Final Presentation

## Chinese Learning Program

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1. 3 Cycles: Idea, Design, Program, Evaluate

Idea: Making a Chinese-Learning Program based on Various Features Chinese Words have

Design:

      (1)   Vocabulary Notes that different features are shown when clicked

      (2)   Vocabulary Test that can test if the learner can find matching features

1.3 Cycles: Idea, Design, Program, Evaluate
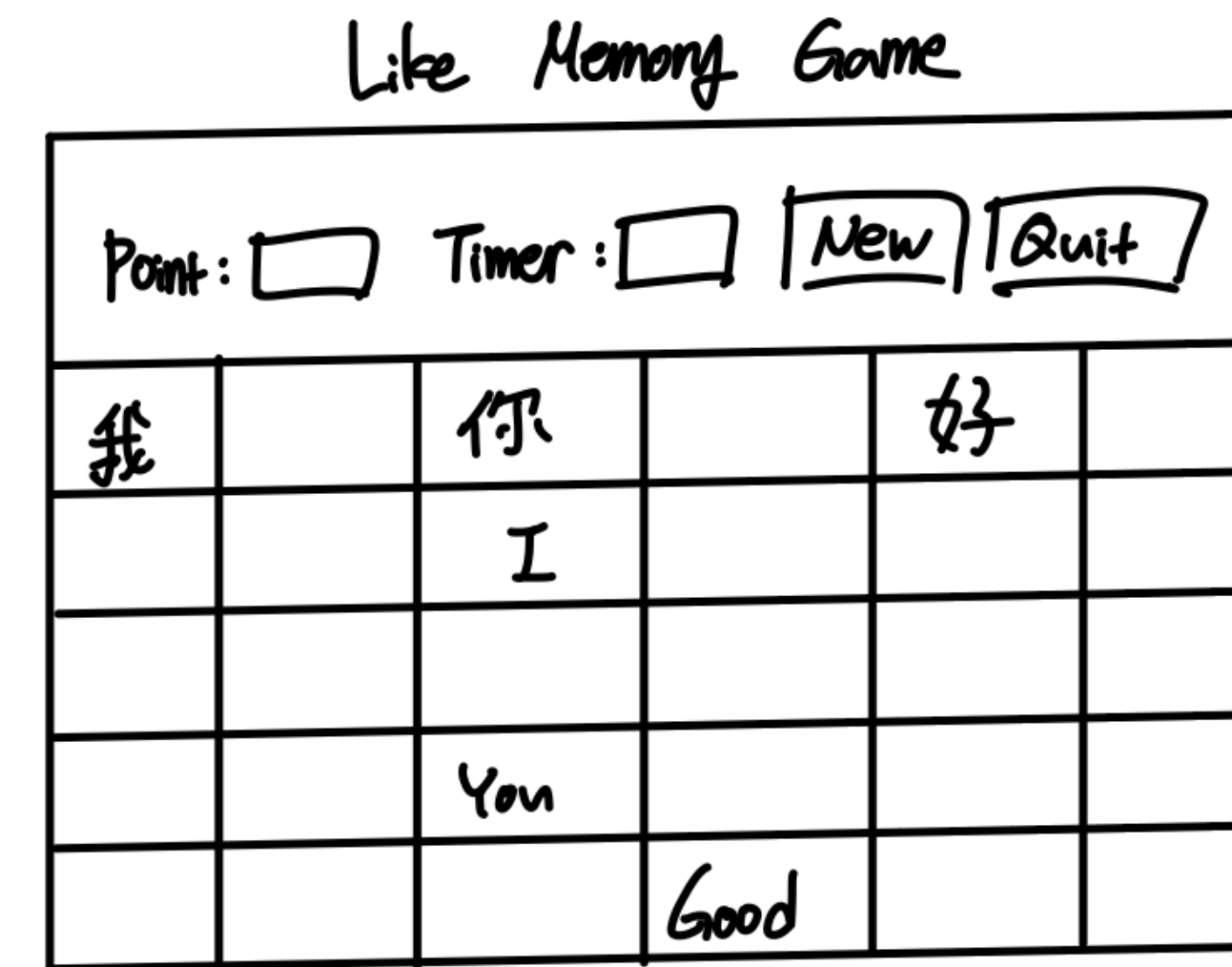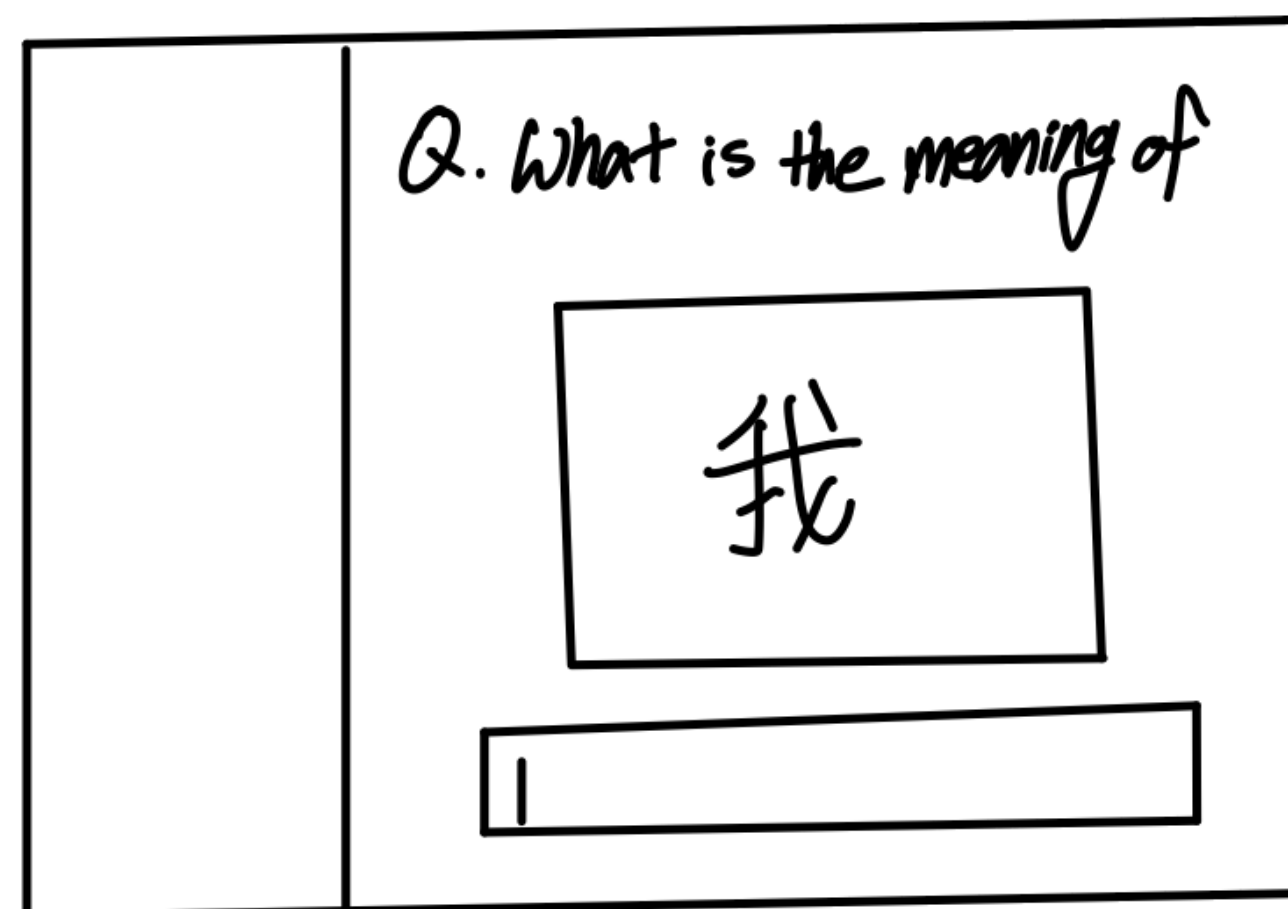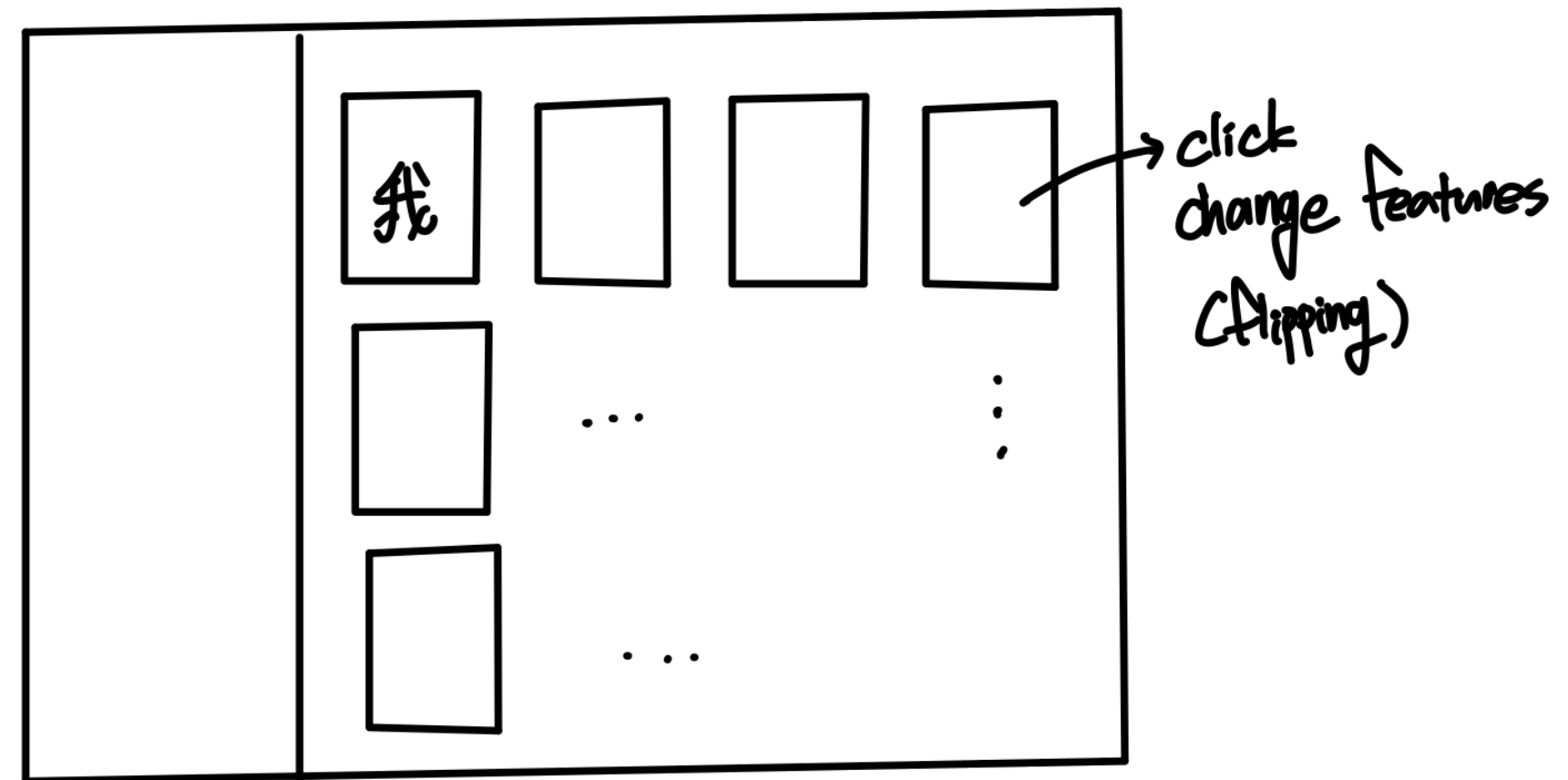
1. 3 Cycles: Idea, Design, Program, Evaluate

(1) I worked on window to view cards first, which didn't work well.
     - not familiar with using QT and form(.ui)

(2) I tried working on testing window without form (.ui)
     Because understanding and following the logic of game was easier than making a new one.

(3) Wrote codes of viewing cards based on testing window.

1.3 Cycles: Idea, Design, Program, Evaluate

(1) Difficulties

   - drawing all the cards with one function and doing things with a single cards

   - functions and objects of QT

   - looks simple but rather difficult vs looks difficult but rather simple

(2) I focused on what I can do certainly (word testing window)
         and worked on the next thing (viewing window) based on what I've done.

2. Computation

`void Grid::initialize()` (from word testing window)

```cpp
// generate a random number so that the words will be located randomly
// int random can be translated as a random index
int random = QRandomGenerator::global()->bounded(total_num);
QString word = words[random];

// word object to locate
Word *w = new Word(word, word);

// remove the word form the list
words.removeAt(random);

    .
    .
    .

// connect word, signal and slot
// so that the game works properly:
// clicking, checking if matched, game end or new game, etc
QObject::connect(w, SIGNAL(clicked()), w, SLOT(click()));
QObject::connect(w, SIGNAL(clicked()), this, SLOT(check()));

// add words to the grid
this->addWidget(w, row, col, 1, 1);
```

3. Visualization

Chinese Words

我	好	再见
爱		
你	爱	你好
	再见	

Chinese Words - Meaning Linking Game

Score: 0   Seconds: 4   New Game   Quit Game

它	水	他	我	爱	她
看	you	I	你好	good	it
he	好	book	she	你	再见
goodbye	drink	thank you	谢谢	吃	喝
water	eat	love	watch	hello	书

3. Visualization

<QCoreApplication>: to create application without graphical ui

QPushButtons: word objects with clicking available

QVBoxLayout, QHBoxLayout: vertical box containing widgets, horizontal boxes containing 'new/quit game'

Grid(timer, point): the whole grid

4. Further Extension

(1) **Missed Features in this Project:**
(viewing cards window) view features dynamically, make cards bigger, level filtering, etc.

(2) **Link two windows into one and Make the user can choose.**
- need to make a common grid and card objects

Thank you!

Q&A