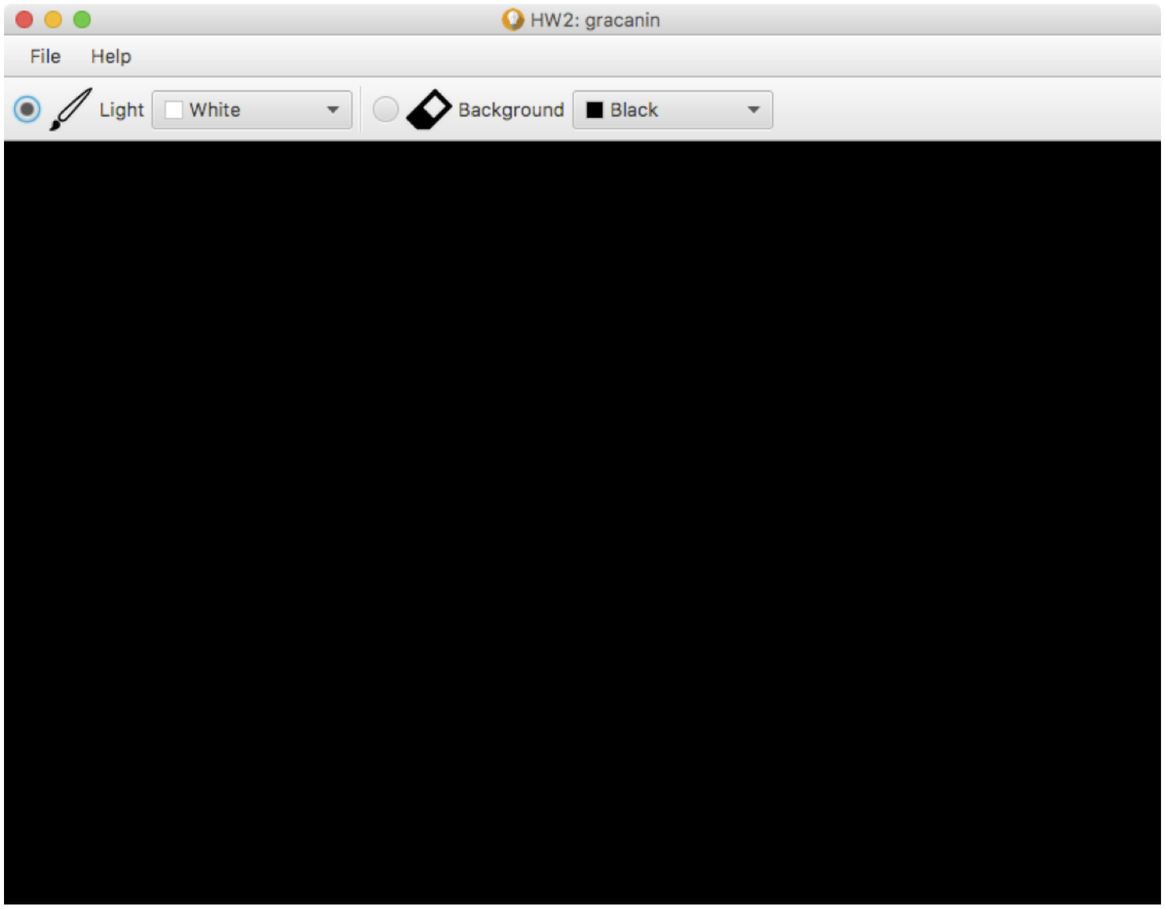
# Homework 2

**Due** Sep 27, 2017 by 8am **Points** 100 **Submitting** a file upload **File Types** zip
**Available** Sep 14, 2017 at 12pm - Sep 28, 2017 at 8am 14 days

This assignment was locked Sep 28, 2017 at 8am.

Write a desktop GUI application HW2 using JavaFX and based on the following requirements:

- The application creates a window with title `HW2: <PID>`
- For example, in my case the title would be `HW2: gracanin`
- The initial size of the application window is 800 (width) by 600 (height).
- The goal is to implement a light grid editing tool. A rectangular area is divided into rows and columns providing a grid with equally sized cells. The grid has a background color that is visible in each cell unless  a cell has a light installed. The light color can be transparent, i.e., it can blend with the background color.
    - Each color component (red, green, blue, opacity) is specified as percentage value (0%-100%)  of the maximum value.
- The initial GUI looks as follows:
    - The initial light color is white.
    - The initial background color is black.
    - The initial grid dimension is 0x0.



- The application can only read the existing configuration files (**hw2.csv**) and save (close) the modfications in the existing file.
- The file format is comma separated values (CSV):

  Line 1: one value, name

  ```
  Test configuration
  ```

  Line 2: two values, number of grid rows, number of grid columns:

  ```
  10,10
  ```

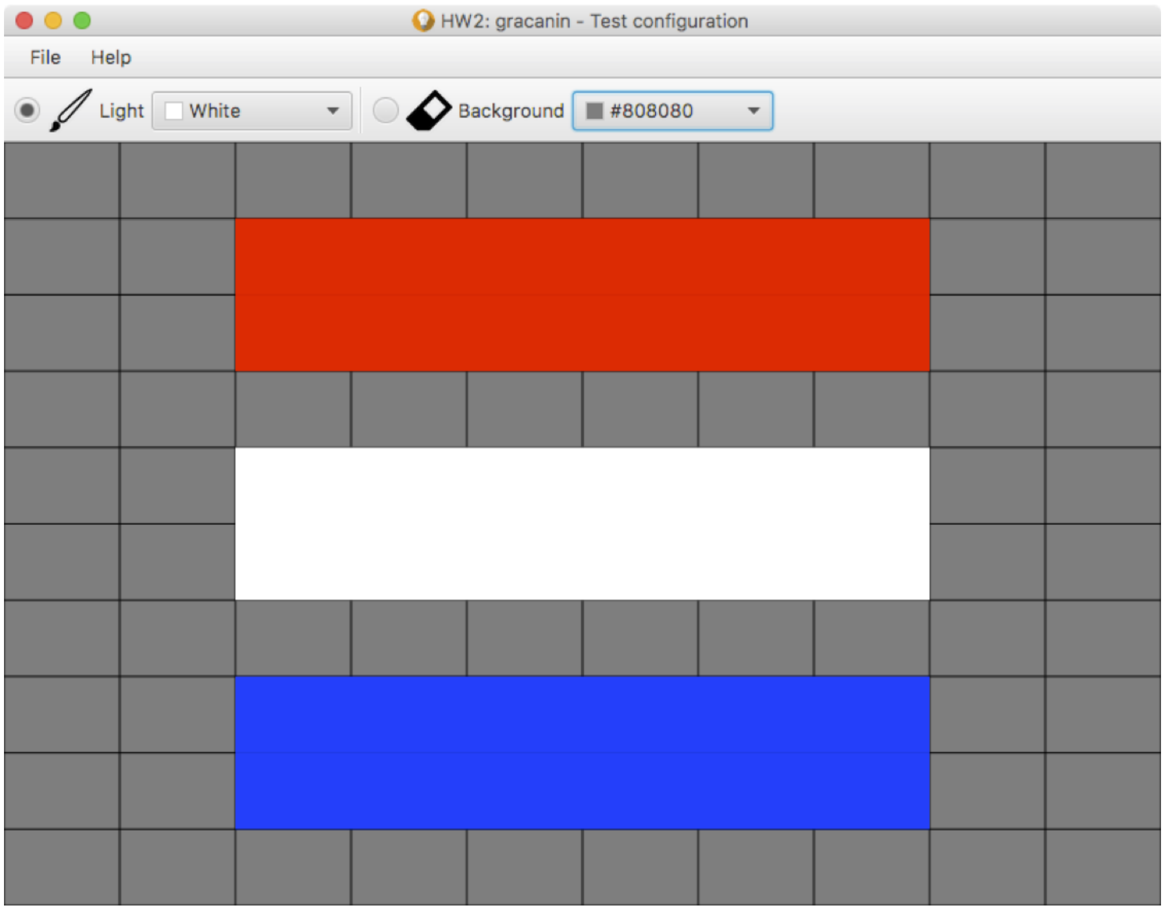
  Line 3: four values, background color components — red, green, blue, opacity — as percentages (0.0-100.0):

  ```
  50.0,50.0,50.0,100.0
  ```

  Remaining lines: six values, inidividual light (grid cell) description — row index, column index, red, green, blue, opacity:

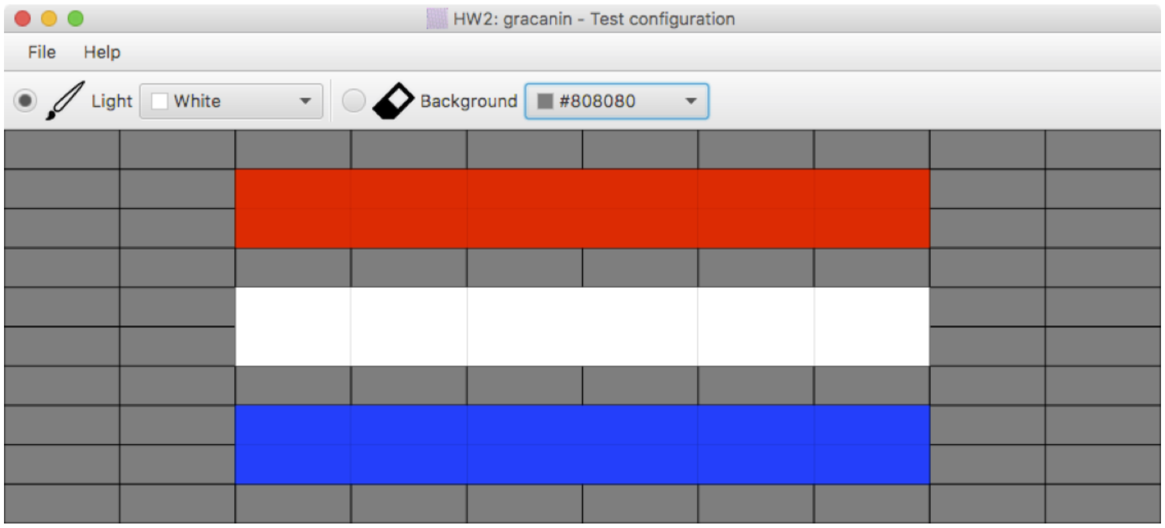
  ```
  1,2,100.0,0.0,0.0,100.0

  ...
  ```

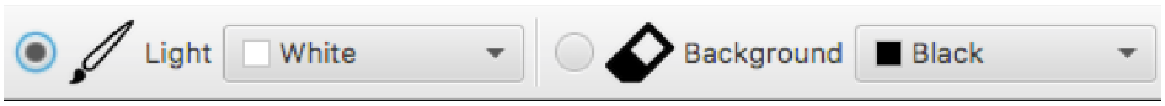


- Resizing:
  - The Canvas object resizes to fit all the available space within the application window.

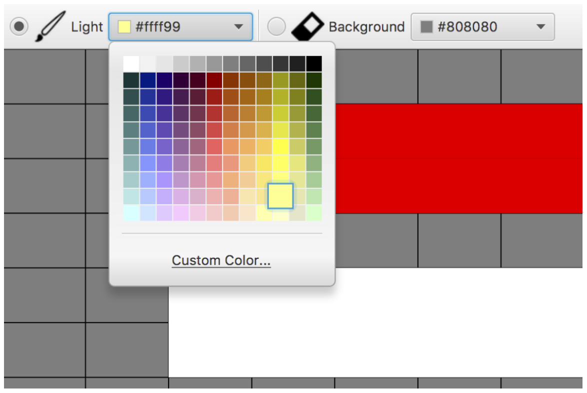
- The grid and lights are scaled accordingly.
- Menu and toolbar remain unchanged.



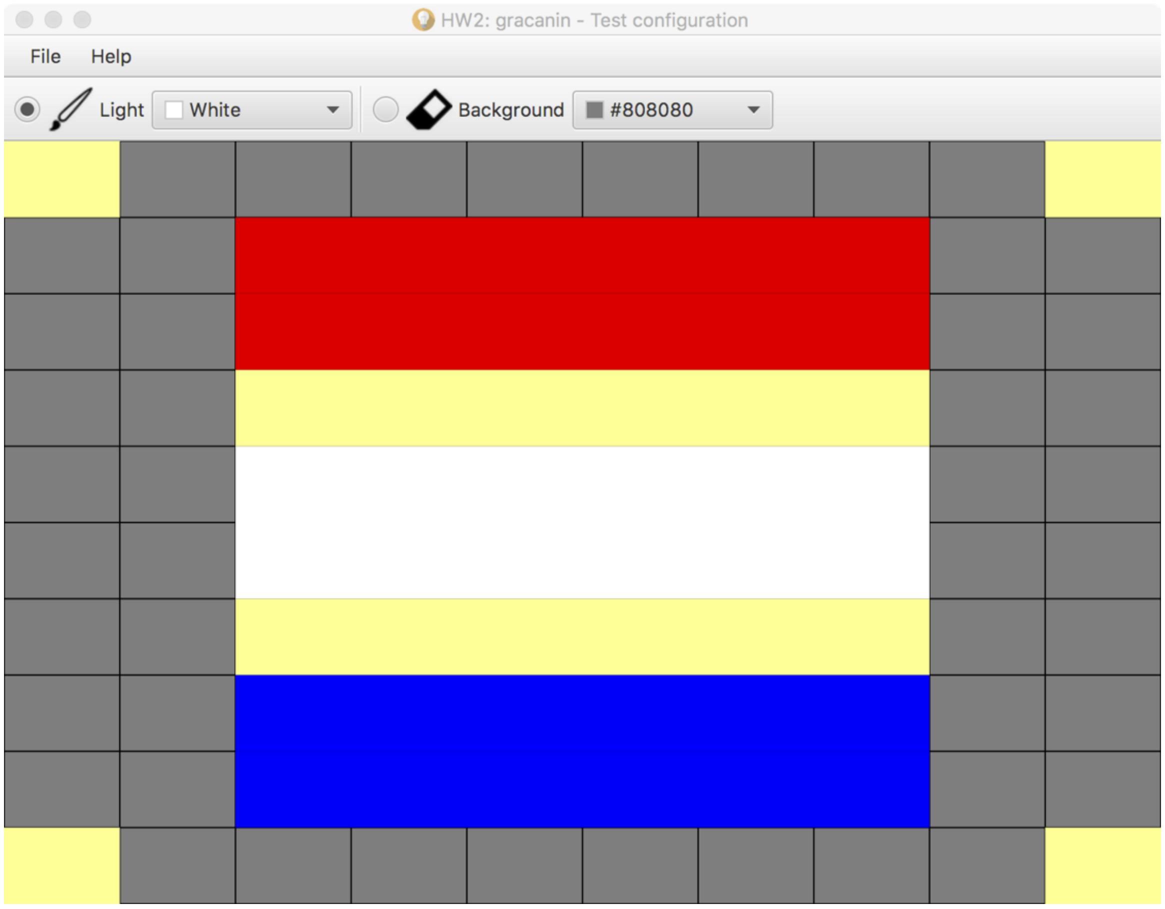
- Specifying colors:
  - The color pickers (color selection) for light and background colors are enabled regardless of the mode of operation.
  - The cursors corresponds to the icon used for radio buttons.
  - The light color and the background color buttons are radio buttons and determine the mode of operation and the appearance of the cursor.



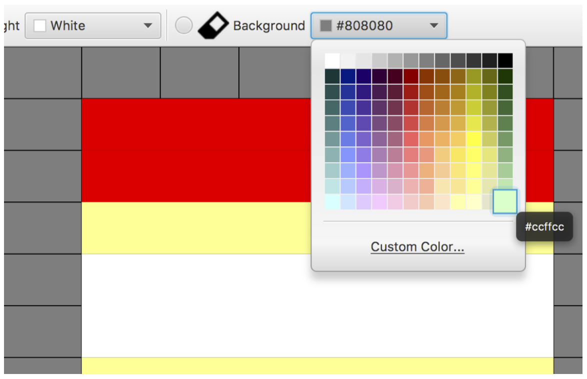
- The light color is used to mark an active (or existing) light (grid cell).

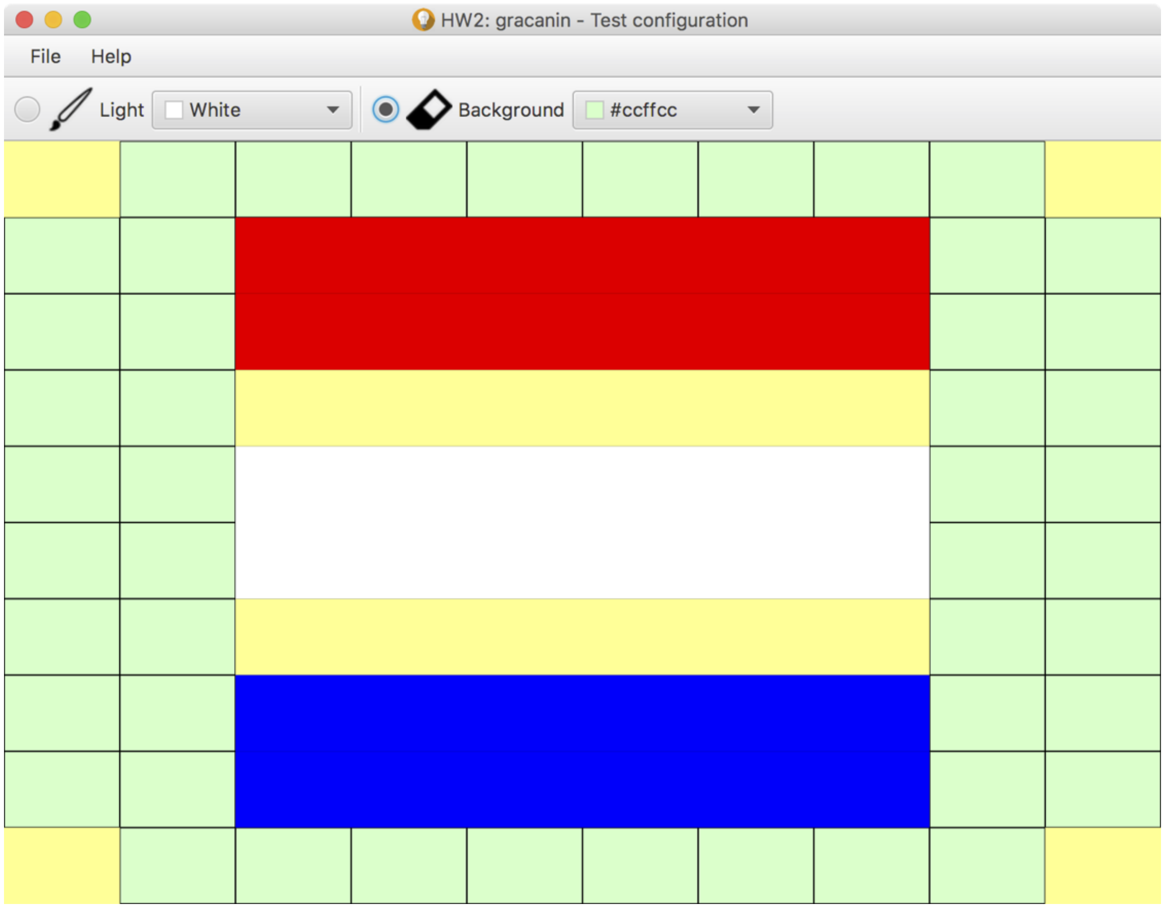


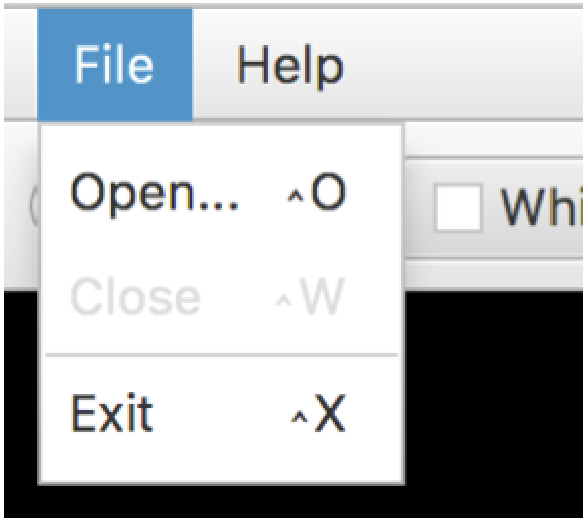
- When the mouse pointer moves to canvas, the cursor changes shape to the icon used next to selected mode of operation.
- Pressing and dragging a mouse button over the cell changes the cel aacordingly (light/background color).



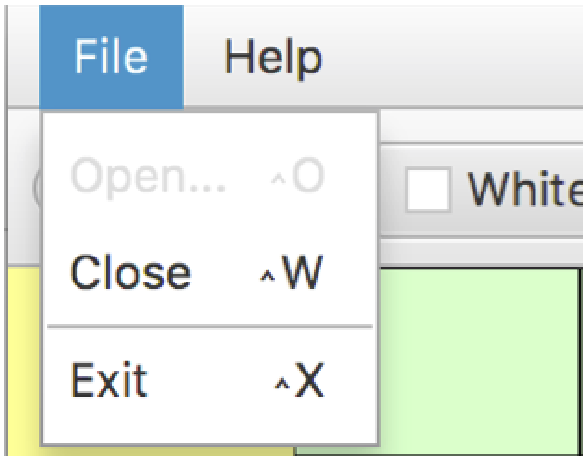
- The background color is used to mark an inactive (or non-existent) light (grid cell)



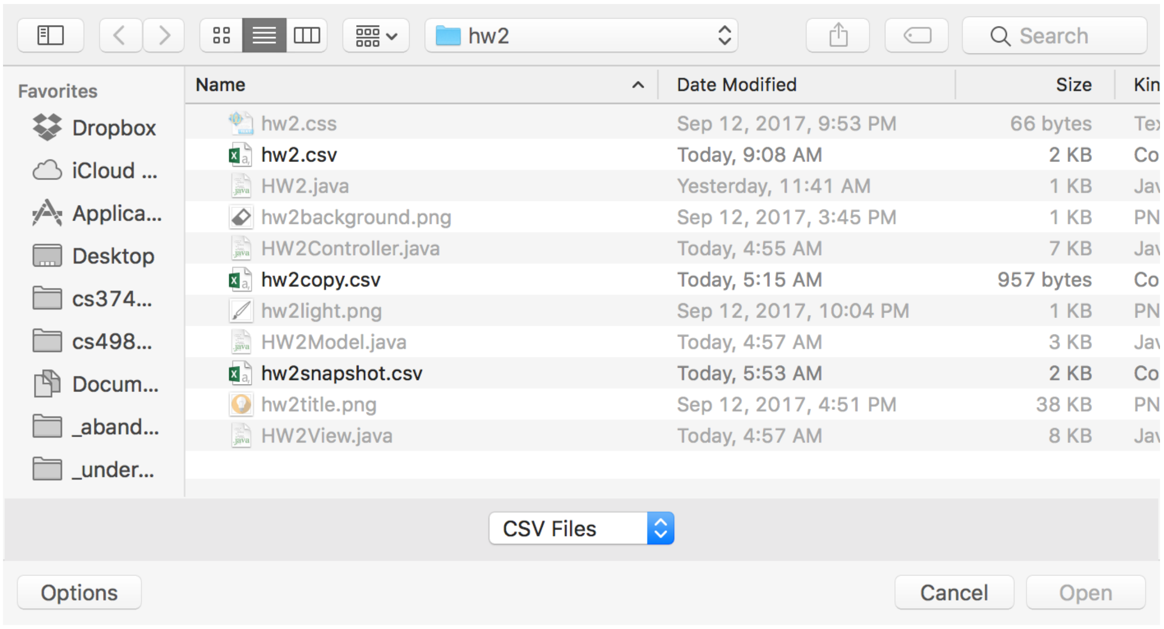


- File menu functionality:
  - File not open:
    - Open… enabled.
    - Close disabled.
    - Exit enabled.
    - 

  - File open:
    - Open… disabled.
    - Close enabled.
    - Exit enabled.



- Open menu item starts the file chooser (.csv files).



hw2 Search

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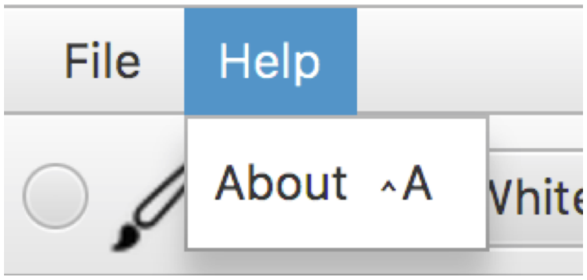
| HW2View.java | Today, 4:57 AM | 8 KB | Ja |

CSV Files

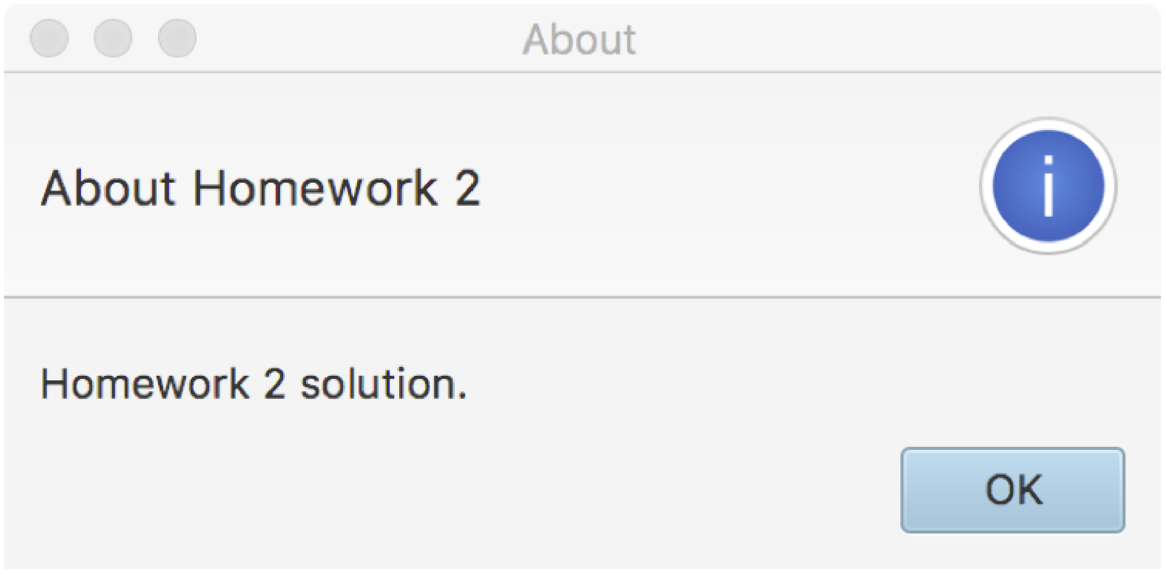
Options Cancel Open

- The application does not create a new file, it reads and modifies the existing one.
- Close menu item saves the light configuration.
- Exit menu item exits without saving the configuration.

- Help menu functionality:
  - A single menu item, About.



  - Shows an alert dialog.

- 

  About Homework 2

  Homework 2 solution.

- Other requirements:
  - Accelerators keys:
    - File menu:
      - Open… menu item: CTRL-O
      - Close menu item: CTRL-W
      - Exit menu item: CTRL-X
    - Help menu:
      - About menu item: CTRL-A
  - The name of the configuration is displayed in the application window bar, for example:
    - File not open:
      HW2: gracanin
    - File open:
      HW2: gracanin – Test configuration
- Your solution can differ slightly in terms of spacing but it has to have the same layout.
- Use your own light and background cursor and window icon.
  - Make sure they are consistent with the functionality.
- Use Model-View-Controller design pattern and create separate classes for the model, view and controller (in addition to the main class).
- CSS use is optional.
- Use property classes to implement the data model.

### Submission

Submit (upload) your solution to Canvas as a single ZIP file named `hw2<PID>.zip` (for example, in my case the ZIP file would be named `hw2gracanin.zip`) that contains (in `cs3744/hw2` folder):

- `HW2.java`: Homework 2 main class Java source code.
- `HW2Model.java`: Homework 2 model class Java source code.
- `HW2View.java`: Homework 2 view class Java source code.
- `HW2Controller.java`: Homework 2 controller class Java source code.
- `hw2.css`: Homework 2 Cascading Style Sheets (CSS) source code - optinal.