Bilkent University

Department of Computer Engineering

CS319 PROJECT – GROUP #2

Design Report

CS 319 Project: Bombalamasyon

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# Introduction

## Purpose of the system

## Design goals

# Software Architecture

## Subsystem decomposition

## Hardware/software mapping

## Persistent data management

Files are stored in the hard disk drive. The game keeps names and top ten scores in plain text file in order to display to the player in “High Scores” section. To provide better gaming experience to player, some image and sound files are also used at some parts of the game. When they are needed, these files are read from the disk with their specified directions as parameters. In addition, level data is stored in hard disk drive. There are different game maps for each level in hard drive.

## Access control and security

Bombalamasyon does not implement any user authentication system therefore we do not have any database that stores user credentials. Also, as mentioned earlier (in Hardware / Software Mapping), our game does not require network connection. Therefore, player who has no network connection is able to play the game. So that, there is no restriction or control for access the game. In addition, the game has no user profile, only player names and scores. Therefore, there is not security issues in Bombalamasyon.

## Boundary conditions

**Initialization**

When player execute the .jar file, the game initializes. Player does not have to install the game.

**Termination**

In order to terminate the game, player can click the “Quit Game” in the main menu. When player is playing the game, he/she wants to exit, firstly the player is need to go to “Pause menu” and then click the “Quit Game”.

Game will return to the main menu if all the levels are done. In case of finishing, high scores are updated if score is higher than 10th best score and the game returns to the main menu.

**Error**

If any file (game resources) could not be loaded such as images or sounds, the game starts without these files. If the game does not respond because of other issues such as problem at hardware, software or operating system, player lose his/her current data.

# Subsystem Services

The system is decomposed into 3 parts as model, view,controller and there are 4 main services between these components. The flow is the following: when user give the input, the View takes the input as the boundary component, and it passes the related input to the Controller with Controllers’ service. Controller change the game status in itself and/or the properties of the Model with Model’s service. After that, the Controller ask for an update on the View via View’s service and before updating the current view, the View component can take the game data from Model with the service of the model. At the end, view is updated and changes with the user’s input is reflected on screen.

## Services of the Controller:

**takeUserInput**: This service of the controller is used by view component in order to pass the related user input to change the program status (main menu, paused game, in game etc.) and to control the game( move bomberman or drop bomb ). For example, if the user pauses the game while playing, the view component who has the action listeners for the keys, pass the corresponding input through takeUserInput service of controller for changing state and controller change the game status which is stored in the controller itself to “pausedGame”.

## Services of the View:

**updateView**: This service of the view is used by the controller to change the program display between menus or the reflect the changes in the game map to screen. The status of the program such as mainmenu, ingame etc. is passed to the viewer and if it is ingame, the game data is taken from model component with the help of getGameMapData service of the model component.

## Services of the Model:

**getGameMapData**: This service of the model is used by the view component in order to get the game map data, in other words, positions of the game objects with their types.

**updateGameObjects**: This service of the model is used by controller to manage ingame data with the desire of the user within a time interval and to process CPU controlled objects in that interval.