#include<stdio.h>

#include<stdlib.h>

#include<math.h>

#include<time.h>

#include<string.h>

#include<eggx.h>

#define SND\_REF "ping.wav"

/\* 音声ファイルの再生 \*/

void PlaySound(char \*file)

{

static char cmd[256];

if (strlen(file) > 200) return; // バッファオーバーフロー防止

sprintf(cmd, "play %s &> /dev/null &", file);

system(cmd);

}

int main(){

int win , mouse\_btn , mouse\_type , x , y , count , clear;

double bar\_x , bar\_y , bar\_width , mouse\_x , mouse\_y , ball\_x , ball\_y , ball\_vx , ball\_vy , hanekaeri\_theta , timer;

int block[10][10] = {{1,1,1,1,1,1,1,1,1,1},

{3,3,3,3,3,3,3,3,3,3},

{2,2,2,2,2,2,2,2,2,2},

{1,1,1,0,0,0,0,1,1,1},

{3,3,3,0,0,0,0,3,3,3},

{2,2,2,2,0,0,2,2,2,2},

{1,1,1,1,1,1,1,1,1,1},

{3,3,3,3,3,3,3,3,3,3},

{2,2,2,2,2,2,2,2,2,2},

{1,1,1,1,1,1,1,1,1,1}};

//各種初期化

win=gopen(640,480);

winname(win,"Break the Block!!");

layer(win,0,1);

srand((unsigned)time(NULL));

newrgbcolor(win,255,255,255);

clear=0;

bar\_x = 320;

bar\_y = 50;

bar\_width = 80;

ball\_x = 320;

ball\_y = 100;

ball\_vx = 0.2;

ball\_vy = -0.5;

gclr(win);

drawstr(win,300,240,24,0,"READY?");

copylayer(win,1,0);

ggetch();

gsetnonblock(ENABLE);

while(1){

gclr(win);

if(win == ggetevent(&mouse\_type , &mouse\_btn , &mouse\_x , &mouse\_y)){

if(mouse\_type == MotionNotify){

bar\_x = mouse\_x;

}

}

count=0;

//ブロック表示

for(y=0;y<10;y++){

for(x=0;x<10;x++){

if(block[y][x] == 1){

newrgbcolor(win,255,0,0);

fillrect(win,20+60\*x+1,460-20\*(y+1)+1,58,18);

count++;

}

if(block[y][x] == 2){

newrgbcolor(win,0,255,0);

fillrect(win,20+60\*x+1,460-20\*(y+1)+1,58,18);

count++;

}

if(block[y][x] == 3){

newrgbcolor(win,0,0,255);

fillrect(win,20+60\*x+1,460-20\*(y+1)+1,58,18);

count++;

}

}

}

newrgbcolor(win,255,255,255);

//バー表示

fillrect(win,bar\_x-bar\_width/2,bar\_y-5,bar\_width,10);

//ボール表示

fillcirc(win,ball\_x,ball\_y,3,3);

//ブロック当たり判定(下から)

for(y=0;y<10;y++){

for(x=0;x<10;x++){

if((block[y][x] == 1 || block[y][x] == 2 || block[y][x] == 3) && (ball\_x >= 20+60\*x+1 && ball\_x <= 20+60\*x+1+58) && (ball\_y+4 >= 460-20\*(y+1)+1 && ball\_y+4 <= 460-20\*(y+1)+1+18) && ball\_vy > 0){

block[y][x] = 0;

ball\_vy = ball\_vy \* (-1);

}

}

}

//ブロック当たり判定(上から)

for(y=0;y<10;y++){

for(x=0;x<10;x++){

if((block[y][x] == 1 || block[y][x] == 2 || block[y][x] == 3) && (ball\_x >= 20+60\*x+1 && ball\_x <= 20+60\*x+1+58) && (ball\_y-4 <= 460-20\*(y+1)+1+18 && ball\_y-4 >= 460-20\*(y+1)+1) && ball\_vy < 0){

block[y][x] = 0;

ball\_vy = ball\_vy \* (-1);

}

}

}

//ブロック当たり判定(左から)

for(y=0;y<10;y++){

for(x=0;x<10;x++){

if((block[y][x] == 1 || block[y][x] == 2 || block[y][x] == 3) && (ball\_x+4 >= 20+60\*x+1 && ball\_x+4 <= 20+60\*x+1+58) && (ball\_y >= 460-20\*(y+1)+1 && ball\_y <= 460-20\*(y+1)+1+18) && ball\_vx > 0){

block[y][x] = 0;

ball\_vx = ball\_vx \* (-1);

}

}

}

//ブロック当たり判定(右から)

for(y=0;y<10;y++){

for(x=0;x<10;x++){

if((block[y][x] == 1 || block[y][x] == 2 || block[y][x] == 3) && (ball\_x-4 >= 20+60\*x+1 && ball\_x-4 <= 20+60\*x+1+58) && (ball\_y >= 460-20\*(y+1)+1 && ball\_y <= 460-20\*(y+1)+1+18) && ball\_vx < 0){

block[y][x] = 0;

ball\_vx = ball\_vx \* (-1);

}

}

}

//上壁当たり判定

if(ball\_y+4 > 479){

ball\_vy = ball\_vy \* (-1);

}

//下壁当たり判定

if(ball\_y-4 < 0){

break;

}

//右壁当たり判定

if(ball\_x+4 > 639){

ball\_vx = ball\_vx \* (-1);

}

//左壁当たり判定

if(ball\_x-4 < 0){

ball\_vx = ball\_vx \* (-1);

}

//バー当たり判定

if(ball\_y-4 < bar\_y+5 && ball\_y-4 > bar\_y-5){

if(ball\_x > bar\_x-bar\_width/2 && ball\_x < bar\_x+bar\_width/2){

PlaySound(SND\_REF);

hanekaeri\_theta = atan( ball\_vx / (ball\_vy \* (-1))) + (3.14159 / 24 \* ( rand() % 13 - 6) / 6.0);

ball\_vx = sin(hanekaeri\_theta) \* sqrt(ball\_vx \* ball\_vx + ball\_vy \* ball\_vy);

ball\_vy = cos(hanekaeri\_theta) \* sqrt(ball\_vx \* ball\_vx + ball\_vy \* ball\_vy);

ball\_y = 59;

}

}

ball\_x = ball\_x + ball\_vx;

ball\_y = ball\_y + ball\_vy;

//クリア判定

if(count==0){

clear=1;

break;

}

for(timer=0 ; timer<100000 ; timer=timer+0.1){}

copylayer(win,1,0);

}

gclr(win);

if(clear==1){

drawstr(win,300,240,24,0,"CLEAR!!");

}

else{

drawstr(win,270,240,24,0,"GAME OVER!!");

}

copylayer(win,1,0);

gsetnonblock(DISABLE);

ggetch();

gclose(win);

exit(0);

}