.5,2.5,-2.5);

glTexCoord2f(1,0); glVertex3f(2.5,2.5,-2.5);

glTexCoord2f(0,0); glVertex3f(2.5,-2.5,-2.5);

//back

//glColor3f(0.8,0,0);

glNormal3f(0,0,1);

glTexCoord2f(0,0); glVertex3f(-2.5,-2.5,2.5);

glTexCoord2f(1,0); glVertex3f(-2.5,2.5,2.5);

glTexCoord2f(1,1); glVertex3f(2.5,2.5,2.5);

glTexCoord2f(0,1); glVertex3f(2.5,-2.5,2.5);

//right

//glColor3f(0.7,0,0);

glNormal3f(1,0,0);

glTexCoord2f(0,0); glVertex3f(2.5,2.5,-2.5 );

glTexCoord2f(1,0); glVertex3f(2.5,2.5,2.5 );

glTexCoord2f(1,1); glVertex3f(2.5,-2.5,2.5 );

glTexCoord2f(0,1); glVertex3f(2.5,-2.5,-2.5 );

//left

//glColor3f(0.6,0,0);

glNormal3f(-1,0,0);

glTexCoord2f(0,0); glVertex3f(-2.5,2.5,-2.5 );

glTexCoord2f(1,0); glVertex3f(-2.5,2.5,2.5 );

glTexCoord2f(1,1); glVertex3f(-2.5,-2.5,2.5 );

glTexCoord2f(0,1); glVertex3f(-2.5,-2.5,-2.5 );

//top

//glColor3f(0.5,0,0);

glNormal3f(0,1,0);

glTexCoord2f(0,0); glVertex3f(-2.5,2.5,-2.5 );

glTexCoord2f(1,0); glVertex3f(-2.5,2.5,2.5 );

glTexCoord2f(1,1); glVertex3f(2.5,2.5,2.5 );

glTexCoord2f(0,1); glVertex3f(2.5,2.5,-2.5 );

//down

//glColor3f(0.4,0,0);

glNormal3f(0,-1,0);

glTexCoord2f(0,0); glVertex3f(-2.5,-2.5,-2.5 );

glTexCoord2f(1,0); glVertex3f(-2.5,-2.5,2.5 );

glTexCoord2f(1,1); glVertex3f(2.5,-2.5,2.5 );

glTexCoord2f(0,1); glVertex3f(2.5,-2.5,-2.5 );

glEnd;

glEndList;

end;

//----------------------------------------

///-----------------------------------

////-----------------------------

procedure initGL;

begin

//glEnable(GL\_NORMALIZE);

// load kardane tasavir

LoadGLTextures(Form1.Image1); i:=i+1;

LoadGLTextures(form1.Image2);

// faal sazi ijade baft

glEnable(GL\_TEXTURE\_2D);

// farakhani list namayeshi

BuildList;

glShadeModel(GL\_SMOOTH);

glClearColor(0,0,0,0.5);

glClearDepth(1);

glEnable(GL\_DEPTH\_TEST);

glDepthFunc(GL\_LESS);

quadratic:=gluNewQuadric();

gluQuadricNormals(quadratic,GLU\_SMOOTH);

gluQuadricTexture(quadratic,GL\_TRUE);

// nor pardazi

glEnable(GL\_LIGHTING);

glLightfv(GL\_LIGHT0, GL\_AMBIENT, @LightAmbient);

glLightfv(GL\_LIGHT0, GL\_DIFFUSE, @LightDiffuse);

glEnable(GL\_LIGHT0);

glEnable(GL\_COLOR\_MATERIAL);

end;

procedure DrawGLScene;

begin

glClear(GL\_COLOR\_BUFFER\_BIT or GL\_DEPTH\_BUFFER\_BIT);

glLoadIdentity;

gluLookAt(x3,z,y3,x1+x3,zy+balapayin,y1+y3,0,1,0);

glPushMatrix;

glLightfv(GL\_LIGHT0,GL\_POSITION,@LightPosition);

glPopMatrix;

glPushMatrix;

glTranslatef(5,-5,1);

glRotatef(67,0,1,0);

cube(2,2,2,1,2,1);

glPopMatrix;

//farakhani mosalas be sorate list namayeshi

glPushMatrix;

glTranslatef(-5,0,-20);

glRotatef(rot\_triangle,0,1,0);

glCallList(mosalas);

glPopMatrix;

// mokab be sorate farakhani list namayeshi

glBindTexture(GL\_TEXTURE\_2D,texture[1]);

glPushMatrix;

glTranslatef(5,0,-20);

glRotatef(rot\_cube,1,1,0);

glColor3f(0.9,0,0);

glCallList(mokab);

glPopMatrix;

glBindTexture(GL\_TEXTURE\_2D,texture[2]);

glPushMatrix;

glColor3f(0.8,0.8,1);

glTranslatef(0,0,-20+joloaghab);

glRotatef(rot\_triangle,1,0,1);

gluSphere(quadratic,5,30,30);

glPopMatrix;

SwapBuffers(hdc);

end;

procedure TForm1.FormCreate(Sender: TObject);

begin

// meghdar dehi avaliye be shomarande tasavir

flag:=true;

switch1:=false ;

flag1:=true;

switch2:=false ;

balapayin:=0;

i:=0;

y:=0;

y3:=20;

x3:=0;

z:=0.5; zy:=0.5;

z1:=10;z2:=10;

t:=t+3;

x1:= round(z1\*cos(DegToRad(180)));

y1:= round(z1\*sin(DegToRad(180)));

hdc:=GetDC(Handle);

SetDCPixelFormat(hdc,16,16);

initGL;

end;

procedure TForm1.FormResize(Sender: TObject);

begin

wglMakeCurrent(hdc,hrc);

glViewport(0,0,Width,Height);

glMatrixMode(GL\_PROJECTION);

glLoadIdentity;

gluPerspective(45,Width/Height,1,100);

glMatrixMode(GL\_MODELVIEW);

glLoadIdentity;

InvalidateRect(Handle,nil,false);

end;

procedure TForm1.FormPaint(Sender: TObject);

begin

wglMakeCurrent(hdc,hrc);

DrawGLScene;

end;

procedure TForm1.Timer1Timer(Sender: TObject);

begin

//char kheshe mosalas va mokab

rot\_triangle:=rot\_triangle+0.3;

rot\_cube:=rot\_cube+0.9;

InvalidateRect(Handle,nil,false);

end;

procedure TForm1.FormKeyPress(Sender: TObject; var Key: Char);

begin

if key='m' then

joloaghab:=joloaghab+0.3;

if key='n' then

joloaghab:=joloaghab-0.3;

if ((key='-')and(LightAmbient[0]>=0)) then

begin

LightAmbient[0]:=LightAmbient[0]-0.01;

LightAmbient[1]:=LightAmbient[1]-0.01;

LightAmbient[2]:=LightAmbient[2]-0.01;

glLightfv(GL\_LIGHT0,GL\_AMBIENT,@LightAmbient);

InvalidateRect(handle,nil,false);

end;

// baraye bishtar kardane nore mohiti

if ((key='+')and(LightAmbient[0]<=1)) then

begin

LightAmbient[0]:=LightAmbient[0]+0.01;

LightAmbient[1]:=LightAmbient[1]+0.01;

LightAmbient[2]:=LightAmbient[2]+0.01;

glLightfv(GL\_LIGHT0,GL\_AMBIENT,@LightAmbient);

InvalidateRect(handle,nil,false);

end;

//InvalidateRect(handle,nil,false);

if Key=('s') then

begin

z2:=z2-1;

x3:=x3- ((round(z2\*cos(DegToRad(180+t))))/50);

y3:=y3- ((round(z2\*sin(DegToRad(180+t))))/50);

z2:=5;

end;

if Key=('w') then

begin

z2:=z2+1;

x3:=x3+ ((round(z2\*cos(DegToRad(180+t))))/50);

y3:=y3+ ((round(z2\*sin(DegToRad(180+t))))/50);

z2:=5;

end;

if Key=('d') then

begin

z1:=5;

t:=t+4;

x1:= round(z1\*cos(DegToRad(180+t)));

y1:= round(z1\*sin(DegToRad(180+t)));

if (t>=180) then t:=-180;

end;

if Key=('a') then

begin

z1:=5;

t:=t-4;

x1:= round((z1)\*cos(DegToRad(180+t)));

y1:= round((z1)\*sin(DegToRad(180+t)));

if (t<=-180) then t:=180;

end;

if (key=('q'))and(balapayin<10) then

begin

balapayin:=balapayin+0.3;

end;

if (key=('e'))and(balapayin>-10) then

begin

balapayin:=balapayin-0.3;

end;

end;

end.

Range ghermez code haye lazem ra jahate ijade safheye avaliye neshan midahad

Range abi neshan dahande liste namayeshist

Range sabz neshan dahande zir revale mokab mibashad

Range banafsh tarsimate ma dar dakhele mohite opengl mibashad