Programmeerimise põhikursus Javas

Loeng 11

http://courses.cs.ttu.ee/pages/ITI0011

Outline

- Homework stuff

- codingbat

- **III HW:**
  - Drawing
  - Key event on scene
  - Control Down
  - Buttons layout
  - Custom shape for rectangle
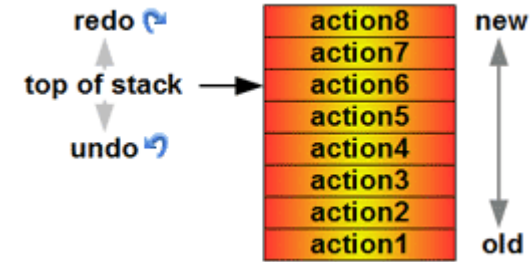 - Undo
  - Redo?

- IV HW - gomoku strategy

Homework submission

- https://courses.cs.ttu.ee/pages/ITI0011:git

- Homeworks into HW1, HW2, HW3 and HW4 folders
- **Check your score table to see git status**
- Homework 3 to be pushed into git latest **November 16th 23:59**
  - into folder "HW3"
  - **Android version**

- **Course code example in git:**
  http://firstname.lastname@git.ttu.ee/kursused/iti0011/materjalid.git
- Use UNI-ID to access materials (not visible in browser)

Undo/redo in general

- How it works:
  - "redo" can be done only if "undo" is done
  - if a new action is carried out after "undo",
    all "redo" list is cleared (there is nothing to redo)

- Several options to implement undo:
  - Action object which is created for new drawing, for moving and for deleting a shape. Every **action knows** how to "**undo**" itself
  - Keep the full state of history. Every state (when drawing, moving or deleting is finished) will be copied into memory. So called **snapshot**.

- To implement redo:
  - Action object also knows how to "redo" itself
  - In case of snapshots, we can move backwards and forward
  - Keep a separated list of redo and undo actions

Drawing a rectangle in JavaFX

- Starting point (x, y) specifies always the coordinate of the left upper corner

- The opposite corner is specified by the width and height (from the starting point)
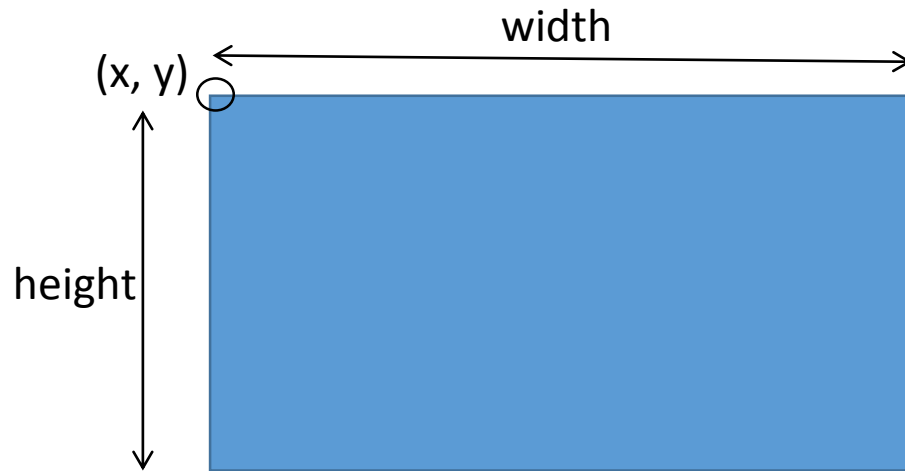
- Given two points (x_1, y_1) and (x_2, y_2), the starting point of the rectangle will be $(\min(x_1, x_2), \min(y_1, y_2))$