

PROJECT REPORT

Overview:

2048 is a single player puzzle game which went viral earlier this year on PlayStore. It was created by a 19 year old Italian web designer, Gabriele Cirulli. The objective is to slide numbered tiles on a rectangular grid and combine them in accordance with certain rules, to create a tile with the number 2048. Fibonacci 2048 is a modification of 2048, introducing the Fibonacci Sequence. The Fibonacci Sequence is defined by the recursion,

$$F_{i+1} = F_i + F_{i-1}, \text{ for } i > 1$$

with the initial two terms being $F_1=1, F_2=1$.

Gameplay: Fibonacci 2048 is played on a 4 X 4 grid, with numbered tiles which slide smoothly across rows and columns when the player moves them using the four arrow keys. The game begins with only two tiles on the board, each of whose values are either 1 or 2. Each turn, a new tile will randomly appear in an empty spot on the board with value either 1 or 2. The tiles slide as far as possible in the chosen direction until they are stopped by either another tile or the boundary of the grid. The numbers on the tiles are terms of the Fibonacci Sequence. If two tiles which are consecutive terms of the Fibonacci Sequence collide, i.e, if F_i and F_{i+1} collide, they merge into a single tile with the number F_{i+2} . The new tile formed cannot merge with another tile in the same move. You win the game when a tile with the number $F_{12}=144$ is created; however you can continue playing to create tiles with larger numbers. When the player cannot make a legal move, i.e, there are no empty spots on the grid or no adjacent tiles with consecutive terms of the sequence, the game ends.

Scoring: A scoreboard will keep track of the player's score. The player begins with score equal to zero and is incremented, whenever two tiles combine, by the number of the new tile.

Game Controls: Tiles slide in four directions.

Sliding Up : Key 'W'

Sliding Down : Key 'S'

Sliding Left: Key 'A'

Sliding Right: Key 'D'

a	e	i	m
b	f	j	n
c	g	k	o
d	h	l	p