

# Homework (B0B17MTB)

## Problem Set 3D

### 1 Assignment

Implement a simple application as a main function or a script called `problem3.m` with a graphical user interface (GUI) according to the following requirements:

- Create a figure containing the following graphic components: a listbox, two buttons, and a lamp. Place them so that the GUI will approximately correspond to the Figure 1 (**1 point**).
- Create appropriate callback functions to achieve that:
  - pressing “+” button opens a modal figure with an edit field, three knobs and ”OK” button (**1 point**),
  - changing values of knobs (RGB components in range from 0 to 1) continuously shows the actual color as background color of “OK” button (**2 points**),
  - by pressing “OK” button add the defined color into the list of colors and close the figure (**2 points**),
  - by selecting a color in the list the lamp changes color according to the selected one (**1 point**),
  - by rotating a mouse wheel change selected color in the list and change lamp’s color accordingly (**1 point**),
  - by pressing a delete key delete the selected color from the list, do not allow to delete the last one (**2 points**),
  - pressing “edit” button (unicode symbol 9998) opens the same figure as for adding a new color, but enables to edit the selected color (**3 points**),
  - check the entered name of the colors to not be empty or duplicitous, show `uialert` when the name is invalid (**2 points**).
- Try to run the file `problem3d.p` to check the complete functionality of the application on your platform.
- Prevent using `global` variables.
- Your application does not necessarily look exactly like our solution (colors, markers, fonts, sizes,...), but the functionality should be the same.

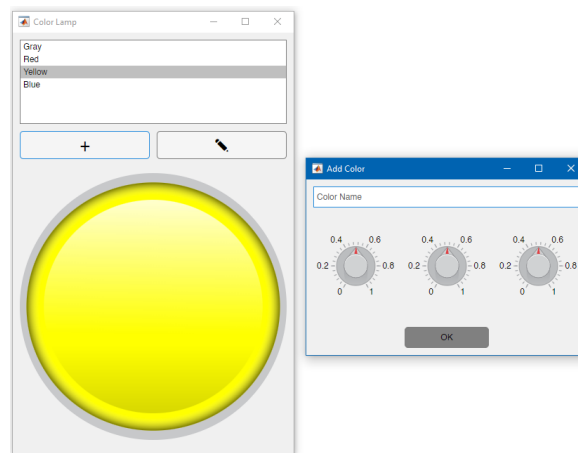


Figure 1: Resulting GUI of the Painting application.

### 2 Instructions

Complete all the assignments till December 5, 7:59 a.m. Created m-file upload to the [BRUTE](#) system. The problem shall be solved by the students individually (notice the BRUTE system has a duplicity checker). Do not use functions from MATLAB Toolboxes. Contact [matlab@fel.cvut.cz](mailto:matlab@fel.cvut.cz) with any questions.