

# ColorChaser - Game Design Document

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ColorChaser is a game where the player needs to jump between colored platforms that appear from the right hand side of the screen as he is propelled towards them.

## World Setup

The ColorChaser world is standard planes in bright colors floating in mid-air, and the player is located on the left third of the screen.

1. The Camera follows the player in a 60 degree field of view.
2. The Lighting is a single directional light, and an additional point light that follows the player.
3. All the game objects are 3D, viewed by the camera from the side.

## Game Flow

1. At first a few platforms are spawned to fill the screen.
2. The player advances right by jumping between the platforms at an initial speed.
3. As the player advances, the speed increases.
4. Every time the player passes a certain point relative to the last platform spawn position, another platform is spawned outside the camera view on the right, and the furthest platform on the left of the spawn position is destroyed.
5. The platforms can spawn at varying heights and gaps from one another.
6. A score of the player's survival time in each run is kept.
7. A high score is kept while the game does not exit.

## Player

1. The player is created and located at the left third of the world when the game starts, and during the game's run.
2. When holding the space bar down, the player jumps.
3. If the player falls in a gap between the platforms, the game ends and the run's score and high score are displayed.

## Platforms

1. Platforms spawn on the right hand side of the screen outside the camera view.
2. Platforms are destroyed on the left hand side of the screen outside camera view after the player passed them.
3. Each platform can have a different color from a predefined list.
4. Stepping on different colored platforms can have different effect on the game world.
5. There are 3 types of platforms, these types define the behavior:
  - a. Green – Increases the player's jump force by a predefined multiplier.
  - b. Red – Reduces the player's jump force by a predefined multiplier.
  - c. Black – Turns all the other platforms black for a predefined duration.

## Bonus Features

We added a time-dependent increase to the random gap between platforms, bounded by the predefined maximal gap.

## Known Issues

- Long jump when pressing and holding space bar not implemented.
- **The game was created using Unity 2018.3.2f1 and may not be compatible with previous versions of Unity.**

## UML

