# SEng 265: Programming Exercise 3

## Problem Summary

Your task is to develop a graphical user interface for creation and modification of Code Activator quiz specifications.

This is a team assignment; it must be completed by the teams formed in lab.

## Downloading the files

1. Use your browser to download the [C and Code Activator source files](#).
2. From the directory where you have placed the zip file, unpack the files:

   ```
   unzip exercise3_download.zip
   ```

3. Test the installation by typing

   ```
   cd exercise3_download
   python quiz_spec_gui.py code_library
   ```

   You should see a quiz specification GUI with pulldown menus in place but with print statements rather than a full implementation.

## Develop the question specification GUI

Use the display layout shown in `quiz_spec_gui.py`. You must make **no** changes to the layout.

**Simplifying assumption**: All quiz specifications processed use:

```
practice_mode = True
standalone = False
logged = False
log_dir = ''
```

You many assume that any quiz specification opened has these settings. Every quiz specification saved by the GUI must contain these lines as the last four lines of the file.

You must provide a pulldown menu called "File" with the following menu items:

Open
    Display a file dialog box showing the files in the current directory and requesting the name of the quiz specification file to open.
    **Simplifying assumption**: the file selected is readable and is a legal quiz specification.
Save
    Save the current quiz specification in file name $F$. For $F$, use the most recent file name used in Save as. If Save as has not been used in this GUI session, use the file name of the most recently opened file. If no file has been opened in this GUI session, use file name `quiz_spec.py`
    **Simplifying assumption**: the file selected is writable. If it already exists, then overwrite it, without any message.

Save as

    Display a file dialog box showing the files in the current directory and requesting the name *F* of the file in which the current quiz specification should be stored.

    **Simplifying assumption**: the file selected is writable. If it already exists, then overwrite it, without any message.

Exit

    Terminate the GUI.

    **Simplifying assumption**: exit silently even if there are unsaved changes.

You must provide a pulldown menu called "Groups". Group menu items use a *current group*: the group with the cursor in the marks or count field. If no group contains the cursor, then there is no current group.

Group menu items use a *group buffer*. Initially, the group buffer contains mark = 1, count = 1, and an empty list of directories.

The Groups menu must provide the following items:

Add group before

    Add a new group before the current group, using the values in the group buffer.

    **Simplifying assumption**: there will not be more than 10 groups in any quiz specification. Do not provide a scroll bar on the list of groups.

Add group after

    Add a new group after the current group, using the values in the group buffer.

    **Simplifying assumption**: there will not be more than 10 groups in any quiz specification. Do not provide a scroll bar on the list of groups.

Delete group

    Delete the current group, copying its contents to the group buffer.

Clear group buffer

    Replace the current group buffer contents with its initial contents.

Add directory

    Display a dialog box containing a vertical list *D* of directories, with an unchecked checkbox to the left of each one, as well as an Add and a Cancel button. *D* must contain all directories in the code library but not in the list of directories for the current group. When the Add button is pressed, all checked directories must be added to the current group.

    **Simplifying assumption**: there will not be more than 20 directories in any code library. Do not provide a scroll bar on the list of directories.

Remove directory

    Display a dialog box containing a vertical list *D* of directories, with an unchecked checkbox to the left of each one, as well as a Remove and a Cancel button. *D* must contain all directories currently associated with the current group. When the Add button is pressed, all checked directories must be removed from the current group.

    **Simplifying assumption**: there will not be more than 20 directories associated with any current group. Do not provide a scroll bar on the list of directories.

## Grading Criteria

Your mark will be based on the following criteria:

[70%] Required menu items implemented correctly
- Are the File menu items implemented correctly?
- Are the Groups menu items implemented correctly?

[20%] Code and documentation style
- Is your implementation as simple as possible?
- Have you used a consistent code and documentation style?

[10%] Assignment submission
- Have you followed the instructions for submitting the assignment?
- Were you able to successfully submit with the first attempt?

## Submitting your Solution

You must submit a single file

```
N.quiz_spec_gui.py
```

where N is the logins, '_' separated, of the team members. Be sure that these are the logins used in the SEng 265 lab.