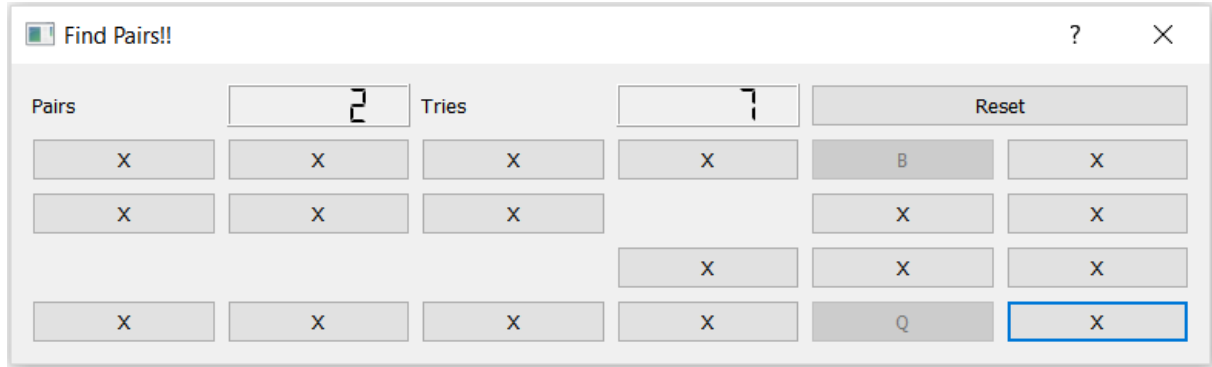# CMPE 230 Homework #3

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In this project, problem is developing QT program that implements "Find The Pair" game.

Screenshot of the program

1. Design the GUI:

When I started this project the first thing that I did is designing the GUI of the program. Program has 5 layouts in its window. The label 'Pairs' and its LCDNumber has a layer called pairLayout, 'Tries' label and its LCDNumber has a layer called triesLayout. This 2 layouts and 'Reset' button form the upperLayout of the program. The card buttons are in a Grid Layout called glayout. At the end upperLayout and glayout creates the mainLayout which is the setted layout of the window.

2. Add and Connect Signals and Slots:

There are 2 slots of that program which are resetClick() and cardClick(int cardNum). The resetClick() slot the slot which resets the program and turns it to its initial state. It randomizes the cards first then shows the letters of the cards for one second. Then all buttons are enabled and the texts of buttons are set to 'X' which means the back of the cards.

Second slot is the cardClick(int cardNum) slot. This is the main slot of the program. This slot runs according to the state of program. Program has 2 states which are FirstClick and SecondClick. FirstClick states the clicked button is the first button of the pair. If it is the first card, the program only disables the button clicked and shows the letter of that card. Et the end of this action state of program changes to the SecondClick state and index of this button is stored as prevButton integer. In SecondClick state firstly disables the clicked button and shows its letter. Then number of tries is incremented and there is a 0.5 seconds delay to show the letters of 2 cards. If 2 cards are a pair, the number of pairs is incremented and 2 button are made invisible. If 2 cards are different then program enables 2 buttons and set their text to 'X' which means back of the card. At the endi f all pairs are found, there is a 0.5 seconds delay and it emits the clicked signal of reset button to reset the program.

The resetClick() slot connected to the clicked signal of the 'Reset' button, and cardClicked(int cardNum) slot connected to the buttonClicked(int) signal of the buttongroup.

3. Additional Funtions:

- void delay(int milisec):

This funtion takes a integer parameter milisec and delays the program that many miliseconds. Firstly it blocks all of the signals of the program. Then adds milisec miliseconds to current time. The while loop basicly waits the finish time. At the and all blocked signals are unblocked.

- void randomizeCards():

This funtion generates 12 letters randomly and put this letter to random positions in the cards string array.

- void show():

This funciton is the overloaded version of the show function of QDialog class. Only difference is this function emits a clicked() signal of reset button to set the initial state of the program.