// PLANET 404 ( UNDISCOVERABLE PLANET )

#include <windows.h>

#include <iostream>

#include <utility>

#include <GL/glut.h>

#include <math.h>

#include <string.h>

#include <vector>

using namespace std;

float T\_moverocket = 0;

float T\_moveplanetX = 0;

float T\_moveplanetY = 0;

float T\_moveplanetAngle = 0;

float T\_moverover = 0;

float T\_moveboatX = 0;

float T\_moveboatY = 0;

float T\_movespaceshipX = 0;

float T\_movewatercurrentX = 0;

float T\_blinkAngle = 0;

float T\_movewalleX = 0;

pair<float, float> P1[4] = { {670, 230}, {600, 220}, {590, 170}, {630, 130} };

pair<float, float> P2[4] = { {670, 230}, {620, 220}, {720, 170}, {680, 130} };

float f1 = 1, f2 = 1;

struct T\_Color

{

int r;

int g;

int b;

};

struct T\_Scene

{

string T\_scene;

T\_Color T\_skyColor;

T\_Color T\_landColor;

T\_Color T\_riverColor;

T\_Color T\_darkrocksColor;

T\_Color T\_lightrocksColor;

T\_Color T\_stoneholderColor;

T\_Color T\_hubsColor;

T\_Color T\_hubshadowColor;

T\_Color T\_hubdoorsColor;

T\_Color T\_hubroof;

T\_Color T\_hubdarkColor;

T\_Color T\_ladderColor;

T\_Color T\_hubgrillsColor;

T\_Color T\_towerbodyColor;

T\_Color T\_towershadowColor;

T\_Color T\_towerglassColor;

T\_Color T\_bridgeColor;

T\_Color T\_bridgelayersColor;

T\_Color T\_bridgeboltsColor;

T\_Color T\_bridgeshadowColor;

T\_Color T\_rocketbodyColor;

T\_Color T\_rocketshadeColor;

T\_Color rocketouterlines;

T\_Color T\_planetColor;

T\_Color T\_planetLayers;

T\_Color T\_rovermetalColor;

T\_Color T\_roverdarkmetalColor;

T\_Color T\_roverwindowColor;

T\_Color T\_roverlightsColor;

T\_Color T\_roverwheelsColor;

T\_Color T\_roverwheelscrewColor;

T\_Color T\_roverlightmetalColor;

T\_Color T\_roveroutlinesColor;

T\_Color T\_boatColor;

T\_Color T\_boatbottomColor;

T\_Color T\_boatwindowColor;

T\_Color T\_spaceshipbodyColor;

T\_Color T\_spaceshipwindowColor;

T\_Color T\_spaceshiplayersColor;

T\_Color T\_spaceshipoutlinesColor;

T\_Color T\_rivershade1Color;

T\_Color T\_rivershade2Color;

T\_Color T\_rivershade3Color;

T\_Color T\_rivershade4Color;

T\_Color T\_starsColor;

T\_Color T\_radarbodyColor;

T\_Color T\_radarColor;

T\_Color T\_radaroutlinesColor;

T\_Color T\_transmitterbodyColor;

T\_Color T\_transmitteroutlinesColor;

T\_Color T\_transmittersignalColor;

T\_Color T\_transmitantennaColor;

T\_Color T\_steelbodyColor;

T\_Color T\_wallebodyColor;

T\_Color T\_walleshadowColor;

T\_Color T\_solarpanelColor;

T\_Color T\_walleoutlinesColor;

T\_Color T\_rocketflameColor;

};

T\_Scene T\_day =

{

"T\_day",

{133, 193, 233}, //skycolor

{44,14,50}, //landcolor

{68,121,207}, //rivercolor

{25,10,29}, //darkrockscolor

{32,16,52}, //lightrockscolor

{44,14,50}, //stoneholder

{177,142,114}, //hubscolor

{157,114,82}, //hubsshadowcolor

{23, 32, 42}, //hubdoorscolor

{208, 211, 212}, //hubroofcolor

{110, 93, 55}, //hubdarkcolor

{28, 40, 51}, //laddercolor

{0, 0, 0}, //hubgrillscolor

{255, 255, 255}, //towerbodycolor

{175, 186, 230}, //towershadowcolor

{73, 189, 231}, //towerglasscolor

{255, 255, 255}, //bridgecolor

{175,186,230}, //bridgelayerscolor

{23, 32, 42}, //bridgeboltscolor

{175,186,230}, //bridgeshadowcolor

{23, 32, 42}, //rocketbodycolor

{255, 255, 255}, //rocketshadecolor

{147, 152, 158}, //rocketouterlinescolor

{241, 196, 15}, //planetcolor

{241, 196, 15}, //planetlayers

{94,97,103}, //rovermetalcolor

{35,39,43}, //roverdarkmetalcolor

{11,76,104}, //roverwindowcolor

{212,133,105}, //roverlightscolor

{138,138,138}, //roverwheelscolor

{61,62,64}, //roverwheelsscrewcolor

{210,211,213}, //roverlightmetalcolor

{0, 0, 0}, //roveroutlinescolor

{255, 255, 255}, //boatcolor

{39,30,73}, //boatbottomcolor

{107,111,116}, //boatwindowcolor

{226,225,231}, //spaceshipbodycolor

{50,50,48}, //spaceshipwindowcolor

{50,50,48}, //spaceshiplayercolor

{0, 0, 0}, //spaceshipoutlinecolor

{61, 109, 186}, //rivershade1color

{54,102,192}, //rivershade2color

{33, 59, 122}, //rivershade3color

{110,161,233}, //rivershade4color

{133, 193, 233}, //starscolor

{208, 211, 212}, //radarbodycolor

{0, 0, 0}, //radarcolor

{37,31,67}, //radarouterlinescolor

{171, 178, 185}, //transmitterbodycolor

{0, 0, 0}, //transmitterouterlinescolor

{255, 255, 255}, //transmittersignalcolor

{0, 0, 0}, //transmitterantennacolor

{23, 32, 42}, //transmittersteelbodycolor

{168,159,150}, //wallebodycolor

{82,63,68}, //walleshadowcolor

{130,167,210}, //solarpanelcolor

{0, 0, 0}, //walleoutlinescolor

{230, 126, 34} //rocketflamecolor

};

T\_Scene T\_night =

{

"T\_night",

{48, 89, 124}, //skycolor

{37, 31, 67}, //landcolor

{21, 67, 96}, //rivercolor

{25,10,29}, //darkrockscolor

{60,65,114}, //lightrockscolor

{37,31,67}, //stoneholder

{37, 65, 102}, //hubscolor

{33, 54, 82}, //hubsshadowcolor

{225, 203, 19}, //hubdoorscolor

{212, 212, 232}, //hubroofcolor

{26, 43, 65}, //hubdarkcolor

{255, 255, 255}, //laddercolor

{0, 0, 0}, //hubgrillscolor

{27, 38, 49}, //towerbodycolor

{23,19,33}, //towershadowcolor

{88, 214, 141}, //towerglasscolor

{27, 38, 49}, //bridgecolor

{66, 73, 73}, //bridgelayerscolor

{88, 214, 141}, //bridgeboltscolor

{23,19,33}, //bridgeshadowcolor

{88, 214, 141}, //rocketbodycolor

{23,19,33}, //rocketshadecolor

{147, 152, 158}, //rocketouterlinescolor

{46, 134, 193}, //planetcolor

{24, 101, 70}, //planetlayers

{33, 47, 61}, //rovermetalcolor

{0,0,0}, //roverdarkmetalcolor

{241, 196, 15}, //roverwindowcolor

{241, 196, 15}, //roverlightscolor

{0,0,0}, //roverwheelscolor

{61,62,64}, //roverwheelsscrewcolor

{39, 55, 70}, //roverlightmetalcolor

{0, 0, 0}, //roveroutlinescolor

{23, 32, 42}, //boatcolor

{28, 40, 51}, //boatbottomcolor

{241, 196, 15}, //boatwindowcolor

{23, 32, 42}, //spaceshipbodycolor

{247, 220, 111}, //spaceshipwindowcolor

{50,50,48}, //spaceshiplayercolor

{0, 0, 0}, //spaceshipoutlinecolor

{36, 113, 163}, //rivershade1color

{26, 82, 118}, //rivershade2color

{33, 59, 122}, //rivershade3color

{84, 153, 199}, //rivershade4color

{255, 255, 255}, //starscolor

{31, 97, 141}, //radarbodycolor

{0, 255, 0}, //radarcolor

{37,31,67}, //radarouterlinescolor

{171, 178, 185}, //transmitterbodycolor

{0, 0, 0}, //transmitterouterlinescolor

{255, 255, 255}, //transmittersignalcolor

{255, 0, 0}, //transmitterantennacolor

{166, 172, 175}, //transmittersteelbodycolor

{112,93,94}, //wallebodycolor

{82,63,68}, //walleshadowcolor

{130,167,210}, //solarpanelcolor

{0, 0, 0}, //walleoutlinescolor

{230, 126, 34} //rocketflamecolor

};

T\_Scene arr[2] = { T\_day, T\_night };

int T\_daynighttracker = 0;

T\_Scene T\_currentScene = arr[T\_daynighttracker];

// animations function logics

void T\_animateRocket(int val)

{

T\_moverocket += 5;

if (T\_moverocket > 1200)

{

T\_moverocket = 0;

}

glutPostRedisplay();

glutTimerFunc(20, T\_animateRocket, 0);

}

void T\_animatePlanets(int val)

{

T\_moveplanetX += 0.5;

T\_moveplanetY -= 0.5;

if (T\_moveplanetY < -700)

{

T\_moveplanetX = 0;

T\_moveplanetY = 0;

}

glutPostRedisplay();

glutTimerFunc(20, T\_animatePlanets, 0);

}

void T\_animateRoverLeft(int val)

{

T\_moverover -= 1;

if (T\_moverover < -1300)

{

T\_moverover = 700;

}

glutPostRedisplay();

glutTimerFunc(20, T\_animateRoverLeft, 0);

}

void T\_animateBoatLeft(int val)

{

T\_moveboatX -= 5;

T\_moveboatY += 0.5;

if (T\_moveboatX < -2200)

{

T\_moveboatX = 0;

T\_moveboatY = 0;

}

glutPostRedisplay();

glutTimerFunc(20, T\_animateBoatLeft, 0);

}

void T\_animateSpaceshipLeft(int val)

{

T\_movespaceshipX -= 2;

if (T\_movespaceshipX < -2800)

{

T\_movespaceshipX = 0;

}

glutPostRedisplay();

glutTimerFunc(20, T\_animateSpaceshipLeft, 0);

}

void T\_animateWaterCurrentRight(int val)

{

T\_movewatercurrentX += 2;

if (T\_movewatercurrentX > 400)

{

T\_movewatercurrentX = 0;

}

glutPostRedisplay();

glutTimerFunc(20, T\_animateWaterCurrentRight, 0);

}

void T\_animateBlinkCircle(int val)

{

T\_blinkAngle += 2.0f;

if (T\_blinkAngle > 360.0)

{

T\_blinkAngle -= 360;

}

glutPostRedisplay(); //Notify GLUT that the display has changed

glutTimerFunc(20, T\_animateBlinkCircle, 0); //Notify GLUT to call update again in 25 milliseconds

}

void T\_animateWalleRight(int val)

{

T\_movewalleX += 3;

if (T\_movewalleX > 2200)

{

T\_movewalleX = 0;

}

glutPostRedisplay();

glutTimerFunc(20, T\_animateWalleRight, 0);

}

// Custom Functions

void T\_points1(vector<pair<float, float>> coord, T\_Color T\_Color = { 255,255,255 }, float Tx = 0, float Ty = 0, float s = 1)

{

glPointSize(2);

glEnable(GL\_POINT\_SMOOTH);

glEnable(GL\_BLEND);

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

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

glBegin(GL\_POINTS);

for (int i = 0; i < coord.size(); i++) {

glVertex2f(Tx + s \* coord[i].first, Ty + s \* coord[i].second);

}

glEnd();

}

void T\_points2(vector<pair<float, float>> coord, T\_Color T\_Color = { 255,255,255 }, float Tx = 0, float Ty = 0, float s = 1)

{

glPointSize(4);

glEnable(GL\_POINT\_SMOOTH);

glEnable(GL\_BLEND);

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

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

glBegin(GL\_POINTS);

for (int i = 0; i < coord.size(); i++) {

glVertex2f(Tx + s \* coord[i].first, Ty + s \* coord[i].second);

}

glEnd();

}

void T\_points3(vector<pair<float, float>> coord, T\_Color T\_Color = { 255,255,255 }, float Tx = 0, float Ty = 0, float s = 1)

{

glPointSize(10);

glEnable(GL\_POINT\_SMOOTH);

glEnable(GL\_BLEND);

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

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

glBegin(GL\_POINTS);

for (int i = 0; i < coord.size(); i++) {

glVertex2f(Tx + s \* coord[i].first, Ty + s \* coord[i].second);

}

glEnd();

}

void T\_polygon(vector<pair<float, float>> coord, T\_Color T\_Color = { 255,255,255 }, float Tx = 0, float Ty = 0, float s = 1)

{

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

glBegin(GL\_POLYGON);

for (int i = 0; i < coord.size(); i++) {

glVertex2f(Tx + s \* coord[i].first, Ty + s \* coord[i].second);

}

glEnd();

}

void T\_halfcircle(float radius, float Tx, float Ty, T\_Color T\_Color = { 255,255,255 })

{

glBegin(GL\_POLYGON);

for (int i = 0; i < 250; i++) {

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

float pi = 1.5708;

float A = (i \* 2 \* pi) / 250;

float r = radius;

float x = r \* cos(A);

float y = r \* sin(A);

glVertex2f(x + Tx, y + Ty);

}

glEnd();

}

void T\_halfcircleWithLines(float radius, float Tx, float Ty, T\_Color T\_Color = { 255,255,255 })

{

glPointSize(0.5);

glEnable(GL\_POINT\_SMOOTH);

glEnable(GL\_BLEND);

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

glBegin(GL\_POINTS);

for (int i = 0; i < 250; i++) {

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

float pi = 1.5708;

float A = (i \* 2 \* pi) / 250;

float r = radius;

float x = r \* cos(A);

float y = r \* sin(A);

glVertex2f(x + Tx, y + Ty);

}

glEnd();

}

void T\_halfcircleBorder(float radius, float Tx, float Ty, T\_Color T\_Color = { 255,255,255 })

{

glPointSize(0.1);

glBegin(GL\_POINTS);

for (int i = 0; i < 250; i++) {

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

float pi = 1.5708;

float A = (i \* 2 \* pi) / 250;

float r = radius;

float x = r \* cos(A);

float y = r \* sin(A);

glVertex2f(x + Tx, y + Ty);

}

glEnd();

}

void T\_fullcircle(float radius, float Tx, float Ty, T\_Color T\_Color = { 255,255,255 })

{

glBegin(GL\_POLYGON);

for (int i = 0; i < 250; i++) {

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

float pi = 3.1416;

float A = (i \* 2 \* pi) / 250;

float r = radius;

float x = r \* cos(A);

float y = r \* sin(A);

glVertex2f(x + Tx, y + Ty);

}

glEnd();

}

void T\_fullcircleBorder(float radius, float Tx, float Ty, T\_Color T\_Color = { 255,255,255 })

{

glLineWidth(3);

glBegin(GL\_LINES);

for (int i = 0; i < 250; i++) {

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

float pi = 3.1416;

float A = (i \* 2 \* pi) / 250;

float r = radius;

float x = r \* cos(A);

float y = r \* sin(A);

glVertex2f(x + Tx, y + Ty);

}

glEnd();

}

void T\_linestrip(vector<pair<float, float>> coord, T\_Color T\_Color = { 255,255,255 }, float Tx = 0, float Ty = 0, float s = 1)

{

glLineWidth(1);

glColor3ub(T\_Color.r, T\_Color.g, T\_Color.b);

glBegin(GL\_LINE\_STRIP);

for (int i = 0; i < coord.size(); i++) {

glVertex2f(Tx + s \* coord[i].first, Ty + s \* coord[i].second);

}

glEnd();

}

void T\_Fire(pair<float, float> P1[], pair<float, float> P2[])

{

pair<float, float> a[120], b[120];

for (int i = 0; i < 120; i++)

{

a[i].first = pow((1 - i / 120.0), 3) \* P1[0].first + 3 \* i / 120.0 \* pow((1 - i / 120.0), 2) \* P1[1].first + 3 \* (1 - i / 120.0) \* pow(i / 120.0, 2) \* P1[2].first + pow(i / 120.0, 3) \* P1[3].first;

a[i].second = pow((1 - i / 120.0), 3) \* P1[0].second + 3 \* i / 120.0 \* pow((1 - i / 120.0), 2) \* P1[1].second + 3 \* (1 - i / 120.0) \* pow(i / 120.0, 2) \* P1[2].second + pow(i / 120.0, 3) \* P1[3].second;

b[i].first = pow((1 - i / 120.0), 3) \* P2[0].first + 3 \* i / 120.0 \* pow((1 - i / 120.0), 2) \* P2[1].first + 3 \* (1 - i / 120.0) \* pow(i / 120.0, 2) \* P2[2].first + pow(i / 120.0, 3) \* P2[3].first;

b[i].second = pow((1 - i / 120.0), 3) \* P2[0].second + 3 \* i / 120.0 \* pow((1 - i / 120.0), 2) \* P2[1].second + 3 \* (1 - i / 120.0) \* pow(i / 120.0, 2) \* P2[2].second + pow(i / 120.0, 3) \* P2[3].second;

}

glColor3ub(248, 196, 113);

glBegin(GL\_LINE\_STRIP);

for (int i = 0; i < 120; i++)

{

glVertex2f(-480 + a[i].first, 115 + a[i].second);

glVertex2f(-480 + b[i].first, 115 + b[i].second);

}

glEnd();

glColor3ub(212, 172, 13);

glBegin(GL\_LINE\_STRIP);

for (int i = 0; i < 120; i++)

{

glVertex2f(-150 + a[i].first \* 0.5, 180 + a[i].second \* 0.5);

glVertex2f(-150 + b[i].first \* 0.5, 180 + b[i].second \* 0.5);

}

glEnd();

glColor3ub(252, 243, 207);

glBegin(GL\_LINE\_STRIP);

for (int i = 0; i < 120; i++)

{

glVertex2f(15 + a[i].first \* 0.25, 215 + a[i].second \* 0.25);

glVertex2f(15 + b[i].first \* 0.25, 215 + b[i].second \* 0.25);

}

glEnd();

}

void T\_blinkingCircle(float Tx, float Ty, T\_Color blink = { 0, 255, 0 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(Tx, Ty, 0);

glRotatef(T\_blinkAngle, 0, 0, 0);

glLineWidth(5);

glBegin(GL\_POINTS);

for (int i = 0; i < 200; i++)

{

glColor3ub(0, 255, 0);

float pi = 3.1416;

float A = (i \* 2 \* pi) / 200;

float r = 20;

float x = r \* cos(A);

float y = r \* sin(A);

glVertex2f(x, y);

}

glEnd();

glPopMatrix();

}

void T\_blinkingWalleEyes(float Tx, float Ty, T\_Color blink = { 0, 255, 0 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(Tx, Ty, 0);

glRotatef(T\_blinkAngle, 0, 0, 0);

glBegin(GL\_POLYGON);

for (int i = 0; i < 200; i++)

{

glColor3ub(0, 255, 0);

float pi = 3.1416;

float A = (i \* 2 \* pi) / 200;

float r = 5;

float x = r \* cos(A);

float y = r \* sin(A);

glVertex2f(x, y);

}

glEnd();

glPopMatrix();

}

// Project functions

void T\_sky(T\_Color T\_skyColor = { 48, 89, 124 })

{

// upper limits of the T\_river to top

T\_polygon({ {0, 470},{1920, 470},{1920, 1080},{0, 1080} }, T\_currentScene.T\_skyColor, 0, 0);

}

void T\_land(T\_Color T\_landColor = { 37,31,67 })

{

// Function Call

T\_polygon({ {1047, 0},{1047, 159},{910, 207},{354, 253},{0, 253},{0, 0} }, T\_currentScene.T\_landColor, 0, 0);

T\_polygon({ {965, 184},{981, 307},{1045, 383},{1149, 449},{849, 378},{834, 351},{352, 250},{311, 184} }, T\_currentScene.T\_landColor, 0, 0);

T\_polygon({ {1017, 189},{1048, 221},{1078, 307},{1123, 328},{1139, 378},{1078, 390},{1020, 362},{981, 310},{992, 207} }, T\_currentScene.T\_landColor, 0, 0);

T\_polygon({ {1920, 0},{1920, 124},{1674, 164},{1584, 145},{1561, 207},{1347, 141},{1230, 141},{1077, 182},{953, 76},{0, 0} }, T\_currentScene.T\_landColor, 0, 0);

//far T\_lands

T\_polygon({ {1683, 470},{1556, 470},{1501, 420},{1501, 383},{1571, 377},{1613, 356},{1690, 364}, }, T\_currentScene.T\_landColor);

T\_polygon({ {1690, 364},{1743, 377},{1826, 356},{1920, 364},{1920, 470},{1622, 470}, }, T\_currentScene.T\_landColor);

}

void T\_river(T\_Color T\_riverColor = { 68,121,207 }, T\_Color T\_landColor = { 37,31,67 }, T\_Color T\_darkrocksColor = { 25,10,29 })

{

//very far T\_lands

//2

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor);

//1

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor);

// translated to different positions

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, -100, -25);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, -200, 10);

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor, -400);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, -400, -10);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, -600 - 5);

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor, -600);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, -700, 10);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, -800, 30);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, -900);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 200);

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor, 200);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 250);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 300);

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor, 400);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 400);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 520, -25);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 600, 30);

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor, 600, 30);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 700, 20);

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor, 700, 20);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 800, 10);

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor, 800, 15);

T\_polygon({ {810, 405},{961, 398},{984, 455},{923, 549},{886, 519},{858, 525},{838, 492},{822, 487},{803, 442} }, T\_currentScene.T\_landColor, 900, 12);

T\_polygon({ {1066, 395},{1054, 482},{1030, 489},{1000, 531},{973, 536},{950, 549},{935, 541},{934, 395} }, T\_currentScene.T\_landColor, 900, 10);

T\_polygon({ {1920, 0},{1920, 470},{0, 470},{0, 0} }, T\_currentScene.T\_riverColor, 0, 0);

T\_polygon({ {664, 319},{750, 297},{829, 311},{884, 311},{938, 338} }, T\_currentScene.T\_landColor, -600, 140);

T\_polygon({ {664, 319},{750, 297},{829, 311},{884, 311},{938, 338} }, T\_currentScene.T\_landColor, -200, 155);

T\_polygon({ {664, 319},{750, 297},{829, 311},{884, 311},{938, 338} }, T\_currentScene.T\_landColor, -800, 140);

}

void T\_darkrocks(T\_Color T\_darkrocksColor = { 25,10,29 })

{

T\_polygon({ {660, 312},{836, 348},{656, 330} }, T\_currentScene.T\_darkrocksColor, 0, 0);

T\_polygon({ {1017, 188},{1050, 220},{1100, 293},{1136, 364},{1114, 356},{1007, 308},{998, 204} }, T\_currentScene.T\_darkrocksColor, 0, 0);

T\_polygon({ {1101, 308},{1154, 328},{1153, 303},{1130, 255},{1101, 275} }, T\_currentScene.T\_darkrocksColor, -15, 35);

T\_polygon({ {832, 341},{988, 335},{866, 358},{850, 375} }, T\_currentScene.T\_darkrocksColor, 0, 0);

T\_polygon({ {1086, 391},{1106, 387},{1147, 447},{1100, 412} }, T\_currentScene.T\_darkrocksColor, 0, 0);

T\_polygon({ {955, 372},{1064, 381},{1025, 362},{1031, 374} }, T\_currentScene.T\_darkrocksColor, 3, 0);

T\_polygon({ {465, 234},{518, 243},{896, 214},{423, 220} }, T\_currentScene.T\_darkrocksColor, 0, 0);

T\_polygon({ {681, 108},{748, 122},{1031, 163},{923, 131} }, T\_currentScene.T\_darkrocksColor, -3, 2);

T\_polygon({ {1462, 79},{1052, 108},{1103, 81},{1078, 56} }, T\_currentScene.T\_darkrocksColor, 0, 0);

T\_polygon({ {783, 38},{1075, 58},{1071, 68} }, T\_currentScene.T\_darkrocksColor, 15, 0);

T\_polygon({ {958, 186},{900, 207},{946, 214},{974, 253},{967, 184} }, T\_currentScene.T\_darkrocksColor, 0, 0);

T\_polygon({ {954, 213},{997, 202},{990, 300},{971, 285} }, T\_currentScene.T\_darkrocksColor, 8, 10);

T\_polygon({ {964, 228},{953, 188},{999, 207} }, T\_currentScene.T\_darkrocksColor, 9, 0);

T\_polygon({ {85, 216},{143, 207},{208, 215},{259, 236},{170, 234} }, T\_currentScene.T\_darkrocksColor, -20, -20);

T\_polygon({ {85, 216},{143, 207},{208, 215},{259, 236},{170, 234} }, T\_currentScene.T\_darkrocksColor, -100, -550, 3);

T\_polygon({ {1427, 141},{1634, 124},{1879, 129},{1589, 152} }, T\_currentScene.T\_darkrocksColor);

T\_polygon({ {1258, 506},{1195, 492},{1275, 480} }, T\_darkrocksColor);

// far rocks

T\_polygon({ {1501, 383},{1571, 377},{1613, 356},{1690, 364},{1654, 317},{1607, 290},{1582, 326},{1512, 339}, }, T\_currentScene.T\_darkrocksColor);

T\_polygon({ {1690, 364},{1745, 337},{1770, 315},{1804, 337},{1802, 381},{1800, 447}, }, T\_currentScene.T\_darkrocksColor, -100, -50);

T\_polygon({ {1713, 424},{1722, 358},{1790, 322},{1815, 371},{1870, 430}, }, T\_currentScene.T\_darkrocksColor, -30, -30);

T\_polygon({ {1713, 424},{1722, 358},{1790, 322},{1815, 371},{1870, 430}, }, T\_currentScene.T\_darkrocksColor, 40, 0);

T\_polygon({ {1707, 392},{1681, 358},{1760, 343},{1823, 317},{1868, 396}, }, T\_currentScene.T\_darkrocksColor, 70, 0);

// far rocks shade

T\_polygon({ {1234, 469},{1236, 484},{1249, 494},{1249, 479},{1259, 465} }, T\_currentScene.T\_darkrocksColor, -30, 40);

T\_polygon({ {1234, 469},{1236, 484},{1249, 494},{1249, 479},{1259, 465} }, T\_currentScene.T\_darkrocksColor, -300, 40);

T\_polygon({ {1234, 469},{1236, 484},{1249, 494},{1249, 479},{1259, 465} }, T\_currentScene.T\_darkrocksColor, -280, 30);

T\_polygon({ {1234, 469},{1236, 484},{1249, 494},{1249, 479},{1259, 465} }, T\_currentScene.T\_darkrocksColor, -290, 25);

T\_polygon({ {1234, 469},{1236, 484},{1249, 494},{1249, 479},{1259, 465} }, T\_currentScene.T\_darkrocksColor, -250, 25);

T\_polygon({ {1134, 510},{1187, 548},{1172, 518} }, T\_currentScene.T\_darkrocksColor, -65, -10);

T\_polygon({ {1134, 510},{1187, 548},{1172, 518} }, T\_currentScene.T\_darkrocksColor, -662, -18);

T\_polygon({ {525, 469},{545, 492},{710, 469} }, T\_currentScene.T\_darkrocksColor, -80, 10);

T\_polygon({ {1284, 521},{1359, 522},{1439, 519},{1340, 499} }, T\_darkrocksColor, 250);

}

void T\_lightrocks(T\_Color T\_lightrocksColor = { 60,65,114 })

{

T\_polygon({ {656, 332},{837, 350},{720, 351} }, T\_currentScene.T\_lightrocksColor, 0, -2);

T\_polygon({ {1002, 304},{1084, 342},{1133, 358},{1141, 380},{1064, 393},{1027, 364} }, T\_currentScene.T\_lightrocksColor, 5, -2);

}

void T\_specialstoneholder(T\_Color T\_stoneholderColor = { 37,31,67 })

{

T\_polygon({ {88, 242},{151, 241},{146, 314},{183, 381},{115, 322} }, T\_currentScene.T\_stoneholderColor, -20, -10);

T\_polygon({ {89, 247},{119, 297},{102, 356},{134, 424},{69, 356} }, T\_currentScene.T\_stoneholderColor, -10, -20);

T\_polygon({ {268, 327},{203, 249},{257, 246} }, T\_currentScene.T\_stoneholderColor, 0, -10);

T\_polygon({ {268, 327},{208, 379},{230, 276} }, T\_currentScene.T\_stoneholderColor, 0, -10);

}

void T\_researchHub1(T\_Color T\_hubsColor = { 37, 65, 102 }, T\_Color T\_hubshadowColor = { 33, 54, 82 }, T\_Color T\_hubdoorsColor = { 225, 203, 19 }, T\_Color T\_hubroof = { 212, 212, 232 })

{

//1st

T\_polygon({ {1557, 173},{1491, 155},{1491, 108},{1557, 98},{1618, 108},{1618, 155} }, T\_currentScene.T\_hubsColor);

T\_polygon({ {1507, 108},{1507, 85},{1534, 83},{1544, 87},{1544, 102} }, T\_currentScene.T\_hubsColor);

T\_polygon({ {1545, 80},{1561, 76},{1561, 100},{1545, 100} }, T\_currentScene.T\_hubsColor);

// shade

T\_polygon({ {1560, 98},{1618, 108},{1618, 155},{1560, 145} }, T\_currentScene.T\_hubshadowColor);

T\_polygon({ {1534, 83},{1544, 87},{1543, 102},{1534, 102}, }, T\_currentScene.T\_hubshadowColor);

//2nd

T\_polygon({ {1616, 157},{1562, 139},{1562, 58},{1632, 43},{1656, 58},{1656, 153} }, T\_currentScene.T\_hubsColor);

//3rd

T\_polygon({ {1656, 58},{1725, 45},{1757, 70},{1757, 148},{1693, 156},{1679, 150},{1656, 152} }, T\_currentScene.T\_hubsColor);

//2nd shadow

T\_polygon({ {1632, 127},{1632, 44},{1658, 59},{1658, 139} }, T\_currentScene.T\_hubshadowColor);

//3rd shadow

T\_polygon({ {1727, 128},{1727, 47},{1757, 71},{1757, 147} }, T\_currentScene.T\_hubshadowColor);

//roofs

T\_polygon({ {1557, 162},{1521, 152},{1557, 146},{1594, 154} }, T\_currentScene.T\_hubshadowColor);

T\_halfcircle(49, 1709, 133, T\_currentScene.T\_hubsColor);

T\_polygon({ {1616, 148},{1587, 136},{1625, 128},{1657, 141} }, T\_currentScene.T\_hubshadowColor);

//doors

T\_polygon({ {1566, 81},{1566, 59},{1628, 45},{1628, 69} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {1528, 128},{1528, 107},{1539, 105},{1539, 128} }, T\_currentScene.T\_hubdoorsColor, 0, 2);

T\_polygon({ {1528, 128},{1528, 107},{1539, 105},{1539, 128} }, T\_currentScene.T\_hubdoorsColor, 15, -3);

T\_polygon({ {1643, 99},{1643, 87},{1649, 89},{1649, 102} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {1660, 82},{1660, 59},{1681, 56},{1681, 78} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {1660, 82},{1660, 59},{1681, 56},{1681, 78} }, T\_currentScene.T\_hubdoorsColor, 40, 30);

T\_polygon({ {1660, 82},{1660, 59},{1681, 56},{1681, 78} }, T\_currentScene.T\_hubdoorsColor, -60, 30);

T\_polygon({ {1726, 71},{1726, 47},{1741, 59},{1741, 82} }, T\_currentScene.T\_hubdoorsColor, 5, 2);

}

void T\_researchHub2(T\_Color T\_hubsColor = { 37, 65, 102 }, T\_Color T\_hubshadowColor = { 33, 54, 82 }, T\_Color T\_hubdoorsColor = { 225, 203, 19 }, T\_Color T\_hubdarkColor = { 26, 43, 65 })

{

T\_polygon({ {1627, 623},{1627, 487},{1712, 478},{1725, 482},{1725, 623} }, T\_currentScene.T\_hubshadowColor);

T\_polygon({ {1627, 623},{1627, 562},{1674, 555},{1674, 621} }, T\_currentScene.T\_hubshadowColor);

T\_polygon({ {1657, 619},{1633, 619},{1633, 610},{1657, 610} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {1628, 571},{1603, 566},{1603, 489},{1712, 477},{1710, 611},{1656, 615},{1656, 568} }, T\_currentScene.T\_hubshadowColor);

T\_polygon({ {1725, 435},{1775, 451},{1775, 623},{1711, 612},{1711, 478},{1711, 437} }, T\_currentScene.T\_hubsColor);

//roof

T\_polygon({ {1712, 611},{1775, 623},{1703, 629},{1656, 624} }, T\_currentScene.T\_hubshadowColor);

T\_polygon({ {1669, 631},{1629, 623},{1702, 619},{1723, 628} }, T\_currentScene.T\_hubshadowColor);

//darker part

T\_polygon({ {1619, 488},{1619, 447},{1677, 436},{1687, 440},{1687, 480} }, T\_currentScene.T\_hubdarkColor);

T\_polygon({ {1687, 440},{1687, 480},{1725, 476},{1725, 435} }, T\_currentScene.T\_hubdarkColor);

T\_polygon({ {1725, 482},{1711, 477},{1725, 474} }, T\_currentScene.T\_hubdarkColor);

//Windows & Doors

T\_polygon({ {1660, 535},{1660, 492},{1704, 486},{1704, 531} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {1681, 591},{1681, 564},{1703, 561},{1703, 589} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {1758, 611},{1758, 560},{1765, 563},{1765, 614} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {1765, 544},{1742, 536},{1742, 496},{1765, 504} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {1689, 475},{1689, 441},{1704, 438},{1704, 474} }, T\_currentScene.T\_hubdoorsColor);

}

void T\_researchHub3(T\_Color T\_hubsColor = { 37, 65, 102 }, T\_Color T\_hubshadowColor = { 33, 54, 82 }, T\_Color T\_hubdoorsColor = { 225, 203, 19 }, T\_Color T\_hubdarkColor = { 26, 43, 65 }, T\_Color T\_ladderColor = { 255, 255, 255 })

{

//1

T\_polygon({ {373, 243},{362, 193},{370, 178},{446, 178},{453, 193},{441, 243} }, T\_currentScene.T\_hubsColor);

T\_polygon({ {381, 243},{378, 241},{406, 240},{433, 242},{424, 245} }, T\_currentScene.T\_hubdarkColor, 0, -5);

//windows

T\_polygon({ {374, 226},{374, 211},{393, 207},{393, 223} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {420, 221},{420, 205},{439, 210},{439, 227} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {363, 193},{364, 186},{452, 186},{452, 193} }, T\_currentScene.T\_hubdarkColor);

//ladder

T\_polygon({ {397, 199},{397, 167},{401, 167},{401, 199} }, T\_currentScene.T\_ladderColor);

T\_polygon({ {397, 199},{397, 167},{401, 167},{401, 199} }, T\_currentScene.T\_ladderColor, 20, 0);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor, 0, -10);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor, 0, -20);

//lines

T\_linestrip({ {364, 202},{399, 202} }, T\_currentScene.T\_ladderColor, 0, -2);

T\_linestrip({ {408, 236},{408, 212} }, T\_currentScene.T\_ladderColor);

T\_linestrip({ {364, 202},{399, 202} }, T\_currentScene.T\_ladderColor, 53, -2);

//2

T\_polygon({ {373, 243},{362, 193},{370, 178},{446, 178},{453, 193},{441, 243} }, T\_currentScene.T\_hubsColor, 120, 70);

T\_polygon({ {381, 243},{378, 241},{406, 240},{433, 242},{424, 245} }, T\_currentScene.T\_hubdarkColor, 120, 65);

//windows

T\_polygon({ {374, 226},{374, 211},{393, 207},{393, 223} }, T\_currentScene.T\_hubdoorsColor, 120, 70);

T\_polygon({ {420, 221},{420, 205},{439, 210},{439, 227} }, T\_currentScene.T\_hubdoorsColor, 120, 70);

T\_polygon({ {363, 193},{364, 186},{452, 186},{452, 193} }, T\_currentScene.T\_hubdarkColor, 120, 70);

//ladder

T\_polygon({ {397, 199},{397, 167},{401, 167},{401, 199} }, T\_currentScene.T\_ladderColor, 120, 70);

T\_polygon({ {397, 199},{397, 167},{401, 167},{401, 199} }, T\_currentScene.T\_ladderColor, 140, 70);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor, 120, 70);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor, 120, 60);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor, 120, 50);

//lines

T\_linestrip({ {364, 202},{399, 202} }, T\_currentScene.T\_ladderColor, 120, 68);

T\_linestrip({ {408, 236},{408, 212} }, T\_currentScene.T\_ladderColor, 120, 70);

T\_linestrip({ {364, 202},{399, 202} }, T\_currentScene.T\_ladderColor, 173, 68);

//3

T\_polygon({ {373, 243},{362, 193},{370, 178},{446, 178},{453, 193},{441, 243} }, T\_currentScene.T\_hubsColor, 1420, 300);

T\_polygon({ {381, 243},{378, 241},{406, 240},{433, 242},{424, 245} }, T\_currentScene.T\_hubdarkColor, 1420, 295);

//windows

T\_polygon({ {374, 226},{374, 211},{393, 207},{393, 223} }, T\_currentScene.T\_hubdoorsColor, 1420, 300);

T\_polygon({ {420, 221},{420, 205},{439, 210},{439, 227} }, T\_currentScene.T\_hubdoorsColor, 1420, 300);

T\_polygon({ {363, 193},{364, 186},{452, 186},{452, 193} }, T\_currentScene.T\_hubdarkColor, 1420, 300);

//ladder

T\_polygon({ {397, 199},{397, 167},{401, 167},{401, 199} }, T\_currentScene.T\_ladderColor, 1420, 300);

T\_polygon({ {397, 199},{397, 167},{401, 167},{401, 199} }, T\_currentScene.T\_ladderColor, 1440, 300);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor, 1420, 300);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor, 1420, 290);

T\_polygon({ {399, 201},{399, 196},{417, 196},{417, 201} }, T\_currentScene.T\_ladderColor, 1420, 280);

//lines

T\_linestrip({ {364, 202},{399, 202} }, T\_currentScene.T\_ladderColor, 1420, 298);

T\_linestrip({ {408, 236},{408, 212} }, T\_currentScene.T\_ladderColor, 1420, 300);

T\_linestrip({ {364, 202},{399, 202} }, T\_currentScene.T\_ladderColor, 1473, 298);

}

void T\_researchHub4(T\_Color T\_hubsColor = { 37, 65, 102 }, T\_Color T\_hubshadowColor = { 33, 54, 82 }, T\_Color T\_hubdoorsColor = { 225, 203, 19 }, T\_Color T\_hubdarkColor = { 26, 43, 65 }, T\_Color T\_ladderColor = { 255, 255, 255 }, T\_Color T\_hubgrillsColor = { 0, 0, 0 })

{

T\_polygon({ {43, 30},{43, 10},{53, 10},{53, 30} }, T\_currentScene.T\_ladderColor);

T\_polygon({ {43, 30},{43, 10},{53, 10},{53, 30} }, T\_currentScene.T\_ladderColor, 200);

T\_polygon({ {150, 170},{115, 169},{30, 148},{23, 137},{23, 43},{35, 28},{76, 21},{199, 20},{254, 24},{268, 31},{272, 43},{272, 137},{268, 148},{187, 169} }, T\_currentScene.T\_hubsColor);

T\_linestrip({ {150, 170},{115, 169},{30, 148},{23, 137},{23, 43},{35, 28},{76, 21},{199, 20},{254, 24},{268, 31},{272, 43},{272, 137},{268, 148},{187, 169} }, T\_currentScene.T\_hubdarkColor);

T\_polygon({ {150, 170},{110, 169},{43, 152},{100, 142},{151, 139},{196, 143},{254, 151},{186, 169} }, T\_currentScene.T\_hubdarkColor, 0, -10);

T\_polygon({ {267, 123},{267, 46},{478, 46},{487, 55},{493, 69},{493, 100},{487, 120},{478, 123} }, T\_currentScene.T\_hubsColor);

T\_polygon({ {292, 50},{301, 29},{310, 29},{300, 50} }, T\_currentScene.T\_ladderColor);

T\_polygon({ {292, 50},{301, 29},{310, 29},{300, 50} }, T\_currentScene.T\_ladderColor, 150);

T\_polygon({ {36, 85},{36, 60},{47, 60},{47, 85} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {101, 108},{101, 58},{110, 58},{110, 108} }, T\_currentScene.T\_hubdarkColor);

T\_polygon({ {101, 108},{101, 58},{110, 58},{110, 108} }, T\_currentScene.T\_hubdarkColor, 80);

T\_polygon({ {223, 123},{222, 84},{255, 84},{258, 91},{258, 120},{256, 123} }, T\_currentScene.T\_hubdarkColor);

T\_polygon({ {223, 123},{222, 84},{255, 84},{258, 91},{258, 120},{256, 123} }, T\_currentScene.T\_hubdarkColor, 0, -50);

T\_polygon({ {228, 119},{228, 91},{258, 91},{258, 119} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {228, 119},{228, 91},{258, 91},{258, 119} }, T\_currentScene.T\_hubdoorsColor, 0, -50);

T\_polygon({ {331, 79},{324, 65},{346, 65} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ { 333, 82},{349, 68},{356, 82} }, T\_currentScene.T\_hubdoorsColor);

T\_polygon({ {331, 79},{324, 65},{346, 65} }, T\_currentScene.T\_hubdoorsColor, 100);

T\_polygon({ { 333, 82},{349, 68},{356, 82} }, T\_currentScene.T\_hubdoorsColor, 100);

T\_linestrip({ {285, 80},{309, 80} }, T\_currentScene.T\_hubgrillsColor);

T\_linestrip({ {285, 80},{309, 80} }, T\_currentScene.T\_hubgrillsColor, 0, -5);

T\_linestrip({ {285, 80},{309, 80} }, T\_currentScene.T\_hubgrillsColor, 0, -10);

T\_linestrip({ {285, 80},{309, 80} }, T\_currentScene.T\_hubgrillsColor, 0, -15);

T\_linestrip({ {285, 80},{309, 80} }, T\_currentScene.T\_hubgrillsColor, 100);

T\_linestrip({ {285, 80},{309, 80} }, T\_currentScene.T\_hubgrillsColor, 100, -5);

T\_linestrip({ {285, 80},{309, 80} }, T\_currentScene.T\_hubgrillsColor, 100, -10);

T\_linestrip({ {285, 80},{309, 80} }, T\_currentScene.T\_hubgrillsColor, 100, -15);

}

void T\_tower(T\_Color T\_towerbodyColor = { 255, 255, 255 }, T\_Color T\_towershadowColor = { 175,186,230 }, T\_Color T\_towerglassColor = { 73,189,231 })

{

T\_polygon({ {541, 453},{664, 453},{630, 533},{630, 624},{615, 639},{615, 838},{541, 838} }, T\_currentScene.T\_towerbodyColor);

T\_polygon({ {541, 453},{541, 515},{516, 515},{484, 488},{484, 453} }, T\_currentScene.T\_towerbodyColor);

T\_polygon({ {540, 809},{504, 726},{540, 705} }, T\_currentScene.T\_towerbodyColor, 5, 0);

T\_polygon({ {540, 843},{630, 867},{630, 930},{540, 890} }, T\_currentScene.T\_towerbodyColor, 0, -5);

// glass

T\_polygon({ {564, 840},{564, 562},{595, 547},{614, 546},{614, 839},{586, 850} }, T\_currentScene.T\_towerglassColor);

//tower shadow

T\_polygon({ {541, 453},{543, 498},{484, 474},{484, 453} }, T\_currentScene.T\_towershadowColor);

T\_polygon({ {541, 454},{569, 454},{569, 507},{559, 564},{559, 840},{541, 807} }, T\_currentScene.T\_towershadowColor);

T\_polygon({ {504, 726},{538, 705},{522, 701} }, T\_currentScene.T\_towershadowColor, 5, 1);

T\_polygon({ {538, 705},{522, 701},{522, 514},{538, 511} }, T\_currentScene.T\_towershadowColor, 5, 1);

T\_polygon({ {540, 843},{630, 867},{616, 843} }, T\_currentScene.T\_towershadowColor, 0, -5);

}

void T\_towerbridge(T\_Color T\_bridgeColor = { 255, 255, 255 }, T\_Color T\_bridgelayersColor = { 175,186,230 }, T\_Color T\_bridgeboltsColor = { 225, 203, 19 }, T\_Color T\_bridgeshadowColor = { 175,186,230 })

{

T\_halfcircleWithLines(50, 694, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 794, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 894, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 994, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1094, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1194, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1294, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1394, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1494, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1594, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1694, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1794, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1894, 610, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 694, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 794, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 894, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 994, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1094, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1194, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1294, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1394, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1494, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1594, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1694, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1794, 600, T\_currentScene.T\_bridgeboltsColor);

T\_halfcircleWithLines(50, 1894, 600, T\_currentScene.T\_bridgeboltsColor);

// main bridge

T\_polygon({ {615, 620},{615, 590},{1920, 590},{1920, 620} }, T\_currentScene.T\_bridgeColor);

//upper lights

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 0, 0);

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 150, 0);

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 300, 0);

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 450, 0);

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 600, 0);

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 750, 0);

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 900, 0);

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 1050, 0);

T\_polygon({ {615, 620},{630, 610},{730, 610},{745, 620} }, T\_currentScene.T\_bridgeshadowColor, 1200, 0);

// lower main bridge

T\_polygon({ {615, 590},{615, 585},{1920, 585},{1920, 590} }, T\_currentScene.T\_bridgelayersColor);

// lower lights

T\_points3({ {645, 585},{745, 585},{845, 585},{945, 585},{1045, 585},{1145, 585},{1245, 585},{1345, 585},{1445, 585},{1545, 585},{1645, 585},{1745, 585},{1845, 585},{1945, 585},{2045, 585},{2145, 585} }, T\_currentScene.T\_bridgeboltsColor);

}

//animations

void T\_rocket(T\_Color T\_rocketbodyColor = { 147, 152, 158 }, T\_Color T\_rocketshadeColor = { 255, 255, 255 }, T\_Color rocketouterlines = { 147, 152, 158 }, T\_Color rocketflameColor = { 230, 126, 34 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(0, T\_moverocket, 0);

T\_polygon({ {529, 657},{508, 615},{508, 520},{551, 520},{551, 615} }, T\_currentScene.T\_rocketbodyColor);

T\_linestrip({ {529, 657},{508, 615},{508, 520},{551, 520},{551, 615} }, T\_currentScene.rocketouterlines);

T\_polygon({ {529, 650},{513, 615},{513, 515},{546, 515},{546, 615} }, T\_currentScene.T\_rocketshadeColor);

T\_linestrip({ {529, 650},{513, 615},{513, 515},{546, 515},{546, 615} }, T\_currentScene.rocketouterlines);

T\_fullcircle(15, 528, 510, T\_currentScene.T\_rocketbodyColor);

T\_polygon({ {514, 604},{495, 580},{495, 505},{562, 505},{562, 580},{543, 604} }, T\_currentScene.T\_rocketbodyColor);

T\_fullcircle(10, 528, 510, T\_currentScene.T\_rocketshadeColor);

T\_polygon({ {514, 604},{500, 575},{500, 510},{557, 510},{557, 575},{543, 604} }, T\_currentScene.T\_rocketshadeColor);

T\_polygon({ {510, 571},{480, 529},{480, 497},{580, 497},{580, 529},{545, 571} }, T\_currentScene.T\_rocketbodyColor, 0, 20);

T\_polygon({ {515, 571},{485, 529},{485, 497},{575, 497},{575, 529},{540, 571} }, T\_currentScene.T\_rocketshadeColor, 0, 20);

T\_polygon({ {498, 560},{498, 513},{503, 513},{504, 560} }, T\_currentScene.T\_rocketbodyColor, 10, 3);

T\_polygon({ {498, 560},{498, 513},{503, 513},{504, 560} }, T\_currentScene.T\_rocketbodyColor, 45, 3);

T\_halfcircle(20, 530, 612, T\_currentScene.T\_rocketbodyColor);

T\_halfcircle(20, 530, 605, T\_currentScene.T\_rocketshadeColor);

T\_halfcircle(20, 530, 600, T\_currentScene.T\_rocketbodyColor);

T\_halfcircle(20, 530, 594, T\_currentScene.T\_rocketshadeColor);

glPopMatrix();

}

void T\_externalplanet(T\_Color T\_planetColor = { 219, 202, 135 }, T\_Color T\_planetLayers = { 24, 101, 70 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(T\_moveplanetX, T\_moveplanetY, 0);

T\_fullcircle(80, 800, 1200, T\_currentScene.T\_planetColor);

//T\_fullcircle(80, 1096, 740, sun);

T\_polygon({ {1099, 697},{1102, 696},{1106, 699},{1107, 707},{1115, 717},{1109, 719},{1107, 725},{1094, 725} }, T\_currentScene.T\_planetLayers, -296, 460);

T\_polygon({ {1092, 725},{1090, 735},{1086, 734},{1080, 741},{1074, 739},{1066, 742},{1060, 737},{1060, 731} }, T\_currentScene.T\_planetLayers, -296, 460);

T\_polygon({ {1060, 730},{1055, 727},{1054, 719},{1058, 711},{1060, 707},{1068, 705},{1090, 706},{1107, 719},{1082, 734},{1064, 732} }, T\_currentScene.T\_planetLayers, -296, 460);

T\_polygon({ {1070, 708},{1070, 688},{1072, 686},{1070, 679},{1074, 675},{1073, 668},{1078, 657},{1088, 656},{1084, 662},{1086, 666},{1082, 668},{1082, 672},{1091, 676},{1097, 687} }, T\_currentScene.T\_planetLayers, -296, 480);

T\_polygon({ {1165, 765},{1156, 768},{1155, 773},{1143, 772},{1143, 771},{1134, 770},{1130, 768},{1131, 763},{1121, 757},{1124, 753},{1121, 743},{1130, 733},{1141, 732} }, T\_currentScene.T\_planetLayers, -296, 460);

T\_polygon({ {1155, 740},{1154, 726},{1161, 718},{1173, 720},{1175, 730},{1181, 741} }, T\_currentScene.T\_planetLayers, -310, 460);

T\_polygon({ {1156, 742},{1162, 735},{1173, 735},{1182, 739},{1181, 748},{1184, 750},{1178, 756} }, T\_currentScene.T\_planetLayers, -310, 460);

T\_polygon({ {1042, 764},{1056, 764},{1059, 761},{1061, 765},{1068, 770},{1069, 775},{1082, 785},{1088, 786},{1077, 793},{1069, 791} }, T\_currentScene.T\_planetLayers, -296, 460);

T\_polygon({ {1066, 791},{1064, 799},{1074, 807},{1068, 810},{1061, 815},{1056, 810},{1049, 809} }, T\_currentScene.T\_planetLayers, -296, 450);

T\_polygon({ {1049, 807},{1036, 801},{1033, 795},{1034, 785},{1046, 785},{1057, 779} }, T\_currentScene.T\_planetLayers, -286, 450);

T\_polygon({ {1049, 807},{1036, 801},{1033, 795},{1034, 785},{1046, 785},{1057, 779} }, T\_currentScene.T\_planetLayers, -296, 420);

T\_polygon({ {1049, 807},{1036, 801},{1033, 795},{1034, 785},{1046, 785},{1057, 779} }, T\_currentScene.T\_planetLayers, -296, 430);

glPopMatrix();

}

void T\_rover(T\_Color T\_rovermetalColor = { 94,97,103 }, T\_Color T\_roverdarkmetalColor = { 35,39,43 }, T\_Color T\_roverwindowColor = { 11,76,104 }, T\_Color T\_roverlightsColor = { 212,133,105 }, T\_Color T\_roverwheelsColor = { 138,138,138 }, T\_Color T\_roverwheelscrewColor = { 61,62,64 }, T\_Color T\_roverlightmetalColor = { 210,211,213 }, T\_Color T\_roveroutlinesColor = { 0, 0, 0 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(T\_moverover, 0, 0);

//rover body

T\_polygon({ {1281, 130},{1264, 115},{1259, 93},{1252, 86},{1242, 76},{1250, 60},{1397, 60},{1409, 73},{1409, 88},{1397, 116},{1377, 130} }, T\_currentScene.T\_rovermetalColor, 200, 0);

T\_linestrip({ {1281, 130},{1264, 115},{1259, 93},{1252, 86},{1242, 76},{1250, 60},{1397, 60},{1409, 73},{1409, 88},{1397, 116},{1377, 130} }, T\_currentScene.T\_roveroutlinesColor, 200, 0);

T\_polygon({ {1267, 117},{1245, 74},{1405, 74},{1405, 83},{1391, 117} }, T\_currentScene.T\_roverlightmetalColor, 200, 0);

T\_linestrip({ {1267, 117},{1245, 74},{1405, 74},{1405, 83},{1391, 117} }, T\_currentScene.T\_roveroutlinesColor, 200, 0);

T\_polygon({ {1265, 67},{1265, 64},{1305, 64},{1305, 67} }, T\_currentScene.T\_roverdarkmetalColor, 200, 0);

T\_polygon({ {1265, 67},{1265, 64},{1305, 64},{1305, 67} }, T\_currentScene.T\_roverdarkmetalColor, 270, 0);

T\_polygon({ {1263, 66},{1263, 59},{1267, 59},{1267, 66} }, T\_currentScene.T\_roverdarkmetalColor, 200, 0);

T\_polygon({ {1263, 66},{1263, 59},{1267, 59},{1267, 66} }, T\_currentScene.T\_roverdarkmetalColor, 240, 0);

T\_polygon({ {1263, 66},{1263, 59},{1267, 59},{1267, 66} }, T\_currentScene.T\_roverdarkmetalColor, 270, 0);

T\_polygon({ {1263, 66},{1263, 59},{1267, 59},{1267, 66} }, T\_currentScene.T\_roverdarkmetalColor, 310, 0);

T\_polygon({ {1282, 128},{1267, 115},{1260, 93},{1322, 93},{1338, 128} }, T\_currentScene.T\_roverwindowColor, 200, 0);

T\_polygon({ {1341, 119},{1331, 95},{1365, 95} }, T\_currentScene.T\_roverwindowColor, 200, 0);

T\_polygon({ {1250, 84},{1244, 76},{1260, 76} }, T\_currentScene.T\_roverlightsColor, 200, 0);

// wheels

T\_fullcircle(15, 1265 + 200, 42, T\_currentScene.T\_roverwheelsColor);

T\_fullcircleBorder(15, 1265 + 200, 42, T\_currentScene.T\_roverwheelscrewColor);

T\_fullcircle(8, 1265 + 200, 42, T\_currentScene.T\_roverwheelscrewColor);

T\_fullcircle(15, 1300 + 200, 42, T\_currentScene.T\_roverwheelsColor);

T\_fullcircleBorder(15, 1300 + 200, 42, T\_currentScene.T\_roverwheelscrewColor);

T\_fullcircle(8, 1300 + 200, 42, T\_currentScene.T\_roverwheelscrewColor);

T\_fullcircle(15, 1335 + 200, 42, T\_currentScene.T\_roverwheelsColor);

T\_fullcircleBorder(15, 1335 + 200, 42, T\_currentScene.T\_roverwheelscrewColor);

T\_fullcircle(8, 1335 + 200, 42, T\_currentScene.T\_roverwheelscrewColor);

T\_fullcircle(15, 1375 + 200, 42, T\_currentScene.T\_roverwheelsColor);

T\_fullcircleBorder(15, 1375 + 200, 42, T\_currentScene.T\_roverwheelscrewColor);

T\_fullcircle(8, 1375 + 200, 42, T\_currentScene.T\_roverwheelscrewColor);

T\_polygon({ {1386, 122},{1392, 124},{1403, 127},{1414, 129},{1419, 123},{1419, 116},{1419, 109},{1418, 100},{1408, 102},{1398, 103} }, T\_currentScene.T\_rovermetalColor, 200);

T\_polygon({ {1386, 122},{1392, 124},{1403, 127},{1414, 129},{1419, 123},{1419, 116},{1419, 109},{1418, 100},{1408, 102},{1398, 103} }, T\_currentScene.T\_rovermetalColor, 200, -5);

glPopMatrix();

}

void T\_boat1(T\_Color T\_boatColor = { 255, 255, 255 }, T\_Color T\_boatbottomColor = { 39,30,73 }, T\_Color T\_boatwindowColor = { 107,111,116 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(T\_moveboatX, T\_moveboatY, 0);

T\_polygon({ {1679, 268},{1719, 237},{1753, 232},{1837, 229},{1858, 248},{1847, 257},{1760, 271} }, T\_currentScene.T\_boatColor, 300, -60);

T\_polygon({ {1807, 282},{1805, 286},{1828, 288},{1820, 290},{1784, 291} }, T\_currentScene.T\_boatColor, 300, -65);

T\_polygon({ {1679, 268},{1719, 237},{1753, 232},{1837, 229},{1854, 245},{1796, 251},{1755, 248} }, T\_currentScene.T\_boatbottomColor, 300, -60);

T\_polygon({ {1822, 261},{1803, 286},{1751, 291},{1729, 271},{1764, 271} }, T\_currentScene.T\_boatColor, 300, -60);

T\_polygon({ {1751, 289},{1735, 273},{1762, 272},{1766, 288} }, T\_currentScene.T\_boatwindowColor, 300, -60);

T\_polygon({ {1772, 287},{1766, 273},{1786, 269},{1787, 285} }, T\_currentScene.T\_boatwindowColor, 300, -60);

T\_polygon({ {1790, 286},{1790, 267},{1816, 262},{1801, 285} }, T\_currentScene.T\_boatwindowColor, 300, -60);

T\_linestrip({ {1681, 265},{1732, 264},{1780, 258},{1851, 246} }, T\_currentScene.T\_boatbottomColor, 300, -57);

glPopMatrix();

}

void T\_spaceship(T\_Color T\_spaceshipbodyColor = { 226,225,231 }, T\_Color T\_spaceshipwindowColor = { 50,50,48 }, T\_Color T\_spaceshiplayersColor = { 50,50,48 }, T\_Color T\_spaceshipoutlinesColor = { 0, 0, 0 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(500, 0, 0);

glTranslatef(T\_movespaceshipX, 0, 0);

T\_polygon({ {1629, 985},{1604, 968},{1632, 954},{1695, 954},{1732, 967},{1745, 987},{1723, 987},{1643, 987} }, T\_currentScene.T\_spaceshipbodyColor);

T\_polygon({ {1673, 1004},{1630, 975},{1691, 975},{1723, 1004} }, T\_currentScene.T\_spaceshipbodyColor);

T\_polygon({ {1723, 1001},{1692, 973},{1692, 945},{1722, 983} }, T\_currentScene.T\_spaceshipbodyColor, 0, 5);

T\_polygon({ {1687, 1011},{1660, 993},{1683, 993},{1709, 1011} }, T\_currentScene.T\_spaceshipbodyColor);

T\_polygon({ {1683, 992},{1689, 983},{1714, 1002},{1708, 1010} }, T\_currentScene.T\_spaceshipbodyColor);

T\_polygon({ {1628, 974},{1628, 947},{1691, 947},{1691, 974} }, T\_currentScene.T\_spaceshipbodyColor);

T\_linestrip({ {1723, 1001},{1692, 973},{1692, 945},{1722, 983} }, T\_currentScene.T\_spaceshipoutlinesColor, 0, 3);

T\_linestrip({ {1687, 1011},{1660, 993},{1683, 993},{1709, 1011} }, T\_currentScene.T\_spaceshipoutlinesColor);

T\_linestrip({ {1683, 992},{1689, 983},{1714, 1002},{1708, 1010} }, T\_currentScene.T\_spaceshipoutlinesColor);

T\_linestrip({ {1628, 974},{1628, 947},{1691, 947},{1691, 974} }, T\_currentScene.T\_spaceshipoutlinesColor);

T\_polygon({ {1637, 965},{1626, 935},{1626, 927},{1634, 924},{1643, 926},{1683, 945},{1682, 965},{1655, 966} }, T\_currentScene.T\_spaceshipbodyColor);

T\_polygon({ {1749, 994},{1735, 971},{1762, 970},{1771, 986} }, T\_currentScene.T\_spaceshipbodyColor, -1);

T\_polygon({ {1749, 994},{1735, 971},{1762, 970},{1771, 986} }, T\_currentScene.T\_spaceshipbodyColor, -10);

T\_polygon({ {1610, 996},{1581, 977},{1603, 969},{1629, 984} }, T\_currentScene.T\_spaceshipbodyColor, 1);

T\_polygon({ {1638, 964},{1629, 936},{1634, 937},{1649, 964} }, T\_currentScene.T\_spaceshipwindowColor);

T\_polygon({ {1661, 964},{1638, 937},{1643, 934},{1676, 963} }, T\_currentScene.T\_spaceshipwindowColor);

T\_polygon({ {1634, 935},{1628, 932},{1627, 929},{1634, 926},{1641, 928},{1641, 932} }, T\_currentScene.T\_spaceshipwindowColor);

T\_polygon({ {1681, 959},{1651, 933},{1680, 948} }, T\_currentScene.T\_spaceshipwindowColor);

T\_polygon({ {1667, 991},{1659, 991},{1655, 985},{1665, 985} }, T\_currentScene.T\_spaceshipwindowColor);

T\_polygon({ {1672, 991},{1669, 985},{1683, 985},{1680, 991} }, T\_currentScene.T\_spaceshipwindowColor);

T\_polygon({ {1707, 1008},{1687, 991},{1689, 985},{1711, 1003} }, T\_currentScene.T\_spaceshipwindowColor);

T\_polygon({ {1626, 965},{1608, 965},{1626, 959} }, T\_currentScene.T\_spaceshipwindowColor, 2);

T\_polygon({ {1703, 966},{1703, 959},{1727, 967} }, T\_currentScene.T\_spaceshipwindowColor, -2);

T\_fullcircle(15, 1745, 963, T\_currentScene.T\_spaceshipbodyColor);

T\_fullcircle(10, 1745, 963, T\_currentScene.T\_spaceshiplayersColor);

T\_fullcircleBorder(15, 1745, 963, T\_currentScene.T\_spaceshipwindowColor);

T\_fullcircle(15, 1591, 970, T\_currentScene.T\_spaceshipbodyColor);

T\_fullcircle(10, 1591, 970, T\_currentScene.T\_spaceshiplayersColor);

T\_fullcircleBorder(15, 1591, 970, T\_currentScene.T\_spaceshipwindowColor);

T\_linestrip({ {1695, 1011},{1670, 993},{1666, 982},{1657, 975} }, T\_currentScene.T\_spaceshiplayersColor);

T\_linestrip({ {1633, 976},{1640, 979},{1687, 977},{1691, 973} }, T\_currentScene.T\_spaceshiplayersColor, 0, -2);

T\_linestrip({ {1715, 1000},{1695, 983} }, T\_currentScene.T\_spaceshiplayersColor);

T\_linestrip({ {1724, 987},{1706, 968} }, T\_currentScene.T\_spaceshiplayersColor);

T\_linestrip({ {1622, 989},{1606, 980} }, T\_currentScene.T\_spaceshiplayersColor);

T\_linestrip({ {1624, 985},{1607, 975} }, T\_currentScene.T\_spaceshiplayersColor);

T\_linestrip({ {1767, 988},{1762, 977} }, T\_currentScene.T\_spaceshiplayersColor);

T\_linestrip({ {1766, 989},{1760, 978} }, T\_currentScene.T\_spaceshiplayersColor, -2);

T\_linestrip({ {1718, 997},{1718, 992},{1704, 979} }, T\_currentScene.T\_spaceshiplayersColor);

glPopMatrix();

}

void idle()

{

if (P1[0].first < 615) f1 = -1;

if (P1[0].first > 665) f1 = 1;

if (P1[1].first < 600) f2 = 1;

if (P1[1].first > 680) f2 = -1;

P1[0].first -= 0.5 \* f1;

P2[0].first -= 0.5 \* f1;

P1[1].first += 0.5 \* f2;

P2[1].first += 0.5 \* f2;

glutPostRedisplay();

}

void T\_riverflow(T\_Color T\_rivershade1Color = { 61, 109, 186 }, T\_Color T\_rivershade2Color = { 54,102,192 }, T\_Color T\_rivershade3Color = { 33, 59, 122 }, T\_Color T\_rivershade4Color = { 110,161,233 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(T\_movewatercurrentX, 0, 0);

// manual shades

//type 1

T\_polygon({ {1234, 403},{1402, 397},{1611, 413},{1414, 381} }, T\_currentScene.T\_rivershade1Color, -50);

T\_polygon({ {1234, 403},{1402, 397},{1611, 413},{1414, 381} }, T\_currentScene.T\_rivershade1Color, -150, 50);

T\_polygon({ {1234, 403},{1402, 397},{1611, 413},{1414, 381} }, T\_currentScene.T\_rivershade1Color, -270, 50);

//type 2

T\_polygon({ {1328, 326},{1593, 337},{1897, 319},{1407, 307} }, T\_currentScene.T\_rivershade1Color);

T\_polygon({ {1328, 326},{1593, 337},{1897, 319},{1407, 307} }, T\_currentScene.T\_rivershade1Color, -750);

//type 3

T\_polygon({ {568, 401},{829, 395},{1086, 410},{790, 374} }, T\_currentScene.T\_rivershade2Color);

T\_polygon({ {568, 401},{829, 395},{1086, 410},{790, 374} }, T\_currentScene.T\_rivershade2Color, -700, -50);

T\_polygon({ {568, 401},{829, 395},{1086, 410},{790, 374} }, T\_currentScene.T\_rivershade2Color, 100, -100);

T\_polygon({ {568, 401},{829, 395},{1086, 410},{790, 374} }, T\_currentScene.T\_rivershade2Color, -1200, -100);

//type 4

T\_polygon({ {633, 399},{895, 433},{1216, 417},{778, 399} }, T\_currentScene.T\_rivershade2Color, -500, 20);

T\_polygon({ {633, 399},{895, 433},{1216, 417},{778, 399} }, T\_currentScene.T\_rivershade2Color, 200, -180);

T\_polygon({ {633, 399},{895, 433},{1216, 417},{778, 399} }, T\_currentScene.T\_rivershade2Color, 800, -200);

T\_polygon({ {633, 399},{895, 433},{1216, 417},{778, 399} }, T\_currentScene.T\_rivershade2Color, -800, -150);

T\_polygon({ {633, 399},{895, 433},{1216, 417},{778, 399} }, T\_currentScene.T\_rivershade2Color, -1200, -150);

T\_polygon({ {633, 399},{895, 433},{1216, 417},{778, 399} }, T\_currentScene.T\_rivershade2Color, -1200, -40);

//type 5

T\_polygon({ {1248, 397},{1446, 388},{1676, 400},{1425, 399} }, T\_currentScene.T\_rivershade4Color, 0, 50);

T\_polygon({ {1248, 397},{1446, 388},{1676, 400},{1425, 399} }, T\_currentScene.T\_rivershade4Color, -700, 50);

T\_polygon({ {1248, 397},{1446, 388},{1676, 400},{1425, 399} }, T\_currentScene.T\_rivershade4Color, -1200, 20);

T\_polygon({ {1248, 397},{1446, 388},{1676, 400},{1425, 399} }, T\_currentScene.T\_rivershade4Color, -500, -10);

glPopMatrix();

}

void T\_stars(T\_Color T\_starsColor = { 255, 255, 255 })

{

T\_points2({ {1174, 970},{1348, 989},{1336, 945},{1435, 921},{1582, 927} }, T\_currentScene.T\_starsColor);

T\_points2({ {1174, 970},{1348, 989},{1336, 945},{1435, 921},{1582, 927} }, T\_currentScene.T\_starsColor, 400);

T\_points2({ {1174, 970},{1348, 989},{1336, 945},{1435, 921},{1582, 927} }, T\_currentScene.T\_starsColor, -200);

T\_points2({ {1174, 970},{1348, 989},{1336, 945},{1435, 921},{1582, 927} }, T\_currentScene.T\_starsColor, -600, -100);

T\_points2({ {1174, 970},{1348, 989},{1336, 945},{1435, 921},{1582, 927} }, T\_currentScene.T\_starsColor, -600, -150);

T\_points2({ {1174, 970},{1348, 989},{1336, 945},{1435, 921},{1582, 927} }, T\_currentScene.T\_starsColor, -1000, -150);

T\_points1({ {256, 1004},{349, 962},{279, 953},{283, 872},{406, 936},{406, 857},{370, 814},{341, 723},{321, 757},{584, 1021},{514, 983},{618, 970},{735, 962},{828, 893},{784, 1011},{915, 989},{932, 874},{835, 727},{780, 791},{854, 802},{990, 712},{918, 650},{765, 586},{1246, 561},{1374, 753},{1212, 893},{1306, 1030},{1369, 970},{1476, 913},{1480, 849},{1325, 870},{1240, 774},{1077, 1026},{1043, 942},{1204, 983},{1792, 761},{1779, 866},{1679, 810},{1603, 868},{1616, 893},{1537, 759},{1607, 744},{1514, 684},{1467, 537},{1376, 631},{1276, 667},{1249, 603},{1344, 535},{1823, 1011},{1872, 927},{1887, 1028},{1450, 1075} }, T\_currentScene.T\_starsColor, -150);

}

void T\_radar(T\_Color T\_radarbodyColor = { 178,15,17 }, T\_Color T\_radarColor = { 0, 255, 0 }, T\_Color T\_radaroutlinesColor = { 37,31,67 })

{

T\_linestrip({ {281, 657},{271, 648},{282, 636},{269, 627},{283, 615},{268, 606} }, T\_currentScene.T\_radarColor);

T\_linestrip({ {271, 655},{281, 648},{270, 638},{282, 626},{269, 615},{284, 606} }, T\_currentScene.T\_radarColor);

T\_linestrip({ {271, 575},{280, 575},{271, 565},{281, 564},{272, 555},{281, 555},{272, 545},{281, 544},{272, 535},{280, 534},{271, 524},{280, 524},{271, 514},{281, 514},{271, 506} }, T\_currentScene.T\_radarColor, 0, 20);

T\_linestrip({ {281, 575},{271, 575},{281, 565},{271, 565},{280, 555},{271, 555},{280, 545},{271, 545},{280, 535},{271, 535},{280, 525},{271, 525},{280, 514},{271, 514},{280, 506}, }, T\_currentScene.T\_radarColor, 0, 20);

T\_linestrip({ {267, 581},{271, 575},{265, 575},{270, 565},{264, 564},{271, 555},{263, 555},{271, 544},{261, 544},{271, 534},{261, 535},{270, 524},{259, 525},{270, 515},{258, 515},{265, 508} }, T\_currentScene.T\_radarColor, 0, 20);

T\_linestrip({ {256, 504},{271, 514},{259, 515},{269, 523},{259, 524},{269, 533},{260, 534},{270, 545},{261, 545},{272, 554},{263, 554},{271, 564},{264, 564},{271, 574},{265, 574},{272, 579} }, T\_currentScene.T\_radarColor, 0, 20);

T\_linestrip({ {282, 581},{287, 575},{281, 575},{288, 565},{282, 565},{289, 555},{281, 555},{290, 546},{282, 545},{291, 535},{282, 535},{293, 525},{281, 525},{294, 515},{282, 515},{296, 505} }, T\_currentScene.T\_radarColor, 0, 20);

T\_linestrip({ {282, 580},{287, 575},{281, 565},{288, 565},{283, 555},{290, 555},{282, 545},{290, 545},{282, 535},{292, 535},{282, 525},{294, 525},{283, 514},{295, 514},{281, 506} }, T\_currentScene.T\_radarColor, 0, 20);

T\_polygon({ {264, 490},{264, 450},{288, 450},{288, 490} }, T\_currentScene.T\_radarbodyColor, 0, 30);

T\_linestrip({ {264, 490},{264, 450},{288, 450},{288, 490} }, T\_currentScene.T\_radaroutlinesColor, 0, 30);

T\_polygon({ {276, 699},{274, 661},{278, 661} }, T\_currentScene.T\_radarbodyColor);

T\_linestrip({ {276, 699},{274, 661},{278, 661} }, T\_currentScene.T\_radaroutlinesColor);

T\_polygon({ {275, 656},{275, 607},{277, 607},{277, 656} }, T\_currentScene.T\_radarbodyColor);

T\_linestrip({ {275, 656},{275, 607},{277, 607},{277, 656} }, T\_currentScene.T\_radaroutlinesColor);

T\_polygon({ {257, 602},{262, 593},{265, 592},{286, 592},{290, 593},{294, 604},{288, 607},{266, 607} }, T\_currentScene.T\_radarbodyColor);

T\_linestrip({ {257, 602},{262, 593},{265, 592},{286, 592},{290, 593},{294, 604},{288, 607},{266, 607} }, T\_currentScene.T\_radaroutlinesColor);

T\_polygon({ {244, 506},{248, 490},{303, 490},{308, 507},{301, 508},{251, 508} }, T\_currentScene.T\_radarbodyColor, 0, 20);

T\_linestrip({ {244, 506},{248, 490},{303, 490},{308, 507},{301, 508},{251, 508} }, T\_currentScene.T\_radaroutlinesColor, 0, 20);

T\_polygon({ {268, 660},{268, 657},{282, 657},{282, 660} }, T\_currentScene.T\_radarbodyColor);

T\_linestrip({ {268, 660},{268, 657},{282, 657},{282, 660} }, T\_currentScene.T\_radaroutlinesColor);

T\_linestrip({ {281, 657},{271, 648},{282, 636},{269, 627},{283, 615},{268, 606} }, T\_currentScene.T\_radarColor, 1200);

T\_linestrip({ {271, 655},{281, 648},{270, 638},{282, 626},{269, 615},{284, 606} }, T\_currentScene.T\_radarColor, 1200);

T\_linestrip({ {271, 575},{280, 575},{271, 565},{281, 564},{272, 555},{281, 555},{272, 545},{281, 544},{272, 535},{280, 534},{271, 524},{280, 524},{271, 514},{281, 514},{271, 506} }, T\_currentScene.T\_radarColor, 1200, 20);

T\_linestrip({ {281, 575},{271, 575},{281, 565},{271, 565},{280, 555},{271, 555},{280, 545},{271, 545},{280, 535},{271, 535},{280, 525},{271, 525},{280, 514},{271, 514},{280, 506}, }, T\_currentScene.T\_radarColor, 1200, 20);

T\_linestrip({ {267, 581},{271, 575},{265, 575},{270, 565},{264, 564},{271, 555},{263, 555},{271, 544},{261, 544},{271, 534},{261, 535},{270, 524},{259, 525},{270, 515},{258, 515},{265, 508} }, T\_currentScene.T\_radarColor, 1200, 20);

T\_linestrip({ {256, 504},{271, 514},{259, 515},{269, 523},{259, 524},{269, 533},{260, 534},{270, 545},{261, 545},{272, 554},{263, 554},{271, 564},{264, 564},{271, 574},{265, 574},{272, 579} }, T\_currentScene.T\_radarColor, 1200, 20);

T\_linestrip({ {282, 581},{287, 575},{281, 575},{288, 565},{282, 565},{289, 555},{281, 555},{290, 546},{282, 545},{291, 535},{282, 535},{293, 525},{281, 525},{294, 515},{282, 515},{296, 505} }, T\_currentScene.T\_radarColor, 1200, 20);

T\_linestrip({ {282, 580},{287, 575},{281, 565},{288, 565},{283, 555},{290, 555},{282, 545},{290, 545},{282, 535},{292, 535},{282, 525},{294, 525},{283, 514},{295, 514},{281, 506} }, T\_currentScene.T\_radarColor, 1200, 20);

T\_polygon({ {264, 490},{264, 450},{288, 450},{288, 490} }, T\_currentScene.T\_radarbodyColor, 1200, 30);

T\_linestrip({ {264, 490},{264, 450},{288, 450},{288, 490} }, T\_currentScene.T\_radaroutlinesColor, 1200, 30);

T\_polygon({ {276, 699},{274, 661},{278, 661} }, T\_currentScene.T\_radarbodyColor, 1200);

T\_linestrip({ {276, 699},{274, 661},{278, 661} }, T\_currentScene.T\_radaroutlinesColor, 1200);

T\_polygon({ {275, 656},{275, 607},{277, 607},{277, 656} }, T\_currentScene.T\_radarbodyColor, 1200);

T\_linestrip({ {275, 656},{275, 607},{277, 607},{277, 656} }, T\_currentScene.T\_radaroutlinesColor, 1200);

T\_polygon({ {257, 602},{262, 593},{265, 592},{286, 592},{290, 593},{294, 604},{288, 607},{266, 607} }, T\_currentScene.T\_radarbodyColor, 1200);

T\_linestrip({ {257, 602},{262, 593},{265, 592},{286, 592},{290, 593},{294, 604},{288, 607},{266, 607} }, T\_currentScene.T\_radaroutlinesColor, 1200);

T\_polygon({ {244, 506},{248, 490},{303, 490},{308, 507},{301, 508},{251, 508} }, T\_currentScene.T\_radarbodyColor, 1200, 20);

T\_linestrip({ {244, 506},{248, 490},{303, 490},{308, 507},{301, 508},{251, 508} }, T\_currentScene.T\_radaroutlinesColor, 1200, 20);

T\_polygon({ {268, 660},{268, 657},{282, 657},{282, 660} }, T\_currentScene.T\_radarbodyColor, 1200, 0);

T\_linestrip({ {268, 660},{268, 657},{282, 657},{282, 660} }, T\_currentScene.T\_radaroutlinesColor, 1200, 0);

}

void T\_transmitter(T\_Color T\_transmitterbodyColor = { 171, 178, 185 }, T\_Color T\_transmitteroutlinesColor = { 0, 0, 0 })

{

T\_polygon({ {771, 243},{771, 229},{830, 229},{830, 243} }, T\_currentScene.T\_transmitterbodyColor);

T\_linestrip({ {771, 243},{771, 229},{830, 229},{830, 243} }, T\_currentScene.T\_transmitteroutlinesColor);

T\_polygon({ {761, 252},{761, 247},{773, 239},{828, 239},{839, 247},{839, 252} }, T\_currentScene.T\_transmitterbodyColor);

T\_linestrip({ {761, 252},{761, 247},{773, 239},{828, 239},{839, 247},{839, 252} }, T\_currentScene.T\_transmitteroutlinesColor);

T\_polygon({ {795, 347},{795, 265},{805, 265},{805, 347} }, T\_currentScene.T\_transmitterbodyColor);

T\_linestrip({ {795, 347},{795, 265},{805, 265},{805, 347} }, T\_currentScene.T\_transmitteroutlinesColor);

T\_polygon({ {797, 281},{792, 275},{791, 250},{810, 250},{809, 275},{803, 281} }, T\_currentScene.T\_transmitterbodyColor);

T\_linestrip({ {797, 281},{792, 275},{791, 250},{810, 250},{809, 275},{803, 281} }, T\_currentScene.T\_transmitteroutlinesColor);

T\_polygon({ {791, 362},{791, 348},{793, 344},{793, 327},{808, 327},{808, 344},{810, 348},{810, 362} }, T\_currentScene.T\_transmitterbodyColor);

T\_linestrip({ {791, 362},{791, 348},{793, 344},{793, 327},{808, 327},{808, 344},{810, 348},{810, 362} }, T\_currentScene.T\_transmitteroutlinesColor);

T\_polygon({ {784, 381},{784, 308},{786, 298},{788, 308},{788, 381} }, T\_currentScene.T\_transmitterbodyColor);

T\_linestrip({ {784, 381},{784, 308},{786, 298},{788, 308},{788, 381} }, T\_currentScene.T\_transmitteroutlinesColor);

T\_polygon({ {784, 381},{784, 308},{786, 298},{788, 308},{788, 381} }, T\_currentScene.T\_transmitterbodyColor, 30);

T\_linestrip({ {784, 381},{784, 308},{786, 298},{788, 308},{788, 381} }, T\_currentScene.T\_transmitteroutlinesColor, 30);

}

void T\_transmittersignal(T\_Color T\_transmittersignalColor = { 255, 255, 255 }, T\_Color T\_transmitantennaColor = { 255, 0, 0 }, T\_Color T\_steelbodyColor = { 166, 172, 175 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(800, 382, 0);

glRotatef(T\_blinkAngle, 0, 0, 1);

glTranslatef(-800, -382, 0);

T\_halfcircle(50, 800, 382);

T\_halfcircleBorder(50, 800, 382);

T\_polygon({ {798, 379},{798, 345},{801, 345},{801, 379} }, T\_currentScene.T\_transmitantennaColor);

T\_fullcircle(10, 801, 380);

//lines

T\_linestrip({ {752, 380},{800, 345} }, T\_currentScene.T\_transmitantennaColor);

T\_linestrip({ {782, 381},{798, 345} }, T\_currentScene.T\_transmitantennaColor);

T\_linestrip({ {848, 382},{805, 345} }, T\_currentScene.T\_transmitantennaColor, -2);

T\_linestrip({ {823, 382},{803, 345} }, T\_currentScene.T\_transmitantennaColor, -3);

T\_linestrip({ {797, 349},{806, 345},{797, 341},{806, 336},{797, 332},{806, 328},{801, 326} }, T\_currentScene.T\_transmitantennaColor);

T\_linestrip({ {805, 348},{797, 343},{806, 339},{797, 335},{805, 331},{797, 328},{801, 325} }, T\_currentScene.T\_transmitantennaColor);

T\_polygon({ {728, 387},{750, 392},{776, 396},{801, 396},{826, 396},{852, 394},{871, 389} }, T\_currentScene.T\_steelbodyColor, 0, -10);

T\_linestrip({ {751, 395},{789, 402},{822, 402},{849, 397} }, T\_currentScene.T\_steelbodyColor, 0, -8);

T\_linestrip({ {751, 395},{789, 402},{822, 402},{849, 397} }, T\_currentScene.T\_steelbodyColor, 0, -10);

T\_linestrip({ {761, 402},{789, 406},{817, 405},{841, 403} }, T\_currentScene.T\_steelbodyColor);

T\_linestrip({ {761, 402},{789, 406},{817, 405},{841, 403} }, T\_currentScene.T\_steelbodyColor, 0, 10);

glPopMatrix();

}

void T\_walle(T\_Color T\_wallebodyColor = { 168,159,150 }, T\_Color T\_walleshadowColor = { 82,63,68 }, T\_Color T\_solarpanelColor = { 130,167,210 }, T\_Color T\_walleoutlinesColor = { 0, 0, 0 })

{

glMatrixMode(GL\_MODELVIEW);

glPushMatrix();

glTranslatef(T\_movewalleX, 0, 0);

glTranslatef(-1200, 0, 0);

T\_polygon({ {1011, 552},{1009, 549},{1009, 537},{1011, 534},{1121, 534},{1117, 552},{1111, 553} }, T\_currentScene.T\_wallebodyColor, 0, -25);

T\_linestrip({ {1011, 552},{1009, 549},{1009, 537},{1011, 534},{1121, 534},{1117, 552},{1111, 553} }, T\_currentScene.T\_walleshadowColor, 0, -25);

T\_polygon({ {1056, 572},{1055, 554},{1050, 554},{1050, 550},{1080, 550},{1080, 554},{1077, 554},{1070, 572} }, T\_currentScene.T\_walleshadowColor, 0, -25);

T\_linestrip({ {1056, 572},{1055, 554},{1050, 554},{1050, 550},{1080, 550},{1080, 554},{1077, 554},{1070, 572} }, T\_currentScene.T\_walleoutlinesColor, 0, -25);

T\_polygon({ {1058, 593},{1058, 587},{1059, 574},{1064, 574},{1064, 587},{1064, 593} }, T\_currentScene.T\_walleshadowColor, 0, -30);

T\_polygon({ {1046, 578},{1044, 553},{1049, 553} }, T\_currentScene.T\_walleshadowColor, -2, -25);

T\_polygon({ {1046, 578},{1044, 553},{1049, 553} }, T\_currentScene.T\_walleshadowColor, -30, -25);

T\_polygon({ {1018, 580},{998, 554},{1034, 554},{1054, 580} }, T\_currentScene.T\_solarpanelColor, 0, -25);

T\_linestrip({ {1018, 580},{998, 554},{1034, 554},{1054, 580} }, T\_currentScene.T\_walleshadowColor, 0, -25);

T\_polygon({ {1088, 575},{1088, 553},{1112, 553} }, T\_currentScene.T\_wallebodyColor, 0, -25);

T\_linestrip({ {1088, 575},{1088, 553},{1112, 553} }, T\_currentScene.T\_walleshadowColor, 0, -25);

T\_polygon({ {1087, 575},{1088, 570},{1110, 570},{1109, 575} }, T\_currentScene.T\_wallebodyColor, 0, -25);

T\_linestrip({ {1087, 575},{1088, 570},{1110, 570},{1109, 575} }, T\_currentScene.T\_walleshadowColor, 0, -25);

T\_polygon({ {1101, 582},{1100, 573},{1101, 566},{1139, 566},{1142, 573},{1138, 582} }, T\_currentScene.T\_walleshadowColor, 0, -25);

T\_polygon({ {1106, 550},{1109, 536},{1119, 536},{1116, 550} }, T\_currentScene.T\_walleshadowColor, 0, -25);

T\_linestrip({ {999, 520},{1024, 519},{1027, 532},{1046, 532},{1052, 519},{1077, 519},{1083, 531},{1102, 532},{1106, 519},{1118, 519} }, T\_walleshadowColor, 0, -25);

T\_linestrip({ {1025, 519},{1048, 519},{1054, 531},{1076, 531},{1081, 519},{1095, 519} }, T\_currentScene.T\_walleshadowColor, 0, -25);

T\_fullcircle(5, 1088, 548, T\_currentScene.T\_walleshadowColor);

T\_fullcircle(2, 1088, 548, T\_currentScene.T\_wallebodyColor);

// hook

T\_polygon({ {1111, 549},{1114, 538},{1120, 540},{1142, 538},{1144, 542} }, T\_currentScene.T\_wallebodyColor, 0, -25);

// joint bolts

T\_fullcircle(5, 1146, 514, T\_currentScene.T\_wallebodyColor);

T\_polygon({ {1150, 538},{1160, 564},{1147, 542} }, T\_currentScene.T\_wallebodyColor, 0, -25);

// puller

T\_fullcircle(10, 1163, 539, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(7, 1167, 539, T\_currentScene.T\_walleshadowColor);

//tires

T\_fullcircle(13, 1006, 490, T\_currentScene.T\_walleshadowColor);

T\_fullcircleBorder(13, 1006, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(8, 1006, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(13, 1035, 490, T\_currentScene.T\_walleshadowColor);

T\_fullcircleBorder(13, 1035, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(8, 1035, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(13, 1064, 490, T\_currentScene.T\_walleshadowColor);

T\_fullcircleBorder(13, 1064, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(8, 1064, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(13, 1093, 490, T\_currentScene.T\_walleshadowColor);

T\_fullcircleBorder(13, 1093, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(8, 1093, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(13, 1122, 490, T\_currentScene.T\_walleshadowColor);

T\_fullcircleBorder(13, 1122, 490, T\_currentScene.T\_wallebodyColor);

T\_fullcircle(8, 1122, 490, T\_currentScene.T\_wallebodyColor);

//eyes

T\_blinkingWalleEyes(1116, 548, T\_currentScene.T\_wallebodyColor);

T\_blinkingWalleEyes(1131, 548, T\_currentScene.T\_wallebodyColor);

//solar panel

T\_linestrip({ {1023, 580},{1006, 555} }, T\_currentScene.T\_walleoutlinesColor, 0, -26);

T\_linestrip({ {1023, 580},{1006, 555} }, T\_currentScene.T\_walleoutlinesColor, 10, -26);

T\_linestrip({ {1023, 580},{1006, 555} }, T\_currentScene.T\_walleoutlinesColor, 20, -26);

T\_linestrip({ {1023, 580},{1006, 555} }, T\_currentScene.T\_walleoutlinesColor, 30, -26);

T\_linestrip({ {1014, 575},{1049, 575} }, T\_currentScene.T\_walleoutlinesColor, 0, -26);

T\_linestrip({ {1014, 575},{1049, 575} }, T\_currentScene.T\_walleoutlinesColor, -8, -34);

T\_linestrip({ {1014, 575},{1049, 575} }, T\_currentScene.T\_walleoutlinesColor, -16, -44);

glPopMatrix();

}

void T\_keyboard(unsigned char key, int x, int y)

{

switch (key)

{

case 'd':

T\_currentScene = arr[0];

glutPostRedisplay();

break;

case 'n':

T\_currentScene = arr[1];

glutPostRedisplay();

break;

}

}

void T\_display() {

glClearColor(1, 1, 1, 1.0f);

glClear(GL\_COLOR\_BUFFER\_BIT);

T\_sky();

T\_stars();

T\_externalplanet();

T\_towerbridge();

T\_tower();

T\_rocket();

T\_river();

T\_riverflow();

T\_boat1();

T\_land();

T\_darkrocks();

T\_lightrocks();

T\_Fire(P1, P2);

idle();

T\_specialstoneholder();

T\_radar();

T\_walle();

T\_researchHub2();

T\_researchHub1();

T\_researchHub3();

T\_rover();

T\_researchHub4();

T\_spaceship();

T\_transmitter();

T\_transmittersignal();

T\_blinkingCircle(275, 706);

T\_blinkingCircle(1476, 706);

glFlush(); // Render now

glutSwapBuffers();

}

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

glutInit(&argc, argv);

glutInitWindowSize(1920, 1080);

glutInitWindowPosition(0, 0);

glutCreateWindow("Lunaris");

glutKeyboardFunc(T\_keyboard);

//this line must be below of glutCreateWindow();

gluOrtho2D(0, 1920, 0, 1080);

glutDisplayFunc(T\_display);

glutTimerFunc(20, T\_animateRocket, 0);

glutTimerFunc(20, T\_animatePlanets, 0);

glutTimerFunc(20, T\_animateRoverLeft, 0);

glutTimerFunc(20, T\_animateBoatLeft, 0);

glutTimerFunc(20, T\_animateSpaceshipLeft, 0);

glutTimerFunc(20, T\_animateWaterCurrentRight, 0);

glutTimerFunc(20, T\_animateBlinkCircle, 0);

glutTimerFunc(20, T\_animateWalleRight, 0);

glutMainLoop();

return 0;

}