PROJETO GAME-THE SCAPIST

Jaqueline Cristina da Rosa
Bacharelado em Ciências e Tecnologia
Universidade Federal de Santa Catarina
jaqueline$_{r}osa06@hotmail.com$

Pedro Lucas Sousa Gonçalves
Engenharia Ferroviária e Metroviária
Universidade Federal de Santa Catarina
pedrolucas.2713.sg@gmail.com

I. Introdução

A linguagem utilizada para a programação do jogo foi C, sendo utilizado o linux para a implementação do código.O jogo consiste em um labirinto de três fases. O objetivo do jogo é passar as três fases no menor tempo possível, e sem tocar no inimigo que se move de forma pseudo aleatória. O jogo não possui interface gráfica,apenas caracteres/símbolos no terminal,a cada movimento do personagem é emitido um beep. No fim da terceira fase o tempo é imprimido na tela indicando os segundos que passaram para percorrer as três fases.

II. Metodologia

Para jogar é utilizado apenas o teclado, sendo a movimentação da seguinte forma: 'w' :movimento para cima, 's': movimento para baixo, 'd': movimento para direita e 'a': movimento para esquerda. A tecla 'x' é utilizada para sair do jogo, já a tecla 'r' para reiniciar.

III. Codificação estruturada

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
#include <string.h>
#include <unistd.h>

int i= 1;
int j= 0;
int x=18;
int y=12;
int mapa[20][16];
char fase=1;
time_t seconds;
time_t actual;

int mapa1[20][16] = {
{1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,1,1,1},
{1,0,0,0,0,0,0,1,1,0,0,0,0,1,1,1},
{1,0,0,0,0,0,0,1,1,0,0,0,0,1,1,1},
{1,0,0,0,0,0,0,1,1,0,0,0,0,1,1,1},
{1,0,0,0,0,0,0,1,1,0,0,0,0,1,1,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,1,1},
{1,1,1,1,1,1,1,1,1,1,1,1,1,0,1,1},
{1,1,1,1,1,1,1,1,1,1,1,1,1,1,0,1,1},
{1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,1,1},
{1,1,0,1,1,1,1,0,1,1,1,1,1,1,1,1,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,1},
{1,0,1,1,1,1,1,0,1,1,1,1,1,0,1,1},
{1,0,1,1,1,1,1,0,0,1,1,1,1,0,1,1},
{1,0,0,1,1,1,1,1,0,1,1,1,1,0,1,1},
{1,0,0,1,1,1,1,1,0,0,0,0,0,0,1,1},
{1,1,0,1,1,1,1,1,1,1,1,1,0,1,1,1},
{1,0,0,0,0,0,0,0,1,1,1,1,0,1,1,1},
{1,1,1,1,1,1,1,1,0,0,0,0,0,0,2,1},
{1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1}

 };
int mapa2[20][18] = {
{1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,1,1,1,1,1},
{1,0,0,0,1,1,0,0,0,0,0,0,0,1,1,1,1,1},
{1,0,0,0,1,1,0,0,0,0,0,0,0,1,1,1,1,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1},
{1,1,1,1,1,1,1,0,1,1,1,1,1,1,1,1,0,1},
{1,1,1,1,1,1,1,0,1,1,1,1,1,1,1,1,0,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1},
{1,0,1,1,1,1,1,1,1,1,1,1,0,1,1,0,1},
{1,0,1,1,1,1,1,1,1,1,1,1,0,1,1,0,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1},
{1,1,0,1,1,1,1,1,1,1,0,1,1,1,0,1,1},
{1,1,0,1,1,1,1,1,1,1,0,1,1,1,0,1,1},
{1,0,0,0,0,0,0,0,0,0,1,1,1,0,1,1},
{1,0,1,1,1,1,1,0,1,1,1,1,1,1,0,1,1},
{1,0,1,1,1,1,1,0,1,1,1,1,1,1,0,1,1},
{1,0,1,1,1,1,1,0,0,0,0,0,0,0,1,1},
{1,0,1,1,1,1,1,0,1,1,0,1,1,1,1,1,1},
{1,0,0,0,0,0,0,1,1,0,0,0,0,0,2,1},
```

Use footnote for providing further information about author (webpage, alternative address)—*not* for acknowledging funding agencies.

```
{1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1}
 };
 int mapa3[20][16] = {
{1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1},
{1,1,1,1,1,1,0,1,1,1,1,1,1,1,0,1},
{1,1,1,1,1,1,0,1,1,1,1,1,1,1,0,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1},
{1,0,1,1,1,1,1,1,0,1,1,1,1,1,0,1},
{1,0,0,0,0,0,0,0,0,1,1,1,1,1,0,1},
{1,1,1,0,1,1,1,1,1,1,1,1,1,1,0,1},
{1,1,1,0,1,1,1,1,1,1,1,1,1,1,0,1},
{1,1,1,0,1,1,1,1,1,1,1,1,1,1,0,1},
{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1},
{1,0,1,1,1,1,1,1,1,1,1,1,1,1,0,1},
{1,0,0,0,0,0,0,0,0,1,1,1,1,1,0,1},
{1,1,1,0,1,1,1,1,0,0,0,0,0,0,0,1},
{1,1,1,0,0,0,1,1,0,1,1,1,1,1,1,1},
{1,1,1,1,1,0,1,1,0,1,1,1,1,1,1,1},
{1,1,1,1,1,0,0,0,0,0,0,0,0,0,2,1},
{1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1}
 };

void labirinto()
 {
   int linha,coluna;

if(fase==1){
for (linha=0;linha<20;linha++) {
for (coluna=0;coluna<16;coluna++) {
 mapa[linha][coluna]=mapa1[linha][coluna];
    }
    }
}
if(fase==2){
for (linha=0;linha<20;linha++) {
for (coluna=0;coluna<16;coluna++) {
mapa[linha][coluna]=mapa2[linha][coluna];
           }
         }
       }
if (fase==3){
for (linha=0;linha<20;linha++) {
for (coluna=0;coluna<16;coluna++) {
mapa[linha][coluna]=mapa3[linha][coluna];
            }
          }
       }
for (linha=0;linha<20;linha++) {
for (coluna=0;coluna<16;coluna++) {
if ((linha == i) && (coluna == j)) {
printf("\033[1;35m");
printf("^");
printf("\033[0m");
continue;
    }
if ((linha == x) && (coluna == y)) {
printf("\033[1;35m");
printf("");
printf("\033[0m");
continue;
 }
if (mapa[linha][coluna] == 0)
printf(" ");
if (mapa[linha][coluna] == 1)
{printf("\033[1;31m");
printf("");
printf("\033[0m");}

if (mapa[linha][coluna] == 2)
{printf("\033[1;32m");
printf("");
printf("\033[0m");}
 }
printf("\n");
         }
    }
int move_enemy(){
char movimentoE= rand()%4;
if(movimentoE==0){
if(mapa[x-1][y]==0){
mapa[x][y]=0;
x=x-1;
}else if ((mapa[x-1][y]==1)||(mapa[x-1][y]==2)){

}
}
if(movimentoE==1){
if(mapa[x+1][y]==0){
 mapa[x][y]=0;
x=x+1;
}else if ((mapa[x+1][y]==1)||(mapa[x+1][y]==2)){
            }
    }
 if(movimentoE==2){
 if(mapa[x][y-1]==0){
    mapa[x][y]=0;
    y=y-1;
 }else if ((mapa[x][y-1]==1)||(mapa[x][y-1]==2)){
  }
 }
 if(movimentoE==3){
    if(mapa[x][y+1]==0){
     mapa[x][y]=0;
        y=y+1;
        }else if (mapa[x][y+1]==1){}
         else if (mapa[x][y+1]==2){}
    }
     if(i == x && j == y){
     system("clear");
     char debug; i=1;j=0;x=1;y=2;
     fase = 1;
     while(debug != 'r'){
     scanf("%c",&debug);
```

```
     system("clear");
     printf("FIM DE JOGO");
       exit(0);} }
}


int move(char movimento)
{if (movimento == 'w') {
if (mapa[i-1][j]==0){
system("\abeep");
mapa[i][j]=0;
i = i-1;

 }else if (mapa[i-1][j]==1){
     }
else if (mapa[i-1][j]==2){
return 1;
     }
}
if (movimento == 's')  {
if (mapa[i+1][j]==0){
system("\abeep");
mapa[i][j]=0;
i= i+1;
}else if(mapa[i+1][j]==1){
}else if(mapa[i+1][j]==2){
 return 1;
 }
 }
if (movimento == 'd') {
 if(mapa[i][j+1]==0){
system("\abeep");
mapa[i][j]=0;
j=j+1;
}else if(mapa[i][j+1]==1){
}else if (mapa[i][j+1]==2){
return 1;
 }
 }
if (movimento == 'a') {
if(mapa[i][j-1]==0){
system("\abeep");
 mapa[i][j]=0;
 j=j-1;
 }else if (mapa[i][j-1]==1){

}else if(mapa[i][j-1]==2){
system("clear");

 return 1;
        }
 }
    if(i == x && j == y){
    system("clear");
    char debug;
    i=1;j=0;x=18;y=12;
    fase = 1;
    while(debug != 'r'){
    scanf("%c",&debug);
    system("clear");    if(debug == 'x')
    printf("FIM DE JOGO");
    exit(0);}seconds = time(NULL); }
return 0;

}




void imprime_inicio()

{
system("clear");
printf("
printf("   ###############  ###          ###  ######
printf("   ###############  ###          ###  ######
printf("         ###        ###          ###  ###
printf("         ###        ###############  ######
printf("         ###        ###############  ######
printf("\033[1;35m");
printf("         ###        ###          ###  ###
printf("\033[0;36m");
printf("         ###        ###          ###  ###
printf("\033[1;32m");
printf("         ###        ###          ###  ######
printf("\033[0;31m");
printf("         ###        ###          ###  ######
printf("
printf("   ###############  ###############  ######
printf("\033[0;32m");
printf("   ###############  ###############  ######
printf("\033[0;33m");
printf("   ###              ###              ###
printf("\033[0;34m");
printf("   ###############  ###              ######
printf("\033[0;35m");
printf("   ###############  ###              ######
printf("                ###  ###              ###
printf("\033[0;31m");
printf("                ###  ###              ###
printf("\033[1;35m");
printf("   ###############  ###############  ###
printf("\033[0;36m");
printf("   ###############  ###############  ###
printf("\033[0;31m");
printf("

}

int timer()
{
actual = time(NULL);
int now = (int)difftime(actual,seconds);
return now;
```

```
}
    int main(){
    char movimento;
    seconds = time(NULL);
    imprime_inicio();
    while (1){
    system("clear");
    printf("\t      Time:%d\n", timer());
    move_enemy();//
    labirinto();
    printf("\n Aperte (x) para sair do Jogo");
    scanf("%c", &movimento);
    if(movimento=='x') break;
         else if(move(movimento) == 1){
          fase+=1;
          i=1;
          j=0;
   if(fase>3){
   printf("tempo:%d segundos", timer());
      break;
}
      }
    }

    return(0);
}
```

IV. Conclusão

A utilização de recursos da programação nos permite, criar de programas simples a jogos complexos,além de nos ajudar a realizar nossos trabalhos de forma mais rápida e eficiente. A partir desse projeto foi possivel aprender na prática toda a teoria passada durante as aulas de Programação I, e a buscar conhecimentos além do que nos foi imposto.