Team 18
Project Nexus

Version 1.07

Saeed Othman fully contributed to the hack and everything to do with the hack. The team advised him on what to do and how to go about certain aspects, but the functionality, code and design is to his credit.

Adam Mohammed fully contributed to making the website and created most website aspects. Adam also contributed to the Software Quality Strategy document as well as the Software Design Document by answering questions.

Naomi Adesiyan contributed to the website. Naomi overlooked the information side of the website by writing about the game, how it works, how to play etc. Naomi also contributed to the Software Quality Strategy document as well as the Software Design Document by answering questions.

Ayshah Malik fully contributed to making the Software Design Document. Ayshah also contributed to the Software Quality Strategy document by answering questions and creating the final draft and format for the document.

Norman Nguyen contributed to making the Software Design Document. Norman also contributed to the Software Quality Strategy document by answering questions.

Adam Ejaz fully contributed to making the Software Quality Strategy document and answering most the questions.

Jashan Gandham fully contributed to making the Software Quality Strategy document and answering most the questions.

Mohammed Mohammed did not contribute anything for submission 2.
Werner Gutierrez Biela did not contribute anything for submission 2.
Gurnaek Singh did not contribute anything for submission 2.

Revision List

Version	Author	Date	Comments
1.00	Norman Nguyen	14/10/21	Design Template
1.01	Ayshah Malik	17/10/21	Initial Version
1.02	Ayshah Malik	22/10/21	Revision after meeting
1.03	Ayshah Malik	26/10/21	Revision after meeting
1.04	Ayshah Malik	04/11/21	Revision after meeting
1.05	Norman Nguyen	07/11/21	Revision after meeting
1.06	Ayshah Malik	08/11/21	First Draft
1.07	Ayshah Malik	10/11/21	Final Draft

1. Introduction

This document specifies a design for the gameplay of a game with the interim title "Nexus". It is based on elements discussed in various meetings held since 14th October 2021 and involving Ayshah Malik, Norman Nguyen, Naomi Adesiyan, Adam Mohammed, Adam Ejaz, Jashan Gandham, Saeed Othman.

1.1 Scope

This document is intended to be read by programmers, artists and producers involved in the design, implementation and testing of Nexus.

2. Target Users

Nexus is targeted to a large audience of varying ages and cognitive abilities.

2.1 Ages

Due to the nature and simplicity of the game, it will be suitable for those aged 10+.

3. Target System

The main system the game will be played on is Internet as it allows communication between networks and devices. It will be integrated on an existing website that is hosted on WIX. This will provide users the ability to enter the game through the website, providing they have a suitable, updated browser.

4. Development System

4.1 Software

The software used to create the game will be Unity as it offers a comprehensive gaming engine. The software for this code will be tracked using GitHub to maintain integrity.

4.2 Website

The website is to be hosted on a static website builder: WIX, as they offer free hosting.

4.3 Forum

The forum will be integrated onto the hosted website to create an interactive, social community for the game where players can post relevant discussions such as feedback, requests, or suggest bug fixes. This will also help with game maintenance after deployment.

5. Specifications

5.1 Concept

Nexus is a fast paced, multiplayer game in which players take turns to place a token on the board to create a link. Nexus aims to create a social environment between players of various ages, sparking enjoyment, creativity, and achievement.

5.2 Game Structure and Modes

The game board is composed of tiles arranged 10x10. Each player, after logging in and joining a game, will be assigned a colour which their token will reflect. Expandability and replay value are key to Nexus' success. The randomly generated cards ensure new opportunities; no two games will be the same.
Game Modes:
Standard Play: The player first selects the number of matches they wish to play; they may choose between 3-5 matches. To win a match the player must have the highest score, the score increases for every link (of five) made. The winner of the game is the player who has won the most matches.
Deathmatch: The players will be racing against the clock, making as many links as they can. As each link of five is made, their score will increase by one and all tokens on the board will shift to the tiles below. "Dead Tokens" will be disabled from this game mode and players will have 60 seconds to make a move else their turn is skipped.

5.3 Players

The PC game will be playable by multiple players (2-4 players per game) across a network.

5.4 Objectives

The order in which the players will play is randomly generated. Depending on the game mode selected there are a few different ways to win- ultimately the goal is to link five like tokens. However, Nexus will randomly place "Dead Tokens" and other randomly generated

components such as "Power Cards" and "Doom Cards" which either benefit the players or cause hindrance. In addition to this, games with more than two players will include rare appearances of "Wild Tokens". The objective of the game will vary depending on the game mode.

5.5 Graphics

The game board will be designed in accordance with a dark nautical theme. The colour scheme will in turn reflect this by displaying mainly achromatic colours and its key motifs will include pirates, sea monsters and skulls. For instance, the "dead tokens" will be illustrated with skulls on the game piece. The way the cards are designed will extend this theme as well how they are presented to the players through animations. Furthermore, when registering for the game, players will be given the opportunity to select from various pirate avatars.

5.6 Audio

There will be background audio for the game once a player has entered the home screen of the game.

5.7 Data storage

Users will be required to register to the game via the website prior to playing the game. This creates a profile to store scores and coins they have collected and will also give them the ability to use the community forum.

5.8 Leader board

Players that have finished playing the game will have their scores placed on the leader board if they reach the required benchmark (top 10 highest). This will create a competitive environment as players will compete to be placed with the highest scoring players, encouraging them to return. Players that have been placed in the leader board will have the ability to use their accumulated points as coins at the shop.

Each game mode will have its own leader board.

5.9 Shop

The shop will allow players to use their points as coins to purchase additional items to aid them in future games such as "Power Cards".

6. Gameplay

A walk through of an example game session follows:
After starting up the game, the opening cinematic sequence segues into the main menu screen. The three options provided are: New User, Existing User and Options. New User allows the player to develop a character by selecting a username and avatar then saving these details into a database with their password. Existing User allows the player to enter their username and password to load their existing character. Options allows access to instructions, sound, and configuration options.
After user registration/login, the user will select the number of players they want to play with along with the game mode. If the user selects Standard Play, they will then have the option to pick how many matches (rounds), between 3-5, they want to play. Nexus will then create a game room for the players and display a pop-up instruction screen. As the game progresses, Nexus will notify each player of whose turn it is ("YOUR TURN!"/ "Jane's TURN!"). The players will take turns in placing their tokens on the board, trying to link 5 of their own tokens. Nexus will arbitrarily present the players with "Random Cards" and "Dead Tokens" throughout the game to make it more challenging. If the Standard Play game mode was selected, the match will only end when all tiles on the board have been occupied and the game will end when each match has been played whereas for the Deathmatch game mode, the game will only end once the time runs out. Once the game ends, the players will be notified of their personal score along with the username and score of the highest scoring player. The players will then receive two options: either a rematch or to leave the game room.

6.1 Board

The board for Nexus will be 10 x 10. This gives space for play in consideration of obstacles and obstruction.

6.2 Control

Players will use their mouse as the main interaction of placing tokens around the board. A timer will be used to ensure no user exceeds the 20 second limit for making their move.

6.3 Tokens

Tokens will be pieces/counters that players will aim to link together. Each player's token will match the colour they were assigned when they began the match, to understand whose token is whose.

6.4 Dead Tokens

Dead tokens are tokens which players cannot match with. They will be placed onto the board randomly to take up space, acting as an obstacle and causing hindrance. This will push players to become creative in where they place their tokens to make links.

6.5 Power Cards

Power cards will help the player in one of three ways:
- Plus one: the player receives and extra turn.
- Token Buster: players can remove any token off the board, except dead tokens.
- Token Snatcher: Players can claim an opponent's token as their own.

6.6 Doom Cards

Doom Cards will disrupt the player in one of three ways:
- Reverse Card: the player will miss their turn and reverse the order of play.
- Minus Two: the game will randomly remove two of the player's tokens off the board. (player's must have at least two tokens on the board).
- Plague: player's tokens will start to randomly disappear from the board until their next turn.
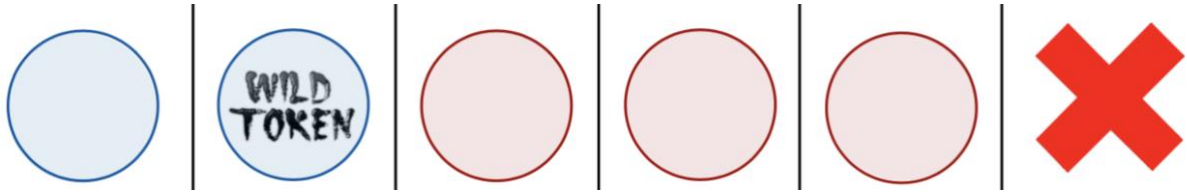
6.7 Wild Tokens

Wild Tokens will give the opportunity for players to link with opponents' tokens and claim them as their own, so long as the link will not include more than two tokens from the opposition. Wild Tokens cannot be linked with Dead tokens.
For example, if you are the blue player, the following play is legal:
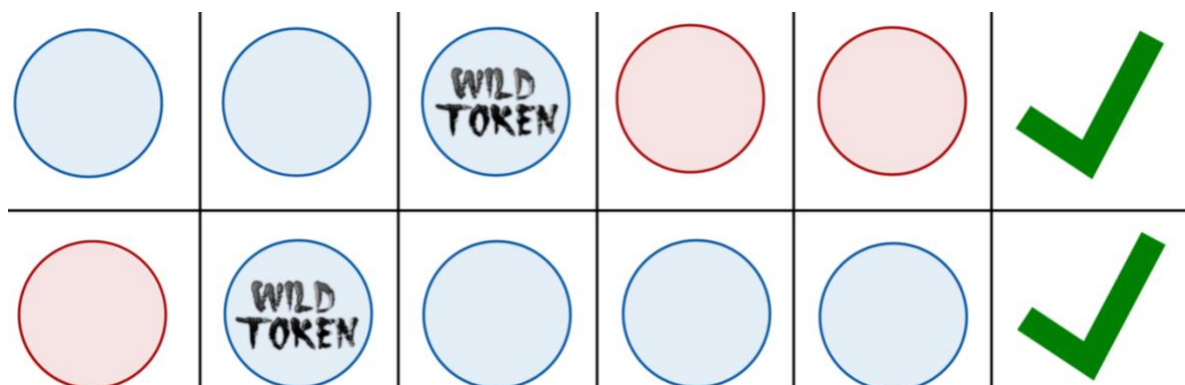
This will be an illegal move:

6.8 Scores

Scores will be accumulated at the end of the game and then will be displayed on the leader board.

6.9 Points

Players that can successfully link tokens of five will equate to a single point.

7. User Interface Design

Interface elements include but are not limited to:

7.1 Input Controls

Buttons, text fields, checkboxes, dropdown lists, and list boxes.

7.2 Navigational Components

Sliders, tags, and icons.

7.3 Informational Components

Icons, notifications, and message boxes.

7.4 Home

The starting page for Nexus will include audio and instructions on how to play. Instructions mid-game will be brief.

7.5 Options

Players can quit mid-game, ending their turn, and giving the opponent with the highest point the winning round.

Players cannot change game mode mid-game and must exit to start a new game.