Skillz Design Document  
**SNK - King of Fighters**

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| Date | Author | Change Log |
| 1.7.19 | Nathan Karklins | Created GDD  To Be Added:   * Final Score Tuning |

# Objective

The purpose of this document is to summarize the design of King of Fighters as a competitive game on the Skillz tournament platform, as decided in game integration discussions between Skillz, Humansoft and SNK.

Where appropriate, additional information will be provided to guide the implementation of the game based on the agreed upon plan. This guidance is based on design expertise that we have observed working successfully on previous games, and it is meant to provide insight into key issues rather than a formal prescription.

This document will focus primarily on design elements that are specific to this game. Further direction regarding Skillz integration can be found in our [developer portal documentation](http://cdn.skillz.com/doc/developer/).

# Design Overview

### **Core Gameplay**

King of Fighters is an Arcade Style fighting game in which the player controls the actions and movement of single fighter to overcome a(n) opponent(s). Players must balance offense and defense to both maximize damage dealt to opponent while minimizing damage taken.

1. Select character from roster of players which to be used in a balanced away (to do more damage than taken)
2. Use Joystick and Button controls to move character within striking range of opponent

3a. Attack opponent to deal damage (until opponent runs out of health)

3b. Block opponent from dealing damage (to live longest)

4. Win match by inflecting more damage than taken

### **Competitive Format(s)**

We recommend creating a new SKU, improving the engine and simplifying the UI to funnel players to Skillz Tournaments. Matches will include an alternate Time Attack Mode to be used as the base tournament configuration. In this mode players will choose a character to fight from a roster of available characters and use them to fight through a ladder of AI opponents. Each Ladder will consist of (8) opponents with increasing difficulty. The player will be given (180) seconds to beat all AI opponents and their health will not refill after beating each one.

### **Scoring / Win Conditions**

Each match will be won by the player who deals the most damage to their opponents. Points will be awarded for the following actions:

* Enemies Defeated
* Damage Dealt
* Special Moves Used
* Health Remaining
* Time Bonus

### **Tutorial / First Time User Experience**

When a user plays King of Fighters for the first time, a tutorial will be presented that covers the most important elements of the game:

* Game Rules
  + Ladder Survival w/ Time and Health Limit
* Controls
  + Movement
  + Attack
  + Block
* Special Moves
  + Charge and Use
* Scoring

### **Fairness Considerations**

In order to ensure that players are competing on a level playing field, the following setup conditions need to be exactly the same for all players in each match:

* Game Rules must be the same for all players participating in the tournament and controllable using parameters
  + Game Rules:
    - Match Time
    - Opponent Ladder
    - # of Pauses
  + Game Scoring:
    - Points earned for different actions
    - Bonuses earned postgame for special achievements

In order to minimize cheating, we also recommend the following:

* Game Rules must be the same for all players participating in the tournament and controllable using parameters
  + Game Rules:
    - Match Time
    - Enemy Roster
    - Ai Difficulty
  + Game Scoring:
    - Points earned for different actions
    - Bonuses earned postgame for special achievements
* Skillz Difficulty should be used to increase the challenge of AI characters as players become more skilled at the game.

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|  | **Examples:** showing ascending AI Difficulty from round to round with more difficult starting position, based on Skill Rating.    \*\* **X** = player did not reach level |

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# Summary of Key Changes

In order to implement the competitive format described above, these changes will need to be made to the base game:

1. **Simplify and Streamline Menu Ui**. This will include updating marketing carousel and funneling players to skillz tournament play.
2. **Add Parameter Support** for tuning and tournament configuration.
3. **Use Skillz Random** as the randomizer for game setup.
4. **Create Skillz specific Time Attack** game mode
5. **Provide Interactive Tutorial** which onboards players in manner which ensures they can competing.
6. **Use Skillz Difficulty** to adjust the difficulty of AI opponents
7. **Update Results Screen** to help communicate how a player performed in the match.
8. **Reduce App File Size** (less than 150mb) so players can download without wifi

# Game Parameters

A comprehensive lists of parameters we recommend adding to configure match rules and award points for scoring are as follows.

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| Async Mode - Configuring Match Rules | | |
| **Parameter** | **Values** | **Notes** |
| match\_timer | **180** | 0 =infinite, # = Match time limit in seconds. |
| ai\_enemies | **8** | 0 = infinite, # = enemies to defeat before goal is complete |
| health\_start | **100** | % health at match start |
| ai\_difficulty | **1,1,2,2,3,3,4,5,7,8** | Difficulty should be mapped to values 1 through 10 and can be applied to individual enemies in the ladder sequence |
| Async Mode - Score Tuning | | |
| **Parameter** | **Suggested Values** | **Notes** |
| bonus\_enemy\_defeated | **10,000** | Points per enemy defeated |
| score\_damage\_delt | **10** | Bonus per percent of damage dealt to enemies |
| score\_special\_move | **500** | Bonus per special move used |
| bonus\_health\_remaining | **100** | Points per % of health remaining |
| bonus\_time\_remaining | **1** | Bonus per tenth of second remaining if Goal is met. |

## APPENDIX

## Screenflow Summary

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| **Load App** | **Skillz SDK** | **Gameplay** | **Skillz SDK** |
| 1b Title Screen  1a Tutorial | 2 Welcome Back  3 Tournament Select  4a Async Match-making | 5 Pre-game Character Select  6a-6c Play Match  6d Pause Screen  7 Results Screen | 8 Match Results  9 Video Replay |
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## Screen Flow Descriptions

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| **Screens & High-Level Instruction** | **Example Mocks** |
| **1b On First App Open the game immediately funnels players through a Tutorial experience getting them to gameplay immediately.**  1. This will circumvent the Main Menu and SDK tournament user flow steps 1b **-** 4 so that the player can learn to play through tutorial.    1. When exiting this first attempt, the player will be returned back to the main screen 1b. 2. On subsequent loads, the player should start at 1b. |  |

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| **1a Tutorial**  1. This flow behaves differently on the first load    1. On first load exiting the tutorial should circumvent the Main Menu and SDK tournament user flow steps 1b **-** 4 so that the player can learn to play through tutorial.    2. When exiting this the tutorial on later attempts, the player will be returned back to the Welcome Back screen 2.    3. Rarely a request will be made to insert the Tutorial as a Pause Menu option. | (Mock of tutorial gameplay) |

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| **1b After FTUE, Player Loads the App to the Start Screen and proceeds to a Main Menu.**  1. These are client screens controlled by the game 2. The Main Menu is where to put settings or alternative modes like “Tutorial” which will allow players to replay them. 3. Tapping “Play” will load to the Skillz SDK.    1. We have found that creating stronger focus on the Play button over other screen elements improves Install to 1z and D1 metrics and suggest making the callout extremely obvious. 4. Tapping Play button proceeds to screen  **2.** | (Mock of title screen) |

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| **2 Game loads to Skillz SDK, player is shown the “Welcome Back” screen**  1. Shows results of completed games, rankings in tournaments, pending games, etc. 2. New players are placed into an an account creation and Skillz Onboarding Tutorial 3. Tapping the GAMES tab button moves to screen 3 |  |

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| **3 The Games list displays different tournament types, with varied stakes**  1. This includes: virtual currency (“z”) matches 2. Cash async matches 3. Live events 4. Bracket or other style multiplayer tournaments 5. Each tournament has a name, an entry fee and potential rules or tuning changes. 6. Skillz recommends a specific ruleset for all asynchronous tournaments. 7. Synchronous tournaments will be addressed separately at a later time. |  |

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| **4 Player chooses a tournament and is matched with another player**  1. Skillz provides an ELO-based “skillz difficulty” rating to determine AI difficulty. Skillz suggests assigning these difficulty levels appropriate names to create a sense of progression and to support the expectation of increasing AI difficulty as a player ascends. The use of “sample tournament” is an example and should be replaced by the best game equivalent. 2. Skillz Random will be used to define the AI opponent list, ensuring players get the same experience. |  |

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| **5 SDK passes the player back to client gameplay, beginning with Pre-Game Character Select.**  1. Game reveals a character select screen with a random character pre-selected for the player. 2. Players use that information to choose a fighter. 3. This screen should be timed with the player receiving the random character displayed if no selection is made. | (Mock of pre-game screen) |

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| **6a Fight begins; Player fights first AI opponent**  1. The match begins with a three-minute (180s) overall timer. This can be set as a game parameter so Skillz can help experiment with different timer lengths. 2. The UI can displays a configurable number of victory icons in Async Survival mode.    1. Victory icons appear only after a fighter has been KOed    2. No more than (8) victory icons appear in HUD simultaneously.    3. If the player defeats more than (8) fighters, the victory icons area becomes a double digit counter showing one victory icon with a number next to it. 3. There is an onscreen pause button 4. We recommend optimizing for skill scoring caps by visualizing attack damage in the health meter similarly to chip damage in other fighting games:    1. When taking a hit the health meter of the fighter struck decreases as normal. The delta between the amount of health before the hit and after the hit appears in a different color, and then quickly disappears (suggest 2-3 secs) to reinforce the strength of each attack. | (Mock screen of gameplay) |

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| **6b If player wins against 1st opponent, player fights another AI opponent**  1. After defeating the first fighter, the player gets a short breather, then the second fighter arrives. 2. Both, Health and Time is carried over between all fights. If the player ever dies OR the time runs out, the match is over.     1. Timer should be configurable as a Skillz parameter. 3. As the game is nearing its time limit, give the player a visual and audio cue. | (Mock screen of exciting score during gameplay) |

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| **6c Player fights additional AI opponents**  1. Score is determined throughout the match. Defeating a fighter should provide a large component of the score in any fight. 2. Score is displayed as it tallies in the top right corner. 3. As the game is nearing its time limit, give the player a visual and audio cue. | (Mock screen of exciting score during gameplay) |

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| **6d Pause Screen is accessible during gameplay.**  1. Elements which should be included on the Pause Menus Include     1. Music and SFX Toggle Controls.    2. Score, which is determined throughout the match. If at any time the player pause the match, the sum of their current points should be totaled for them to make an informed decision about whether they want to submit their score early.    3. Exit and Return Buttons       1. Exiting should display a confirm to prevent accidental, early exits. | (Mock screen of exciting score during gameplay) |

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| **7 Game ends with score summary**  1. The match can end when:    1. The timer is 0    2. The player’s health remaining is 0    3. The player exits early 2. The score screen displays a breakdown so the player can see how the overall Score is calculated.     1. Score is submitted after the player presses “Submit Score” or automatically after 10 seconds.       1. An onscreen meter drains to indicate time remaining until auto-submit happens.    2. Recommended Score breakdown:       1. Points the player earns for beating the other fighters should be the largest percentage, with additional points for vitality.       2. **KOs** - Opponents Defeated       3. **Health** - Health Remaining       4. We recommend showing the fighter on this screen so a screenshot or freeze frame of the replay as it has all the information needed to tell a story of the match.       5. The use of “K.O.s” and “Health”, “Style” are examples and should be replaced by the best game equivalent. | (Mock of pre-game screen) |

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| **9 Client gameplay submits score back to skillz SDK, displaying match end screen**  1. If the opponent has not finished or been matched-up yet, there are variants of this screen. 2. Tapping next goes back to screen #2 and displays match results. |  |

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| **10 Player can watch a replay (of cash games) to compare performance to the opponent.**  1. The replays can inform the player of how the opponent played and give a good sense of the meta game. Skillz will investigate starting replays at the last frame so it will be easy to get a side by side view of both players score breakdown. |  |

## Other Considerations

Here are a few other best practices about mobile games in general that Skillz recommends to developers we work with:

### Pause Button

Because players are usually playing for real money in our games, the outcome of a single match is more important to them than might be expected for most mobile games. But because they are playing on a mobile device, often while in transit or being interrupted, they often strongly desire to pause the game. The best practice is to include a pause button that pauses the game and hides any information that the player could use to gain an advantage by pausing frequently. In addition, we often recommend limiting the number of times players can pause in a single game to help safeguard from cheating.  
  
  
Color Blindness

Players do not all see things the same which can make certain game types more difficulty to play than others. In part, to provide fairness, and a courteous to players we suggest that if a game relies on color as a key feature for success that additional visual cues be used to normalize the playing field. Adding icons and distinct shapes to pieces so that they can be distinguished from others is one way we suggest doing this. We also suggest including colorblindness settings in the settings or pause menus which the players can use to quickly toggle game assets so that they can feel comfortable competing.

### Controls for Muting Game Audio

Players often use their devices for multiple functionalities at once - especially, listening to music/audio from a background app while playing a game. Give people options to mute their audio, choose the game music, selectively mute or choose the sound level of SFX/music/narration - all of these are great ways to make sure players find a way to engage with your game the way they prefer to.

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