

## **COMP 345-Fall2018 (Section N) Project Description**

### **General Information**

The project is about writing a C++ computer game that allows the user to play a reasonable version of the *KING OF NEW YORK* role playing game. The *KING OF NEW YORK* is a “strategy” game, the gaming rules are given in [1]. All assignments (4) will be about the development of different parts of a project. Thus, every assignment will build upon code developed in the previous assignments. You are expected to work in teams of 2-4 for every assignment. Individual work will be accepted, but will be graded in the same terms as team work.

### **Problem Statement**

*KING OF NEW YORK* is a multiplayer board game (2 to 6 players). Your goal is to be the first monster to collect 20 victory points (VPs) or to be the last monster standing. On your turn, you roll six dice up to three times, then carry out the actions on those dice. Claws cause damage to other monsters, hearts heal damage to yourself, and energy is stored up so that you can purchase power cards that provide unique effects not available to anyone else.

The *KING OF NEW YORK* game consists of a connected graph map representing any big city map (e.g. New York, Tokyo, etc.), where each node is a region and each edge represents adjacency between regions. Two or more players can play the game by earning the most victory points (20) or by holding the last standing monster through the control of Manhattan over the course of the game.

### **Parts/features of the game**

#### **The Components:**

- The Game Board: *KING OF NEW YORK* comes with the game board for New York. The game board showing the different regions (Lower Manhattan, Middle town, upper Manhattan, queens, Brooklyn, etc.,) all hand-drawn but colored to show their type: building monuments, fields, etc.
- 64 cards + 2 special cards: Statue of Liberty and Superstar.
- 46 tokens (13 Web, 13 Jinx, 5 Souvenir, 15 Carapace).
- 8 dice (6 black and 2 green).
- 6 Monster boards.
- 6 cardboard figures + 6 plastic stands.
- A bunch of Energy cubes.
- 45 Building/Unit tiles.

## Game Design

**Map:** The game map is a connected graph where each node represents a borough (region) of New York. Edges between the nodes represent adjacency between regions. The map is divided into subgraphs that represent region (e.g. Manhattan). A region is a connected subgraph of the map graph. In your implementation, it will be expected that the game can be played on any connected subgraph that is defined by the user before play, saved as a text file representation, and loaded by the game during play.

**Game:** The game starts by the startup phase, where the number of players is determined, and they take turns in a clockwise order. In order to determine who goes first, each player rolls the 6 black dice and the 2 green dice, and whoever rolls the most Attacks starts the game.

Starting with the first player, and going clockwise: the player places her/his Monster in the borough of her/his choice, except Manhattan. There can be no more than 2 Monsters in any borough (region)<sup>1</sup>. Each player's turn go through the following steps:

1. Roll the Dice (up to 3 times)
  2. Resolve the Dice (mandatory)
  3. Move (generally optional, but sometimes mandatory)
  4. Buy Cards (optional)
  5. End Player Turn
1. **Roll the Dice** On the player turn, she/he can roll the dice up to three times. For her/his first roll, she/he will roll the 6 black dice (the green dice are only used with particular cards). For the second and third rolls (both optional), she/he can reroll any or all of the dice (even ones that she/he chooses to keep on a previous roll).
  2. **Resolve the Dice:** The symbols on the dice after player's final roll indicate her/his actions for this turn. She/he can resolve the dice in whatever order she/he likes, however all the dice of the same type must be resolved before resolving another type.
  3. **Move**
    - **If there is no one in Manhattan**, the player must move there. She/he arrives in Manhattan, she/he must place her/his Monster on Lower Manhattan on the 2–4 space.
    - **If there is already 1 Monster in any zone of Manhattan**, the player have two options: she/he can move to any borough that doesn't already have 2 Monsters in it (except Manhattan), or she/he can just stay in her/his borough.
    - **If the player was already in Manhattan**, she/he needs to advance to the 2–4 space in the next zone up in Manhattan.

**Note:**

1. *Once the player is in Upper Manhattan, she/he no longer move during this phase.*
  2. *If the player was already in Manhattan, she/he may not move to another borough (unless she/he has been damaged by another Monster's attack).*
4. **Buy Cards** After resolving the dice and making a move, the player can buy one or more cards from those available. She/he is also welcome to spend 2 Energy cubes in order to discard the three available cards and reveal three new ones. The player can buy and/or discard cards in any order she/he likes, and as many times as she/he wants, as long as she/he has the Energy cubes to do so.

**Note:** Each time the player buys a card, immediately reveal a replacement for it from the deck.
  5. **End Player Turn** Certain card effects activate during this phase. This is the end of the player turn; the players needs to pass the dice to the player on your left.

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<sup>1</sup> From here on, the rules and the cards will refer to the players Monsters

The game ends at the end of a turn if a Monster has reached 20 Victory Points and survived, or if there is only one Monster still in the game. The Monster with 20, or who is the last survivor wins the game, and is crowned King of New York. If all the Monsters have been eliminated in the same turn, nobody wins.

**Cards:** the game contains the following cards:

- Monster boards: these boards represent the Monsters that the player plays as in King of New York. Each has a name, a dial for Victory Points, and a dial for Life.Points.
- Power cards: these are cards that have a name, a cost to pay in Energy cubes, a type, and an effect.

When setting up the game: we Shuffle all the cards except the 2 special cards together in order to form a face-down deck. Put the top 3 cards of the deck face-up on near the deck and the tokens. Place the 2 special cards, *Statue of Liberty* and *Superstar*, face-up beside the deck.

## Reference

[1] *KING OF NEW YORK*, Richard Garfield, &Skaff Elias,  
[http://www.iellogames.com/downloads/KONY\\_rules.pdf](http://www.iellogames.com/downloads/KONY_rules.pdf)