Elect Connect GUI Component Design   Pawel Wrotek

1. Sub-Component Diagram

```
                          ┌──────────────────┐
                          │  BallotGenerator │
                          └──────────────────┘
           ┌──────────────────┐   │   ┌──────────────────┐
  ┌────────────────────┐  ┌──────────────────┐  ┌──────────────┐
  │  QuestionScrollView│◄─│   QuestionPanel  │  │   InfoPanel  │
  └────────────────────┘  └──────────────────┘  └──────────────┘
        │            │          │
  ┌──────────────┐  ┌──────────────────┐  ┌──────────────┐
  │ QuestionButton│ │  CandidateDialog │─►│  Candidate   │
  └──────────────┘  └──────────────────┘  └──────────────┘
```
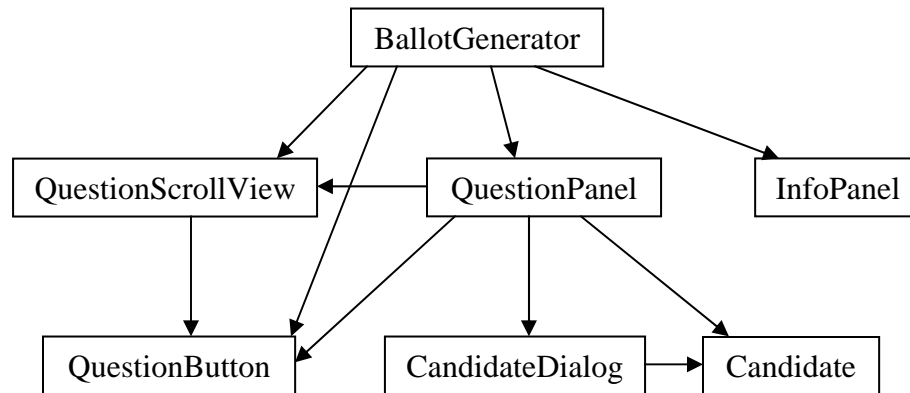
2. Sub-Component Descriptions
Each sub-component inherits from a QT class (which is given in parentheses after each sub-component's name). Also, each sub-component except QuestionScrollView additionally depends on the data structures defined in ballotdata.h (see interface specification) to store the information about the election being created.

BallotGenerator (QMainWindow)
This is the top-level class of the GUI. It contains the three major visual components of the GUI: the QuestionScrollView, QuestionPanel, and InfoPanel. The QuestionScrollView is always shown on the left of the GUI, while the remaining space is occupied by either the QuestionPanel or the InfoPanel, depending on whether the user is editing question information or election information. The BallotGenerator also knows about the QuestionButton, but only for the purpose of passing a pointer to the QuestionPanel whenever the user selects a new question in the QuestionScrollView.

The BallotGenerator also contains the menubar as well as methods to handle the commands that can be invoked from the menu (new election, load, save, upload, add question, edit information, help).

QuestionScrollView (QScrollView)
This is a scrollable viewing area that contains QuestionButtons, which are created as the user adds new questions and deleted as the user removes them. When a QuestionButton is selected (clicked) by the user, the QuestionScrollView emits a signal that contains a pointer to the selected question. The BallotGenerator connects this signal to a slot that then allows it to notify the QuestionPanel about the newly selected question.

QuestionButton (QToolButton)
This is a button that the user can press in order to select a question. The button keeps track of all the data related to its question (see question_data_t in ballotdata.h), including the question text which is displayed on the button.

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QuestionPanel (QWidget)
This panel contains all the fields necessary for editing a question. When the
BallotGenerator passes it a pointer to a newly selected QuestionButton, the
QuestionPanel loads the data from the QuestionButton into its fields. As the user edits
the information in these fields, the current QuestionButton's data gets updated
accordingly.

For editing candidate information, the QuestionPanel contains the CandidateDialog
which it displays whenever the user wants to add or edit a candidate. The Candidate
class is used to keep track of each candidate's information.

The panel also contains a button to remove the current question, and if the user decides to
do so, the panel informs the QuestionScrollView.

CandidateDialog (QDialog)
This dialog contains fields for editing candidate information. When the QuestionPanel
displays it, it also passes it the current Candidate being edited. The dialog contains an ok
and a cancel button. If the user clicks ok, the Candidate's data is updated based on the
changes made by the user, otherwise the changes are discarded.

Candidate (QListBoxText)
This is an item that is displayed in the QuestionPanel's QListBox (a QT component) of
candidate names, and additionally stores each candidate's information.

InfoPanel (QWidget)
This panel contains all the fields necessary for editing the general election information. It
also holds the data structure containing that information.