

BAB IV

IMPLEMENTASI DAN PEMBAHASAN

4.1 Implementasi

4.1.1 Spesifikasi Implementasi

Berikut adalah list hardware dan software yang dipergunakan selama implementasi :

a) Hardware

- Prosesor Intel Core i3-2330M @2.20Ghz
- Memori 4096 MB
- VGA NVIDIA GeForce GT 520M 1GB
- Hardisk 500 GB

b) Software

- Sistem Operasi Windows 7
- Game Maker Studio 1.4
- Adobe Photoshop Professional CS6
- Corel Draw X4

4.2 Langkah – langkah Pembuatan Program

Adapun langkah – langkah di dalam pembuatan program adalah sebagai berikut :

1. Membuat Karakter dengan Corel Draw X4.
2. Membuat jalan cerita atau *storyboard*.
3. Mengimport segala file yang dibutuhkan untuk pembuatan game pada Game Maker Studio seperti gambar dan suara.
4. Menyusun gambar, tulisan, suara, pada game.
5. Coding game.
6. Testing program.

4.3 Layout dan Segmen Program

4.3.1 Menu Utama



Gambar 4,1 Tampilan Menu Awal

Pada halaman menu utama terdapat tiga pilihan menu yang dapat dipilih pemain antara lain menu mulai game untuk memulai permainan, *high score* untuk melihat *score* para pemain, dan keluar dapat dipilih jika ingin keluar dari aplikasi.

```
//tombol mulai game
Left Pressed{
    room_goto_next();
}

//tombol score
Left Pressed{
    room_goto(rm_score);
}

//tombol keluar
Left Pressed {
    Game_end();
}
```

Segmen Program 4.1 Halaman Index

- **Menu High Score**



Gambar 4.2 Tampilan Halaman High Score

```

ini_open("scores.ini");
for(i=0; i<10; i++)
{
global.score_array[i, 0] = "unknown";
global.score_array[i, 1] = "0";
}

room_goto(index);

Object o_drawscores :
Draw{
    xx= room_width/2 - 150;
    yy= 100;
    draw_set_font(font_score)
    draw_set_colour(c_black)
    draw_set_halign(fa_left)
    draw_set_valign(fa_center)

for (i=0; i<10; i++)
{
    yy += 50
    draw_text(xx, yy, string(global.score_array[i, 0]));
    draw_text(xx + 200, yy, string(global.score_array[i, 1]));
}
}

Object obj_nq :
Left mouse pressed{
    Room_goto(index)
}

```

Segmen Program 4.2 Halaman High Score

4.3.2 Menu Mulai Game

- **Level 1**

Pada level ini pemain akan menjawab beberapa pertanyaan untuk sampai ke seberang sungai untuk memasuki kastil kerajaan. Pemain diharuskan menjawab beberapa pertanyaan dengan benar untuk mendapatkan alat bantuan berupa daun yang digunakan untuk menyeberang sungai.



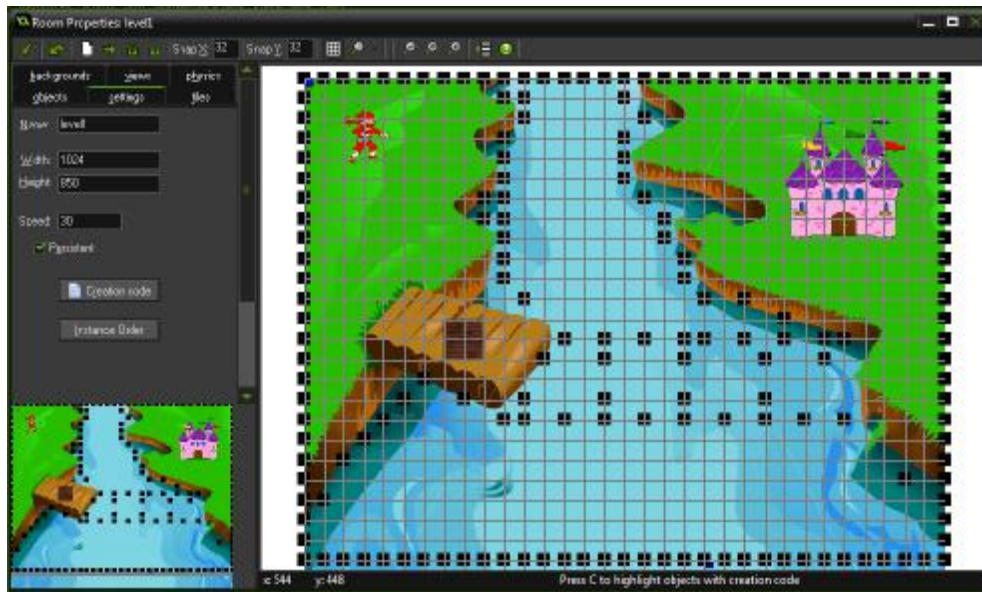
Gambar 4.3 Tampilan Intro Level 1

```
Object f_introl :
Create{
    Mytime=3.0
}

Step{
if mytime > 0 {
    mytime=mytime-delta_time/1000000
}
else {
    mytime=0
}
if mytime = 0 {
    room_goto_next()
}

Draw{
draw_set_font(font_intro)
draw_set_color(c_white)
draw_text(x, y, "LEVEL 1")
}
```

Segmen Program 4.3 Halaman Intro Level 1



Gambar 4.4 Tampilan Game Level 1

```

Object char_1 :
Collision o_kali{
    Start moving in a directon 00001000 with speed set to 0;
}
No key pressed{
    Start moving in a directon 000010000 with speed set to 0;
}
Left key pressed{
    Start moving in a directon 000100000 with speed set to 5;
}
Up key pressed {
    Start moving in a directon 000000010 with speed set to 5;
}
Right key pressed {
    Start moving in a directon 000001000 with speed set to 5;
}
Down key pressed {
    Start moving in a directon 010000000 with speed set to 5;
}
Keypress(space){
    infront=false
    if instance_position(x,y,o_bridge) {infront=true}
    answered_questions=false
}

```

```

if infront=true
{
    answered_questions=true
    infront=false
    var value1, value2;
    value1 = real(irandom_range(20, 25));
    value2= real(irandom_range(10,14));
answer=get_integer(string(value1) + ' + ' + string(value2)
+'=', "0");
    if answer=(value1+value2)
    {
        Audio_play_sound(sound_true, 1, false)
        show_message("Benar !")
        score += 10
    }
    else
    {
        show_message("Salah ! Jawaban yang benar: " +
string(value1+value2)+ ".")
    }
}

if answered_questions=true{
    if score = 10{
        instance_create(350, 450, o_daun)
    }
    if score = 20{
        instance_create(450, 450, o_daun)
    }
    if score = 30{
        instance_create(550, 450, o_daun)
    }
    if score = 40{
        instance_create(650, 450, o_daun)
    }
    if score = 50{
        instance_create(750, 450, o_daun)
        instance_deactivate_object(o_kali)
        instance_deactivate_object(o_bridge)
    }
}

Object o_ctrl1 :
Room start{Play sound sound1; looping:true}

Room end{Stop sound sound1;}

Draw{
    with char_1{if instance_position(x,y,o_bridge)
{draw_text(35,35,"Tekan Tombol Spasi !")}}
}

Object o_wall :
Collision with char_1{
    Start moving in a directon 000010000 with speed set to 0;
}

```

```

Object o_timer :
Create{
    mytime=90.0
    showtime=mytime
}

Step{
    if mytime > 0 {
        mytime=mytime-delta_time/1000000
    }
    else {
        mytime=0
    }
    if mytime = 0 {
        room_goto(gameover)
    }
    showtime=ceil(mytime)
}

Room start{
    Set score relative to 0;
}

Room end{
    score += showtime
}

Draw{
    draw_set_font(font_timer)
    draw_set_colour(c_black)
    draw_rectangle(0, 768, 1024, 850, false)
    draw_set_color(c_white)
    draw_text(x, y, "Waktu " + string(showtime))
    draw_text(50, y, "score " + string(score))
}

Object o_kastil :
Collision with char_1{
    Room_goto_next()
}

Object o_ctrl1 :
Room start{
    Play sound sound1; looping:true
}

Room end{
    Stop sound sound1
}

Draw{
    with char_1{if instance_position(x,y,o_bridge)
    {draw_text(35,35,"Tekan Tombol Spasi")}}}}

```


Segmen Program 4.4 Level 1

- **Level 2**

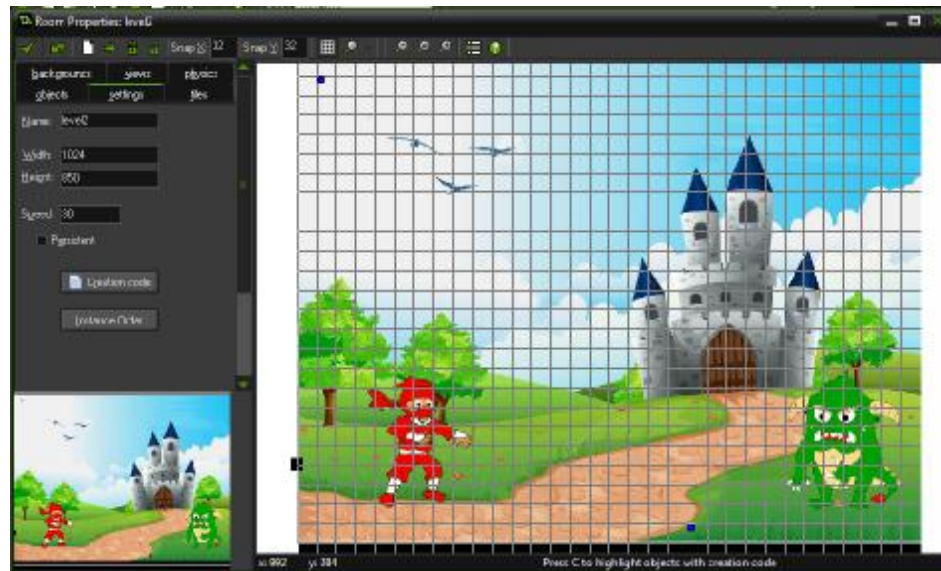
Pada level ini pemain akan menghadapi monster penjaga gerbang. Monster tersebut akan melemparkan senjata dan pemain diharuskan menjawab pertanyaan dengan benar untuk menghindari serangan dan menyerang balik.



Gambar 4.5 Tampilan Intro Level 2

```
Object f_intro2 :  
Create{Mytime=3.0}  
  
Step{  
if mytime > 0 {  
    mytime=mytime-delta_time/1000000  
}  
else {  
    mytime=0  
}  
if mytime = 0 {  
    room_goto_next()  
}  
  
Draw{  
draw_set_font(font_intro)  
draw_set_color(c_white)  
draw_text(x, y, "LEVEL 2")  
}
```

Segmen Program 4.5 Halaman Intro Level 2



Gambar 4.6 Tampilan Game Level 2

```

Object char_2 :
Collision with o_boto{
    Start moving in a directon 000010000 with speed set to 0;
}

Collision with o_portal{
    Room_goto_next()
}

Collision with o_jurus{
    Room_goto(gameover)
}

No key pressed{
    Start moving in a directon 000010000 with speed set to 0;
}

Left key pressed{
    Start moving in a directon 000100000 with speed set to 5;
}

Right key pressed{
    Start moving in a directon 000001000 with speed set to 5;
}

Key press(space){
infront=false
if instance_exists(o_momon) {infront=true}
answered_questions=false
if infront=true
{
    answered_questions=true
    infront=false
}
}

```

```

        val1 = real(irandom(50));
        val2= real(irandom(50));
        input_id=get_integer_async(string(val1) + ' + ' +
string(val2) + '=' , "");
    }
}

Asynchronous dialog{
abc=instance_create(x, y, o_suriken)
if async_load[? "id"] == input_id
    if async_load[? "status"] {
        var ans = async_load[? "value"];
        if ans == val1 + val2
            abc.speed=10
            abc.direction=0
            audio_play_sound(sound_suriken, 1, false)
    }
}

Object o_timer :
Create{
    mytime=90.0
    showtime=mytime
}

Step{
    if mytime > 0 {
        mytime=mytime-delta_time/1000000
    }
    else {
        mytime=0
    }
    if mytime = 0 {
        room_goto(gameover)
    }
    showtime=ceil(mytime)
}

Room start{
    Set score relative to 0;
}

Room end{
    score += showtime
}

Draw{
    draw_set_font(font_timer)
    draw_set_colour(c_black)
    draw_rectangle(0, 768, 1024, 850, false)
    draw_set_color(c_white)
    draw_text(x, y, "Waktu " + string(showtime))
    draw_text(50, y, "score " + string(score))
}

```

```

Object o_momon :
Create{
    alarm[0]=30
}

Destroy{
    Create instance for object portal at position(900, 650)
}

Alarm 0{
    abc=instance_create(736, 608, o_jurus)
    abc.speed=5
    abc.direction=-180
    alarm[0]=350
    audio_play_sound(sound_jurus, 1, false)
}

Collision with o_suriken{
    Play sound sound_smash; looping:false
    Destroy the instance
}

Object o_ctrl2 :
Room start{
    Play sound s_battle; looping:true
    Play sound sound_momon; looping:false
}

Room end{
    Stop sound s_battle;
}

```

Segmen Program 4.6 Level 2

- **Level 3**

Pada level ini pemain akan diberikan kotak soal dengan jenis soal yang berbeda. Pemain harus berjalan ke arah kotak untuk mendapatkan pertanyaan. Musuh utama pada level ini adalah waktu. Pemain diharuskan menjawab setiap pertanyaan dengan benar sebelum waktu habis untuk dapat sampai ke level selanjutnya.



Gambar 4.7 Tampilan Intro Level 3

```
Object f_intro3 :  
Create{  
    Mytime=3.0  
}  
  
Step{  
if mytime > 0 {  
    mytime=mytime-delta_time/1000000  
}  
else {  
    mytime=0  
}  
if mytime = 0 {  
    room_goto_next()  
}  
  
Draw{  
draw_set_font(font_intro)  
draw_set_color(c_white)  
draw_text(x, y, "LEVEL 3")  
}
```

Segmen Program 4.7 Halaman Intro Level 3



Gambar 4.8 Tampilan Game Level 3

```

Object char_3 :
No key pressed{
    Start moving in a direction 000010000 with speed set to
    0;
}

Left key pressed{
    Start moving in a direction 000100000 with speed set to
    5;
}

Up key pressed {
    Start moving in a direction 000000010 with speed set to
    5;
}

Right key pressed {
    Start moving in a direction 000001000 with speed set to
    5;
}

Down key pressed {
    Start moving in a direction 010000000 with speed set to
    5;
}

Object o_timer :
Create{
    mytime=90.0
    showtime=mytime
}

```

```

Step{
    if mytime > 0 {
        mytime=mytime-delta_time/1000000
    }
    else {
        mytime=0
    }
    if mytime = 0 {
        room_goto(gameover)
    }
    showtime=ceil(mytime)
}

Room start{
    Set score relative to 0;
}

Room end{
    score += showtime
}

Draw{
    draw_set_font(font_timer)
    draw_set_colour(c_black)
    draw_rectangle(0, 768, 1024, 850, false)
    draw_set_color(c_white)
    draw_text(x, y, "Waktu " + string(showtime))
    draw_text(50, y, "score " + string(score))
}

Object o_ctrl3 :
Draw{
    if !instance_exists(tambah)
    if !instance_exists(kurang)
    if !instance_exists(kali)
    {instance_create(928, 384, portal3)}
}

Room start{
    Play sound sound0; looping:true}

Room end{Stop sound sound0}

Object portal3:
Collision with char_3{
    room_goto_next()
}

Object tambah :
Collision with char_3{
    var value1, value2;
    value1 = real(irandom(50));
    value2= real(irandom(50));
    answer=get_integer(string(value1) + ' + ' +
    string(value2) +'=', "");
}

```

```

if answer=(value1+value2)
{
    Audio_play_sound(sound_true, 1, false)
    show_message("Benar !")
    score +=10
    instance_destroy()
}
else{
    show_message("Salah ! Jawaban yang benar: " +
string(value1+value2)+ ".")
}
}

Object kurang :
Collision with char_3 :
    var value1, value2;
    value1 = real(irandom_range(20, 50));
    value2= real(irandom_range(1, 20));
    answer=get_integer(string(value1) + ' - ' +
    string(value2) +'=', "");
if answer=(value1-value2)
{
    Audio_play_sound(sound_true, 1, false)
    show_message("Benar !")
    score +=10
    instance_destroy()
}
else{
    show_message("Salah ! Jawaban yang benar: " +
string(value1-value2)+ ".")
}
}

Object kali :
Collision with char_3 :
    var value1, value2;
    value1 = real(irandom(10));
    value2= real(irandom(10));
    answer=get_integer(string(value1) + ' * ' +
    string(value2) +'=', "");
if answer=(value1*value2)
{
    Audio_play_sound(sound_true, 1, false)
    show_message("Benar !")
    score +=10
    instance_destroy()
}
else{
    show_message("Salah ! Jawaban yang benar: " +
string(value1*value2)+ ".")
}
}

```

Segmen Program 4.8 Level 3

- **Level 4**

Pada level 4 pemain akan melawan raja. Pemain akan mendapatkan beberapa serangan dari raja. Pemain harus menjawab pertanyaan dengan benar untuk menghindari dari serangan musuh dan menyerang balik.



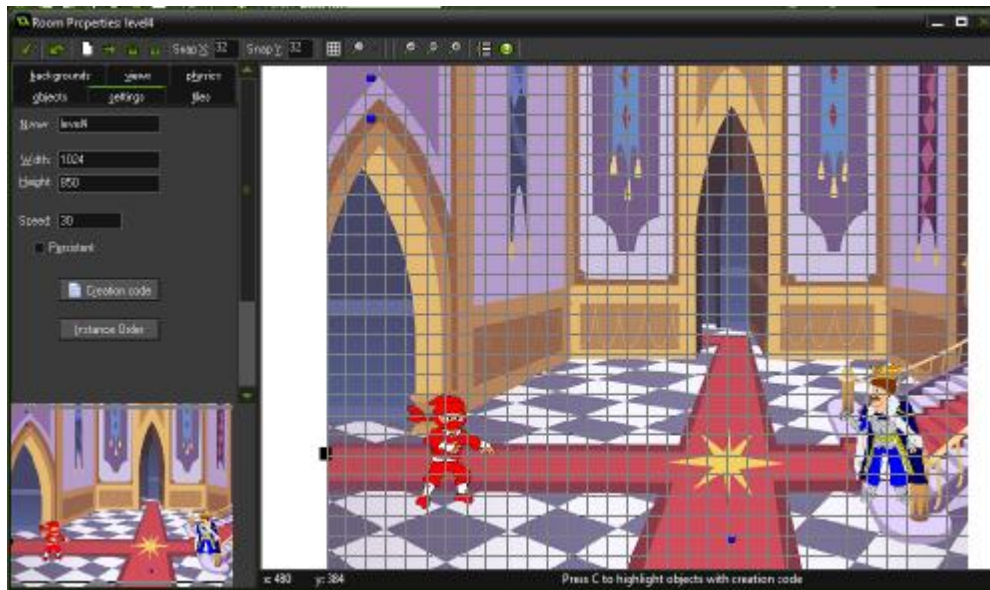
Gambar 4.9 Tampilan Intro Level 4

```
Object f_intro4 :
Create{Mytime=3.0}

Step{
if mytime > 0 {
    mytime=mytime-delta_time/1000000
}
else{
    mytime=0
}
if mytime = 0 {
    room_goto_next()
}

Draw{
draw_set_font(font_intro)
draw_set_color(c_white)
draw_text(x, y, "LEVEL 4")
}
```

Segmen Program 4.9 Halaman Intro Level 4



Gambar 4.10 Tampilan Game Level 4

```

Object char_4 :
Collision with o_boto{
    Start moving in a directon 000010000 with speed set to 0;
}

Collision with o_portal{
    Room_goto_next()
}

Collision with o_jurus{
    Room_goto(gameover)
}

No key pressed{
    Start moving in a directon 000010000 with speed set to 0;
}

Left key pressed{
    Start moving in a directon 000100000 with speed set to 5;
}

Right key pressed{
    Start moving in a directon 000001000 with speed set to 5;
}

Key release(space){
    infront=false
    if instance_exists(o_rojo) {infront=true}
    answered_questions=false

```

```

if infront=true
{
    answered_questions=true
    infront=false

    val1 = real(irandom_range(4, 10));
    val2 = real(irandom_range(4, 10));

    input_id=get_integer_async(string(value1) + ' x ' +
string(value2) +'=', "");
}

asynchronous dialog{
abc=instance_create(x, y, o_suriken)
if async_load[? "id"] == input_id
    if async_load[? "status"] {
        var ans = async_load[? "value"];
        if ans == val1 * val2
            abc.speed=10
            abc.direction=0
            audio_play_sound(sound_suriken, 1, false)
    }
}

Object o_rojo :
Create{
    alarm [0] = 30
    set the health to 100
}

Destroy{
    Create instance of object portal at position(900,650)
}

Alarm 0{
    abc=instance_create(736, 608, o_jurus)
    abc.speed=5
    abc.direction=-180
    alarm[0]=150
    audio_play_sound(sound_jurus, 1, false)
}

Collision with o_suriken{
    Play sound smash; looping:false
    Set the health relative to -50
    If the health smaller than 1
    Destroy the instance
}

Object o_portal :
Collision with char_4{
    Room_goto_next()
}

```

```

Object o_timer :
Create{
    mytime=90.0
    showtime=mytime
}

Step{
    if mytime > 0 {
        mytime=mytime-delta_time/1000000
    }
    else {
        mytime=0
    }
    if mytime = 0 {
        room_goto(gameover)
    }
    showtime=ceil(mytime)
}

Room start{
    Set score relative to 0;
}

Room end{
    score += showtime
}

Draw{
    draw_set_font(font_timer)
    draw_set_colour(c_black)
    draw_rectangle(0, 768, 1024, 850, false)
    draw_set_color(c_white)
    draw_text(x, y, "Waktu " + string(showtime))
    draw_text(50, y, "score " + string(score))
}

Object o_ctrl4 :
Room start{
    Play sound s_battle; looping:true
    Play sound sound_rojo; looping:false
}

Room end{
    Stop sound s_battle;
}

Object health :
Draw{
    Draw the healthbar with size(800,450,1000,475) with back color
    none and bar color green to red;
}

```

Segmen Program 4.10 Level 4



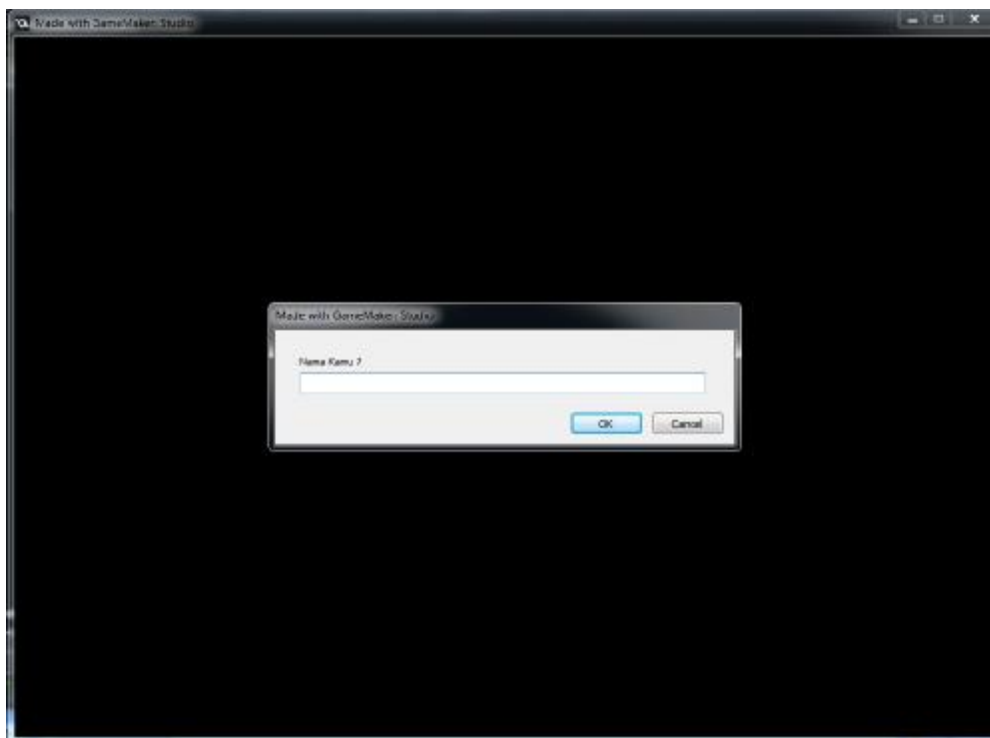
Gambar 4.11 Tampilan Halaman Game Over

```
Object f_over :  
Create{Mytime=3.0}  
  
Step{  
  if mytime > 0 {  
    mytime=mytime-delta_time/1000000  
  }  
  else{  
    mytime=0  
  }  
  if mytime = 0 {  
    room_goto(test)  
  }  
}  
  
Draw{  
  draw_set_font(font_intro)  
  draw_set_color(c_white)  
  draw_text(x, y, "GAME OVER")  
}
```

Segmen Program 4.11 Halaman Game Over



Gambar 4.12 Tampilan Halaman Score



Gambar 4.13 Input Nama untuk High Score

```

Object f_test :
Draw{
draw_set_font(font_intro)
draw_set_color(c_white)
draw_text(x, y, "SCORE " + string(score))
}

Object bt_getscore :
Left mouse pressed{
    name = get_string_async("Nama Kamu ?", "");
}

Asynchronous dialog{
var i_d = ds_map_find_value(async_load, "id");
if i_d == name
{
    if ds_map_find_value(async_load, "status")
    {
if ds_map_find_value(async_load, "result") != ""
{
    global.name = ds_map_find_value(async_load, "result")
    ini_open("scores.ini")
    for (i=0; i<10; i++)
    {
global.score_array[i,0] = ini_read_string(string(i), "nama",
"unknown");
global.score_array[i,1] = ini_read_real(string(i), "score", 0);
}
}
ini_close();
for(i=0; i<10; i++)
{
    if (score > global.score_array[i, 1])
    {
for (j=9; j>1; j--)
{
    global.score_array[j, 0] = global.score_array[j-1,0];
    global.score_array[j, 1] = global.score_array[j-1,1];
}
}
    global.score_array[i,0] = global.name;
    global.score_array[i,1] = score;
    break;
}
}
}
ini_open("scores.ini")
for (i=0; i<10; i++)
{
ini_write_string(string(i), "nama", global.score_array[i,0]);
ini_write_real(string(i), "score", global.score_array[i,1]);
}
}
ini_close()
room_goto(rm_scores);
}}}}
}

```

Segmen Program 4.12 Halaman Score

4.4 Mekanisme dan Hasil Pengujian

4.4.1 Mekanisme Pengujian

Untuk mekanisme pengujian penulis melakukan observasi langsung dengan target audience yaitu siswa kelas 2 sekolah dasar. Penulis meminta sejumlah siswa untuk mencoba langsung game yang dibuat oleh penulis. Tempat observasi yaitu di SDN Lowokwaru 4 Malang.

4.4.2 Hasil Pengujian

Dari beberapa siswa yang sudah mencoba memainkan game, kesulitan yang didapat oleh siswa kebanyakan adalah dalam pengoperasian *laptop* sebagai media untuk memainkan game. Kebanyakan siswa masih sulit atau kurang terbiasa mengoperasikan *laptop* menggunakan *touchpad*.



Gambar 4.14 Testing Game