Bilkent University

Department of Computer Engineering

**OBJECT ORIENTED SOFTWARE ENGINEERING PROJECT**

**DESING REPORT**

CS 319 Project: Dribble & Score

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2C

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**1. Introduction**

**1.1 Purpose of System**

Dribble & Score is a PC game which is designed to keep the players entertained as much as possible while playing the game. The user interface will be developed in such a way that even a first-time computer user can easily understand it. This game, which has an infinite number of levels, adapts the user to the game in a very simple way on the first few levels, and when it comes to more difficult levels, there will be nothing that the user does not understand about the game.

**1.2 Design Goals**

The main goal for a computer game is first, to entertain the player. To achieve this crucial task, it is needed to focus on the little details which are not necessarily directly noticeable at a first glance.

This section details the design goals of the system such as end user criteria, maintenance criteria, performance criteria and the trade-offs that come with our chosen way of implementation.

**1.2.1 End User Criteria**

**Target User Base:** When we observe other successful games available today, we see that they have one common attribute. It is the wide range of the user base. As an example, Candy Crushis very successful because a kid and an old person can both enjoy it equally. Our aim is to have a wide age range, to love this game.

**Ease of learning:** When starting the game for the first time, the user will not know how the controls work. So, it is important to provide the user with a smooth learning curve. First couple levels will be designed in such a way that it teach the controls and the mechanics of the game. After these simple levels, the player will be pushed towards greater challenges to increase the fun factor.

**Ease of use:** Most computer games use common controls these days to increase the ease of use. Menu navigations are done by the mouse pointer and the character is moved by the arrow or WASD keys. In our design for the controlling game, in single player option character is moved by arrow or WASD keys and in multiplayer option one character is moved by WASD keys and the other is moved by arrow keys.

**1.2.2 Maintenance Criteria**

**Extensibility:** In the lifecycle of a software program, it is important to

maintain the ability to add or remove features. As object oriented software engineering principles imply, the first goal in development is to create a highly maintainable software.

**Portability:** In today’s software and hardware world, everything is changing rapidly. However, it has a solution, cross-platform application/game development which runs platform independent. Java is a platform independent programming language such that no matter what operating system or processor architecture is system used, if the system has JRE then there will be no problem. “Write once, run everywhere”

**1.2.3 Performance Criteria**

**Smooth Graphics:** Game will contain open source 8-bit pictures. Main character, bonuses, goalkeepers and the whole level environment is going to be visualised in a retrospective way. Therefore, at this point, we will not experience a noticeable loss of speed in order to process the graphics and move with the game engine.

**Input Response Time:** Inputs from the keyboard while playing the game needs to be very precise because the players will be very frustrated if the character crashes due to input lag.

**1.2.4 Trade-offs**

**Portability - Performance & Memory:** In this project, we will be using the Java Programming Language, which is known for it’s ability to produce binaries which can run on any processor architecture. However, this results in all the applications being run in an interpreter called the Java Virtual Machine. When compared to native languages like C or C++, programs written with Java use more resources while doing less. On the flip side, coding our game with Java will decrease the development time due to the broad range of libraries available and the game will be running on any Java compatible desktop device.

**Simplification - User Base:** In our end user criteria, we detailed the target user base to be very broad. When a game targets a broad range, it requires over simplification of some game mechanics. If we could have used very detailed and intensive graphics which would have required a powerful desktop computer, which many users don’t have. So, we decided to keep the game simple and have a broader user base.