

## Java Multithreaded Programming Assignment

Write a multithreaded Java program for the following game. In the game, we have some boxes ordered sequentially. We have some rabbits and these rabbits jump from one box to another. There is a person which puts carrots into boxes for rabbits.

- Number of rabbits and boxes are determined at the beginning of the program as a parameter.
- All rabbits will start the game from the first box numbered as [0].

Example: Boxes in sequential order: R represents a rabbit and C represents a carrot in the boxes.

0	1	2	3	4	5	6	7	...	99
R1		R3, R5	C1	R4			C2	...	

- Each rabbit will have a name.
- The aim of all rabbits is to go to the last box numbered as [99] by jumping from one box to another. Rabbits can only jump from one box to the next box right after it. They cannot jump back.
- If a rabbit finds a carrot in the box, it eats it and get 1 point.
- The person puts a carrot to a box randomly for every "X" milliseconds. If rabbits do not eat the carrot within "Y" milliseconds, the carrot is removed from the box. "X" and "Y" values should be entered at the beginning.
- More than one rabbit can be in the same box at the same time.
- Each rabbit will have "Z" milliseconds delay between jumps. Value of "Z" should be entered at the beginning.
- After each jump and after eating a carrot, the rabbits announce (print) their states.
- After putting a carrot, the person announces (print) the box number of the carrot.
- After a carrot is removed, it is announced (printed).
- At the end of the game rabbits announce their total score.

The program starts:

Enter number of rabbits: 5 ↵

Enter number of boxes: 100 ↵

Enter carrot producing rate (X): 300 ↵

Enter carrot timeout (Y): 600 ↵

Enter sleeping time for rabbits (Z): 100 ↵

The game starts

Remzi jumps to box 1

Canan jumps to box 1

Person puts carrot to box 3

Remzi jumps to box 2

Necati jumps to box 1

Remzi jumps to box 3

Person puts carrot to box 66

Remzi eats carrot in box 3

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Carrot in box 66 removed

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Necati jumps to box 99

Canan jumps to box 99

Necati has 4 points

Canan has 3 points

Remzi jumps to box 99

Remzi has 6 points

Game over!

\*\*\* You must upload only one Java file to the assignment. All classes must be implemented as inner classes in the main class.

\*\*\* Cheating is strictly forbidden. Please don't forget! It is impossible for two people to write similar programs. If you cheat, you may get zero (0) from the assignment. Instead of cheating, try to write code as much as possible. You can take high scores even your program is not full. I want to see that you struggle with the problem.