CMPE 230 Systems Programming

Project 3

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Main aim of this Project is constructing a memory card game with QT. These 30 cards have 15 different fruit name inside. When you clicked a button, it will show its inside. Game has also a time constraint and score board. There are two functional buttons: New Game and Quit. We have 4 headers and 4 source files.

In mainwindow, we use QHboxlayout, QVboxlayout, and gridlayout to create a gameboard in GUI. There are some objects such that MyTimer, GridLayout and WordButton. We use class hierarchy while creating those objects. In main, a Grid object constructed. All wordbuttons and the gridlayout implemented In this object. Words are assigned buttons randomly in this part. Also connections are set in this object. Wordbuttons are also QPushButtons so they have clicked signal. These signals connected show_card slots in wordbutton and check_words in gridlayout. newGame() method restarts the game when new game button is clicked in the game.

In gridlayout, we have QGridLayout that holds every widget in the game. All wordbuttons are kept in here with indexes. It also have some fields to control previous and present clicked buttons. Int prevo holds previous cards index and int now holds second cards index. If there are no previous cards, then they are initialized to -1. There are some slots in this class. Check_words slot is controlling open cards. If there are not two cards, it does nothing. If two cards are same, buttons will be disabled and score will increase. If two cards are not same, they will be open for 1 second and timer is connected to soru() slot. This slot closes cards again and initialize prevo and now to -1. Finally a for loop controls if all the buttons are matched.(wordbuttons' control field will be true if matched). There is out() slot in gridlayout too. It disables all buttons when the time is over.

Mytimer is a QObject. It has a timer that counts every seconds. This timer is connected to MyTimerSlot. This slot counts seconds from the starting of the game. There is also a field that holds time constraint. It initialized with the variable came from main. In this slot, if counter reaches time constraint, time label will stop and a messagebox will pop with "you fail" text.

Wordbutton is a QPushButton. It has Word variable came from main, a GridLayout also from main and an int x that holds its index in GridLayout. There is one slot named show_card. This slot called when someone clicked a wordbutton. If there are two unmatched card opened, ıt waits one second before clicking another card. If no previous button opened, this button show its word. If someone clicked same button twice, code will do nothing. Else it shows word of the second button too.