

# Sort'Num

## Overview

Theme / Setting / Genre

The Elevator Pitch

Influences (Brief)

<Influence #1>

<Influence #2>

<Influence #3>

Core Gameplay Mechanics Brief

Targeted platform

## What sets this project apart?

## Player Interaction Patterns and Modes

<Player Interaction Pattern>

<How many players / how it works / etc.>

<Player Modes>

<Player Mode #1>

<Player Mode #2>

## Objectives

<Primary Objective #1>

<Secondary Objective #1>

## Procedures

## Rules

## Resources

## Core Gameplay Mechanics (Detailed)

<Core Gameplay Mechanic #1>

<Core Gameplay Mechanic #2>

<Core Gameplay Mechanic #3>

<Core Gameplay Mechanic #4>

## Story and Gameplay

Story (Brief)

Story (Detailed)

Gameplay (Brief)

Gameplay (Detailed)

## Assets Needed

2D

3D

Sound

- Code

- Animation

## Overview

### **Theme / Setting / Genre**

- Challenge/Puzzle
- Teaching math

### **The Elevator Pitch**

Sort'Num is an endless puzzle based game where the player has to help the character shield himself from falling numbers by tapping on them in the correct order. The game has educational potential as well as enough modes to keep the game feeling different and not boring yet simple enough that anyone can play it and achieve a high score, making it more competitive among friends!

### **Influences (Brief)**

- **Piano Tiles App/Don't touch the black tiles**
  - Game/App
  - This game helped influence the idea of this game because due to the mechanic of not having a definite 'end' to the game, only a highest score. I liked the idea of the tiles speeding up and the game getting more challenging and seeing how far a player could get, hence creating the self-challenge aspect. The mechanic of the game getting progressively harder (by speeding it up) as well as having different game modes is something that appealed to me and directly influenced the game.

### **Core Gameplay Mechanics (High-Level)**

- Tapping (on phone screen)

## Targeted platform

- IOS
- Android

## What sets this project apart?

- Its simple
- Can and probably will get addictive
- The ease of setting high scores raises the level of competition amongst friends
- Perfect for all ages
- Educational potential; the basic concept of tapping numbers in a given order can be expanded in many directions (pick numbers high to low/low to high, different sized numbers, symbolic numbers such as pi, etc.), a lot of things can be done to make the game more interesting, fun, and challenging

## Player Interaction Patterns and Modes

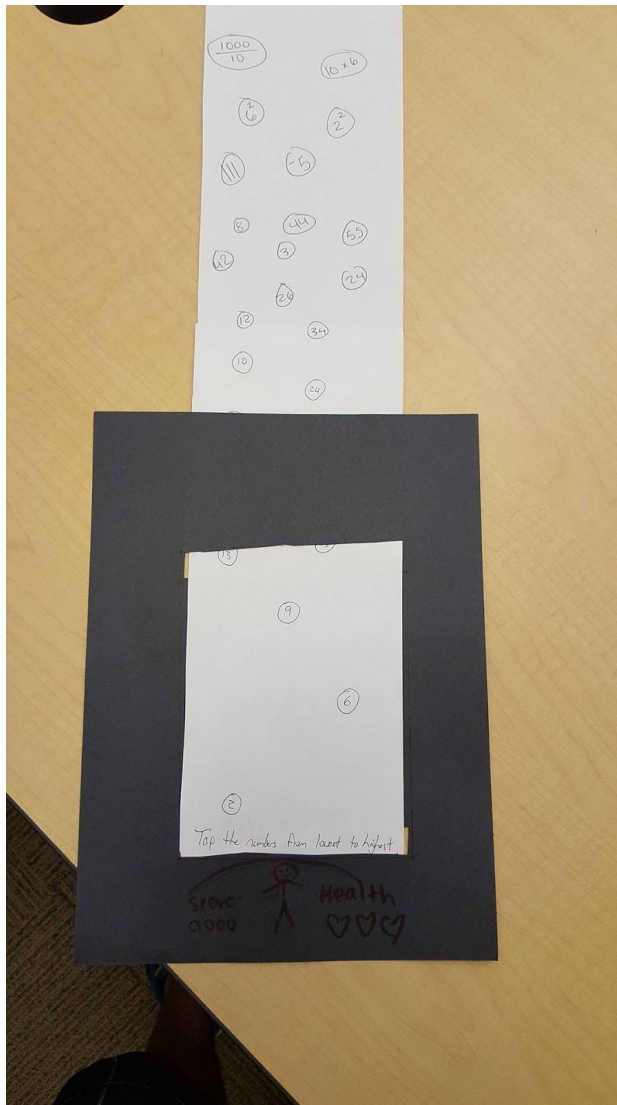
- **Player vs game**
  - **\*\*No actual end to the game\*\***
  - Single player playing one game mode at a time until they quit or lose
  - Highest score is recorded and kept as a constant reminder, acting as goal to beat
  - Tap the falling numbers from least to greatest
    - The number is considered to be active and ‘in play’ by an animation that will change the text/styling of the falling number to match the other numbers on the screen.
  - The numbers keep falling so the tapping of numbers never stops! The numbers that appear may not always be the lowest one so the player has to be careful about which one they choose to tap on.
- **Mode: Single Player**
  - One mode: tapping to order falling items

## Objectives

- **Set the highest score you can**
  - Essentially just try to reach as high as a score as you can
- **Player objective: Shield himself/herself against the falling number objects as long as you can**
  - Protect yourself as long as you can from the falling numbers!
- **Help players learn how to sort numbers**
  - A teaching opportunity

## Procedures/Actions

User can tap on the falling objects



The user taps the falling numbers as they appear on the screen; the falling number will be considered to be active and 'in play' once it is completely on the screen and will be indicated by its font changing to match the other active numbers on the screen. As the non-ending game continues, more and more numbers start to fall, numbers start falling faster, and the variety (range) of numbers also increases, making the game more challenging.

## Rules

Main mode is tap the falling objects in the correct order, from least to greatest value. If one of numbers reaches the ground (where the player is) they lose a life. Player only has three lives. Once all lives are exhausted, the game ends and the score is recorded.

## Resources

Time - the player only has a limited amount of time before the set makes it to the bottom of the screen, causing one life to be lost.

Life - only three lives, hence three sets of falling objects that are missed will cause the game to end.

## Objects/Entities

Falling numbers - these numbers will have a specific font, color, animation, and noise attached to them. There is also a very specific way of knowing whether a number is considered active or 'in play' or not.

'Player' at the bottom of the screen looking at the falling numbers and defending himself (maybe some powerups, for instance score multiplier or freeze powerup that freezes screen for a certain amount of time)

## Core Gameplay Mechanics (Detailed)

- **Tapping**

- Tapping the falling numbers in correct order (depending on mode) to get rid of them
  - With multiple numbers on the screen at once, the player must figure out which numbers to tap on in order to get rid of them. With numbers constantly falling the order must be figured out (depending on mode). The two modes are least to greatest and greatest to least. So, if the number 10, 25, 30, and 56 are on the screen, and the mode is least to greatest, then it would be tapped in the respective order. However, as more numbers fall, the order must be recalculated.

- Since numbers appear constantly at the top of the screen, there is obviously a possibility that these numbers interrupt the sequence of numbers already on screen apparent to the user. This could cause the user frustration if it is immediately “in-play”, so new numbers will appear with a ‘grace period’ which will allow the user to tap out-of-order if new numbers are within this grace period.

## Story and Gameplay

### Story (Brief)

The numbers are falling! The numbers are falling!! The math Gods are angry and are throwing down some strange sets of numbers! The player must figure out how to shield the character from the falling numbers as long as they can!

### Story (Detailed)

The math Gods heard the engineers at UVa were fed up with math and never wanted anything to do with it ever again! This angered the math Gods and they decided to show their wrath by sending down endless waves of numbers! The character is trapped with nowhere to hide and with the numbers approaching at the speed of light, the character has no choice but to figure out how to fend off the numbers as long as he can!

### Gameplay (Brief)

There are numbers falling from the top of the screen and the player must tap them in the correct order depending on the mode to make them disappear. If the number hits the ground then the player loses a life. After all three lives are exhausted, the game ends and the score is recorded (if it is higher than the high score).

### Gameplay (Detailed)

The game will start off simple and slow to help the player get a hang of the mode they have selected. Once the mode is selected from the main screen, the character will appear on the bottom screen and the numbers will start falling. If the numbers are correctly tapped for example, if the smallest number on the screen at the time is tapped (given it's the appropriate game mode) then it will disappear and more numbers will appear. The game gets challenging when multiple numbers appear at the same time, the numbers start falling faster, and the order of numbers changes depending on what numbers are on the screen. Each number they successfully tap and make disappear earns them a set number of points. If the player cannot successfully tap on a number and it hits the ground the player loses a life. The player only has 3 lives and once all of those are exhausted, the game ends. Also, as an opportunity to expand the game, there can be powerups that have

certain effects such as score multiplier or a freeze pickup that freezes the screen for a certain amount of time.

## Assets Needed

- **2D**

- Textures
- Environment Textures
- Falling number objects (2.5D)
- Backgrounds - neutral background for menu and an active gif type background for ingame

- **Sound**

- Sound List (Ambient)
  - General music playing while game is being played - while objects are falling - calm natured music but a bit more intense/action-y music.
  - Menu music - calm, relaxing, and welcoming music
- Sound List (Player)
  - Character Movement Sound List
    - Sound when correct number is clicked and clears - like a reward/magical sound
  - Character Hit / Collision Sound list
    - Sound when an object is clicked out of order - a sound indicating that an error was made. An animation will show to indicate the wrong number was tapped.
  - Character on Injured / Death sound list
    - Sound when number reaches the ground - a sound that indicates 'fatal error' or mistake. A sound to indicate that a life was lost.

Template based on work by: Benjamin Stanley and Alec Markarian