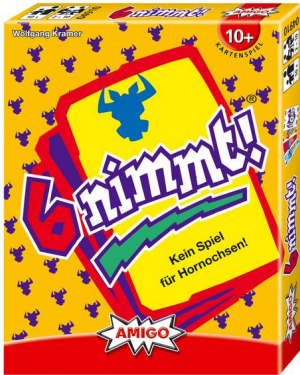# COMP 101 – Art of Computing – Spring 2018

SNAP Project

6 Takes! Game Project

Outline: In this project, you will simulate the 6 Takes! card game by Wolfgang Kramer.

6 Takes! is a card game played with a special deck of cards consisting of 104 cards numbered between 1 and 104. Each card also has a "**penalty**" value (or bull horns) that is between 1 and 7 (Table 1). At the start of the game, each player is dealt 10 cards randomly. Then, 4 cards are selected from the remaining cards and they are laid out one below another, forming 4 rows (Figure 1).

Each turn, each player chooses one card from his hand to play. After all players choose a card to play, all the selected cards are revealed **SIMULTANEOUSLY** and starting from the smallest numbered card to the highest numbered card, one by one they are allocated to one of the four rows based on the rules below:

1. **Ascending Numerical Order**: The card to be placed in a row must be greater than the rightmost card of that row.
2. **Lowest Difference………….**: The value of a row is the numerical value of the rightmost card in the row. If a card may be placed in more than one row (by Rule 1), compare the card's value to the value of each eligible row. The row with the closest value gets the card.
3. **Full Row……………………**: If the newly placed card is the 6th card in that row, the first five cards are removed from the row and given to the player who played the 6th card as "penalty cards" (**NOT** regular cards).
4. **Lowest Card………………...**: If a player plays a card that is too low to be placed at the end of any of the four rows (by Rule 1), that player selects any one of those rows and takes all the cards from that row as "penalty cards". The newly placed card becomes the first card in that row.

At the end of the 7 turns, the player having the **LOWEST** penalty from his penalty cards wins the game.

Table 1 - Penalty values of cards

Card Number	Penalty Value
55	9
Multiples of 11 except 55	7
Multiples of 10	5
Cards ending with 5 except 55	4
Other cards	3

Player configuration: There must be 4 players in the game. You have two options for the players, choose one:

a) One player, 3 Stupid AIs. When selecting which card to play, a Stupid AI chooses the card to be played randomly.
b) Four player. The players will play one by one from the same computer.

Visual components: You must show the state of the 4 rows after the allocation of EACH card. So, in a turn the state of the 4 rows will change a total of 4 times total. A card will be represented on the stage by its number (**see NOTE#1**). At the start of each turn, you must also say to the player which cards he has in his hand with an ask block, and get his answer.

Input:

- At each turn, each player will choose one of his card to play (Selected Card)

Output:

- The step – by – step visual progress of the game.
- The points of all players at the end of the game.

NOTE#1: You should write a special block named "write A to position X and Y". This block writes the number "A" to the stage, centered at coordinates X and Y. For this special block, you should have 10 sprites for each digit (i.e., 0, 1, 2, … 9), the block should change the sprite according to the number, and use the block "stamp" to write the number to the stage.

NOTE#2: You can find the official rules of the game from the following link:

http://www.amigo-spiele.de/content/download.php?group=rule&file=04910_rule_gb.pdf&;title=04910_rule_gb.pdf

HINT: In order to draw shapes to the screen, you should be using the following stamp block

Figure 1 - Example game play