

Project X
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Project Overview Document (POD)

User Base

We target *casual gamers*, i.e. people who play games on a non-regular basis. Our intended user is a male between 14-35 with access to a computer network. Ideally, the user has enough technical knowledge to play games via his browser, and will have a JRE (Java Runtime Environment, 2) installed on his machine. The user runs either Windows, Mac OS X, Linux and has a fairly modern computer (less than four years old). Additionally, the user should be able to read and understand English. Familiarity with the game “Tetris” is also recommended. The user should ideally use the Internet (reads blogs, search portals, or chats) to find flash and/or Java games.

System use

The system is a game, and so the main uses are playing the game in different ways. For example, this might include a multiplayer session between four friends who are looking to have a good time. We also aim to provide a diversion for people in mobile situations, such as somebody who travels by train.

Use cases

- Martin is an Internet enthusiast who finds our product through an Internet game portal, GamePortal.com. He downloads the game client and tries it out. He likes the singleplayer mode, but wants to experience the multiplayer mode. He then uses the built-in “tell a friend” function to spread the word to eight of his friends. Three of them try the application. Martin then hosts a four-player game, and the three friends join it via his IP number. After playing they quit the game without saving any game states.
- In a club room, Eric is playing the game on his laptop. Dave walks by and asks “is that some new Tetris?” Eric tells Dave about the game, that it is free and where to find it. Dave then gets his own copy and tries the singleplayer mode for a while. Afterwards he shuts the game down.
- Adam is an office worker in a cubicle who is tired of his job. He has been assigned something that nobody knows, and no one cares if he finishes in two hours or four. He is surfing the Internet, pretending to work and finds the game through a blog. He plays for a couple of minutes and then resumes his boring job.

System environment

The system can be used both for multiplayer and singleplayer games. The system is ideally used in a network of computers, where the option to play multiplayer games is enabled. It is also suitable for more mobile environments, such as on laptops where the user's time is limited. This might for example be on a train, boat, aircraft or bus.

It is possible to play the game on almost any operating system, as long as the user has the standard Java Runtime Environment installed. The game will not support the mobile version of Java, since the graphics support and hardware capacity is generally much worse. Network possibilities are also much more limited on phones, as there are generally no fixed networks. The game can either be

started directly from the browser or downloaded to the hard drive.

Typically, the user has a short period of time (perhaps 30 minutes) for playing games. Each session should take roughly 10 minutes. Starting and setting up a game is a quick process, perhaps a minute long.

The scope of the system

The main goal of the system is to design a Tetris-like game with multiplayer support. The difference between our Tetris version and the original is the ability to play multiplayer games and more advanced graphics. We aim to enhance the gameplay using new gameplay mechanics such as powerups and game board structures. The following in-out list outlines some of the desired features:

Topic	In	Out
Singleplayer	X	
Multiplayer support, up to 4 players	X	
Advanced 2D Graphics	X	
Web-based application	X	
Savable game states		X
Multiplatform (Win, Mac, Linux)	X	
Mobile phone support		X
Multilingual user interface		X
Interactive tutorial		X
Tetris-like gameplay	X	

Design aspects

We aim to create a highly modularized game to support different types of gameplay. This will initially make progress slow but will make the engine more versatile. This allows for prototyping at a later stage of development, which lets us test which game modes are fun. This also includes keeping graphics separate from game logic and network code.

We also need to consider the user's system specifications, such as their graphics cards, memory and processing power. The system should be no more than four years old, with power equivalent to a personal computer from that time. Although we use advanced graphics, it should play at a decent frame rate. Since time is discreet in Tetris, the amount of data that needs to be transferred across the network can be kept relatively low. We also need to consider response times for input from the user. For example, a given piece should move almost instantaneously after the user presses the left key.

Technologies and risks

We intend to use the Java platform, with the LWJGL (1) wrapper. This enables us to use OpenGL graphics. One possible risk is problems with graphics development as we (as a group) need to familiarize ourselves with this technology. We do, however, have some experience with the library

in question. Security is always an issue for network games; if possible, we want to prevent cheating. The Java environment provides a robust and secure environment, which helps in this matter. No private data will be handled by the program.

One of the most important issues is gameplay. One of the hardest challenges with this project is to come up with enjoyable gameplay. The technological issues for this type of games are limited and can almost always be solved. If the game idea is poor the project is likely to fail no matter how advanced the graphics.

It is possible that the schedule for the project will not be entirely accurate. We have little prior experience with project management and scheduling.

References

- (1) Lightweight Java Game Library – <http://www.lwjgl.org/> (a Java library for making games)
- (2) The Java Runtime Environment – <http://java.sun.com/>