Bilkent University

Department of Computer Engineering

Object Oriented Software Engineering

CS-319: Kill The Bugs

Final Report

Anisa Llaveshi, Cüneyt Erem, Ertunç Efe, Mert Gürcan

Course Instructor: Uğur Doğrusöz

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1. Implementation Flow and Major Changes in the Design

We started the implementation of this game by firstly dividing the work among the four of us. Our design already consisted in several different packages so we decided that each should take responsibility to write a different package. Firstly the model classes were developed so the **gamefieldentities** and the **mainentities** packages were developed. Next the view classes were implemented so the package **maininterface** consisting of all the views of the main menu and the package **gamefieldinterface** consisting of all the views of the main game field were developed. Lastly it was the managers which were implemented, **SettingsManager**, **FileManager** and **GameManager** respectively.

In the implementation of the game "KillTheBugs" we have mainly followed the design that we had previously done. There aren't many major changes in the design, however there are several minor ones. We still follow the MVC pattern in the high level. We have model classes, respective view classes and several managers controlling these classes and the game logic. However we didn't manage to completely implement the Observer pattern as we had discussed in our previous design. Nevertheless, there is a separation between the game's logic, data and views.

Most of the classes implemented are the same with the ones that we have discussed in our design. The only change in classes is that there will be no GMWorld class and FieldView class but instead a single GameView class holding the functionalities of both.
On the other side, we found the necessity of changing the design of the GameManager classes in order to fully implement its functionality. We have added a few more methods. For instance, the movement of the objects in the field is now managed by the GameManager by the method moveObjects(). Previously we had thought that this would be a method of each object itself via

the act() method. However, following the MVC pattern, we discussed that the controller which is the GameManager should be managing those functionalities. In addition, some more utility methods for easier implementation of different features have been added.
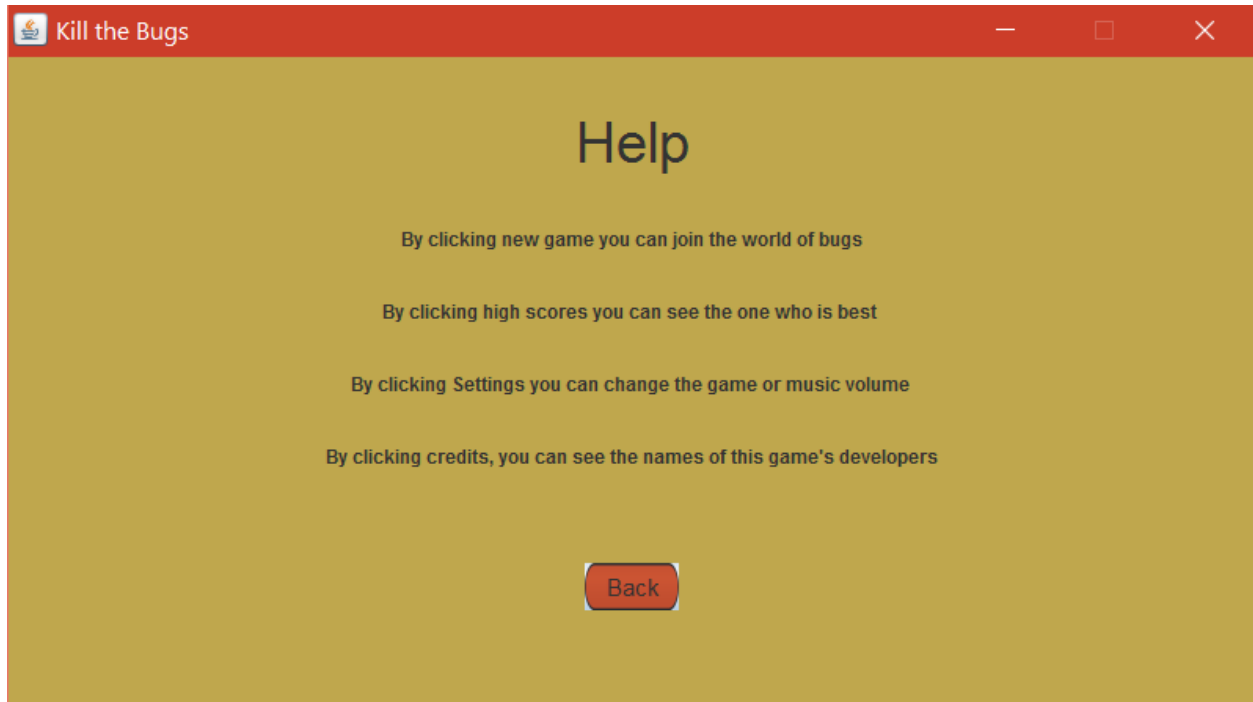
2. User's Guide

Kill the Bugs is a real time level-up game.

Main menu;
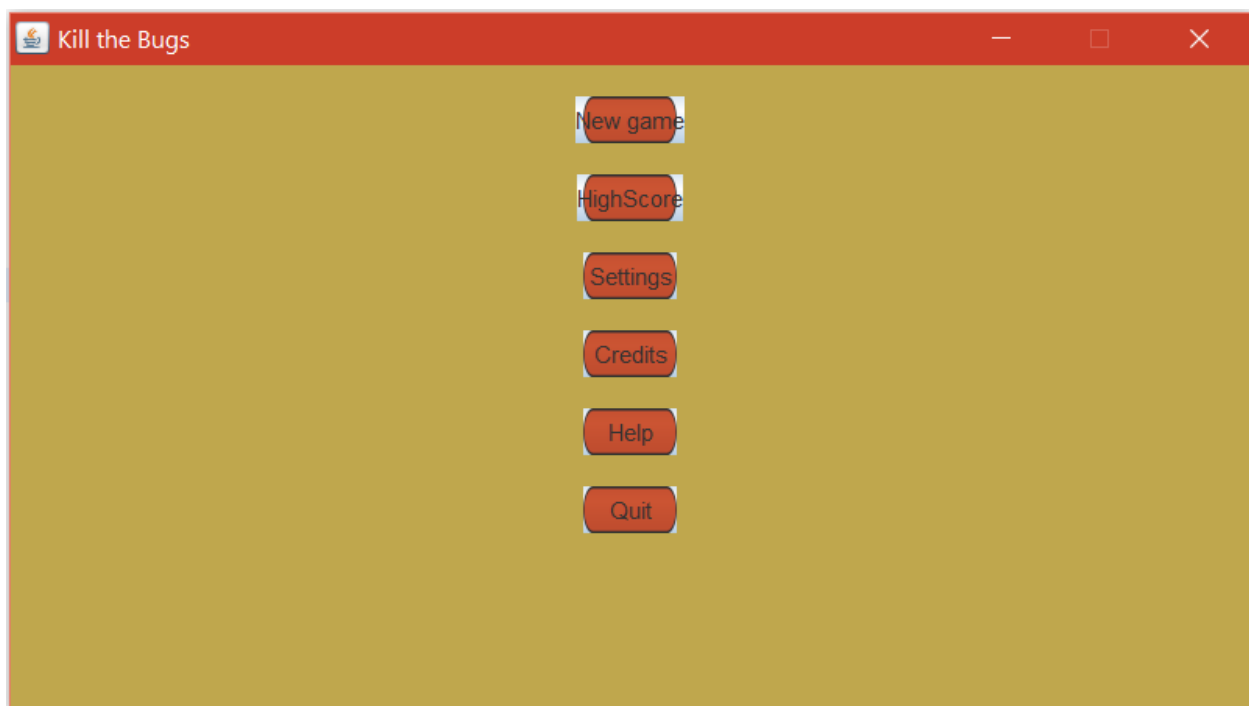
It has six different options which are "New game", "High Scores", "Settings", "Credits", "Help" and "Quit".

Help

By clicking new game you can join the world of bugs

By clicking high scores you can see the one who is best

By clicking Settings you can change the game or music volume

By clicking credits, you can see the names of this game's developers

Back

When you click on the "Help" button, you will see the information about how to play game, its rules and other necessary definitions. You can use "back" button to return main menu.

Credits

Authors:

Anisa Llaveshi

Cüneyt Erem

Ertunç Efe

Mert Gürcan
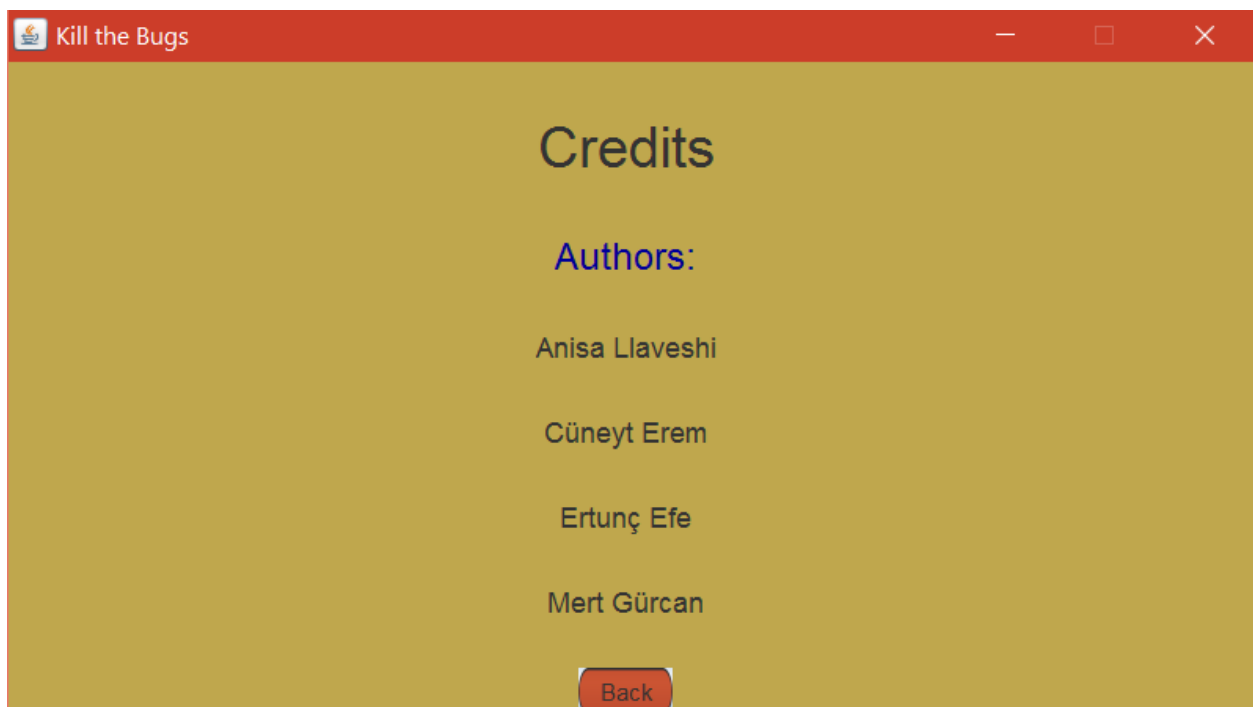
Back

When you click on the "Credits" button, you can see the author's' name of this game. You can use "back" button to return main menu.
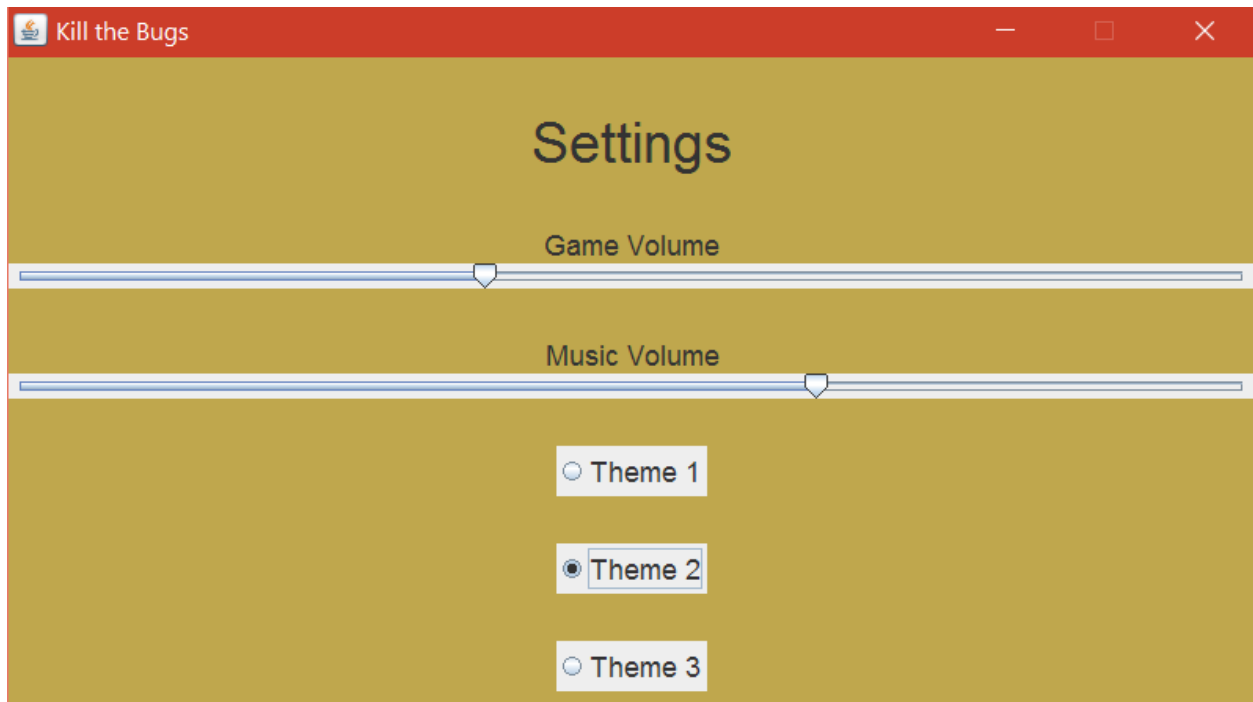
When you click on the "Settings" button, you can change game volume of the object sounds(bug, weapon etc.), and also change background music volume. There are three different themes for both menu and game panel color. You can use "back" button to return main menu.
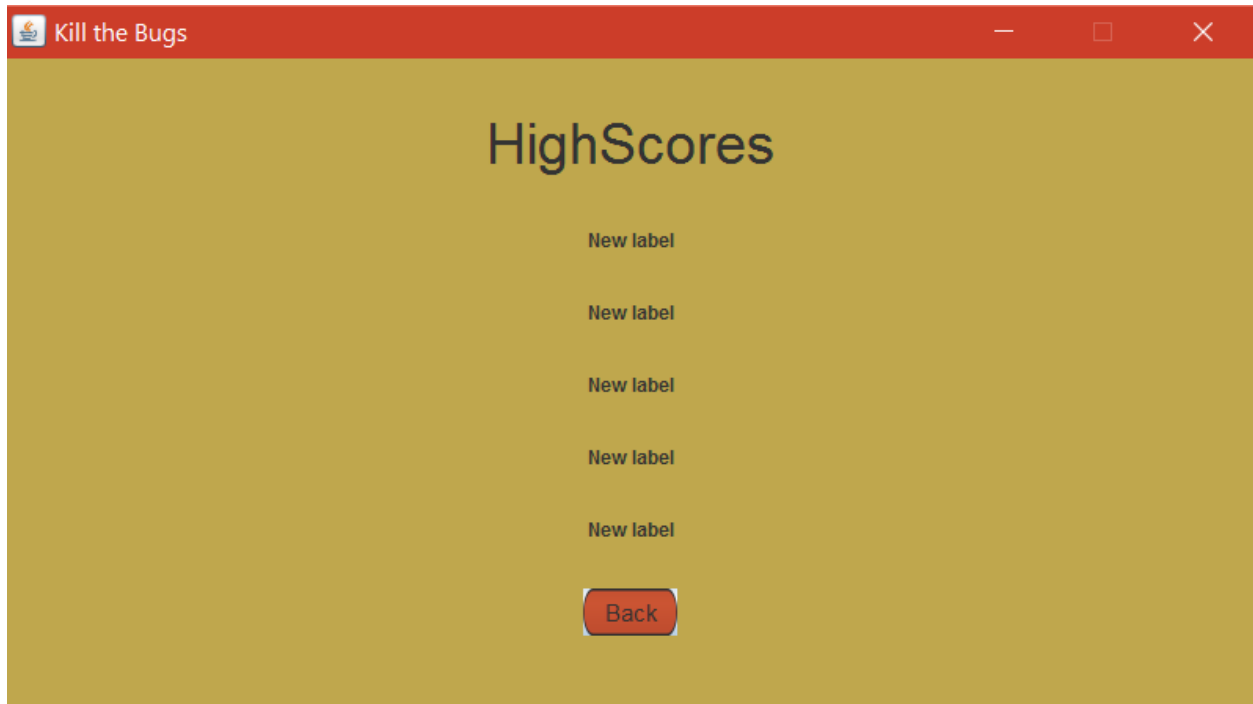
When you click on the "High Scores" button, you can see the scores of top players they have done before. You can use "back" button to return main menu.

-This is the main game playing screen of the "Kill the bugs".

-Money account will be shown at the top-left of the screen, and also score status is in the right

side of it.

-At the top-middle, there is a pause/play button for the game. In the top-right side, there are

three different weapons and two super weapons.

-There is a 5-12 tile field on the middle of the screen. At the left-side, there are five different

groceries and at the right-side, there will be bug producer field which release bugs.
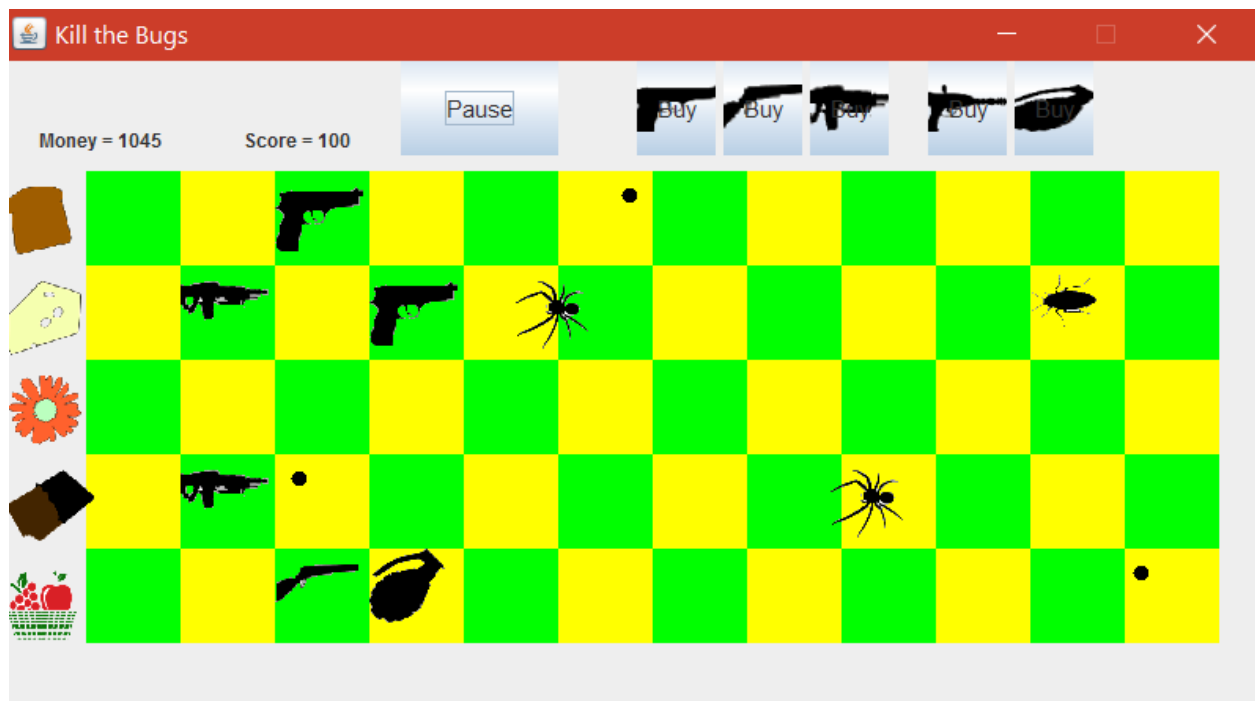
-When you start the game, five different types of bugs are coming from the random row. To stop

them, you should buy weapon by clicking on buy weapon buttons.

- After you click on one of weapon button, you should click on one tile in game field. If tile is

available and you have enough money, then you can place the weapon to the tile. If not, then

you cannot buy the weapon. Weapons have different features such as price and bullet frequency. Machine gun is powerful and expensive one among them.

-Even if you buy weapons, sometimes you cannot stop the bugs because high level bugs will come having more health or speed. To stop them you can use super weapons.

-Super weapons are useful but they are expensive and disposable. Laser gun can delete one entire row from all bugs and grenade can kill all bugs next to nine tail square. After the one shot, they disappear so they are for the hard time.

-Sometimes, when you kill the bug, coin will be appear on this tile so that if you click on that coin in a few second, you can gain extra money.

-Bits and pieces are also appear on the screen randomly. If any bug eats them, then their speed will increase, therefore be careful to this trap.

-while you are playing game, after you kill the bugs, your money and score will be updated immediately, so your purpose is to do maximum high score before you lost. It is endless game.

-If any bug reaches to the any groceries(left side of the tile), then you lose the game, therefore placing weapons are important. (But you are lucky because after you place gun, it won't disappear.).

-During game, you can pause the game by clicking on its button, and play the game clicking on it again.

-After you lose the game, your score will be shown and you return to the main menu.

3. Status of implementation.

Our game "KillTheBugs" is not fully implemented but however it is currently functional. The game can be opened and different features can be chosen as previously described in the guideline. Firstly, the main game play is functional. Bugs start walking randomly in a field from

right side of the screen and the groceries are positioned on the left side. A player can click on a weapon button in order to buy it and can click on a tile in order to position it in the field. The weapon, as it is supposed to creates and fires bullets in a certain frequency in a certain speed. A bug is killed only after a few collisions with the bullets, where each bullet reduces its health. Once a bug is killed it disappears from the field. The score and the money account are updated when a bug is killed.

The game can be paused and continued by pressing the pause and continue button. Each of the weapons kills the bugs according to their respective functionalities. Each have different powers and bullet frequencies. The superWeaons kill the bugs in a certain row or in a certain square.

These are the functionalities that we managed to implement.

However, there are still other functionalities present in our Requirements but that we didn't manage to fully implement due to lack of time. A user can see the settings manager however it is not possible for him/her to currently change the settings. We have implemented the classes for Settings and SettingsManager but it still needs to be debugged as it does not work correctly. Similarly, the FileManager which controls the high scores saving is fully implemented however we couldn't manage to integrate it with the rest of the game play.

Another functionality missing in the main game play is the appearance of BitsNPieces and Coins. Unfortunately, we couldn't manage to fully implement these features due to lack of time.