

Efficient Object-structure-based E-learning IOS App

---*SkyApp*

Students:

Zhang Tianyi (Tansy)

Zhang Yingying (Yingying)

Liu Chang (Carol)

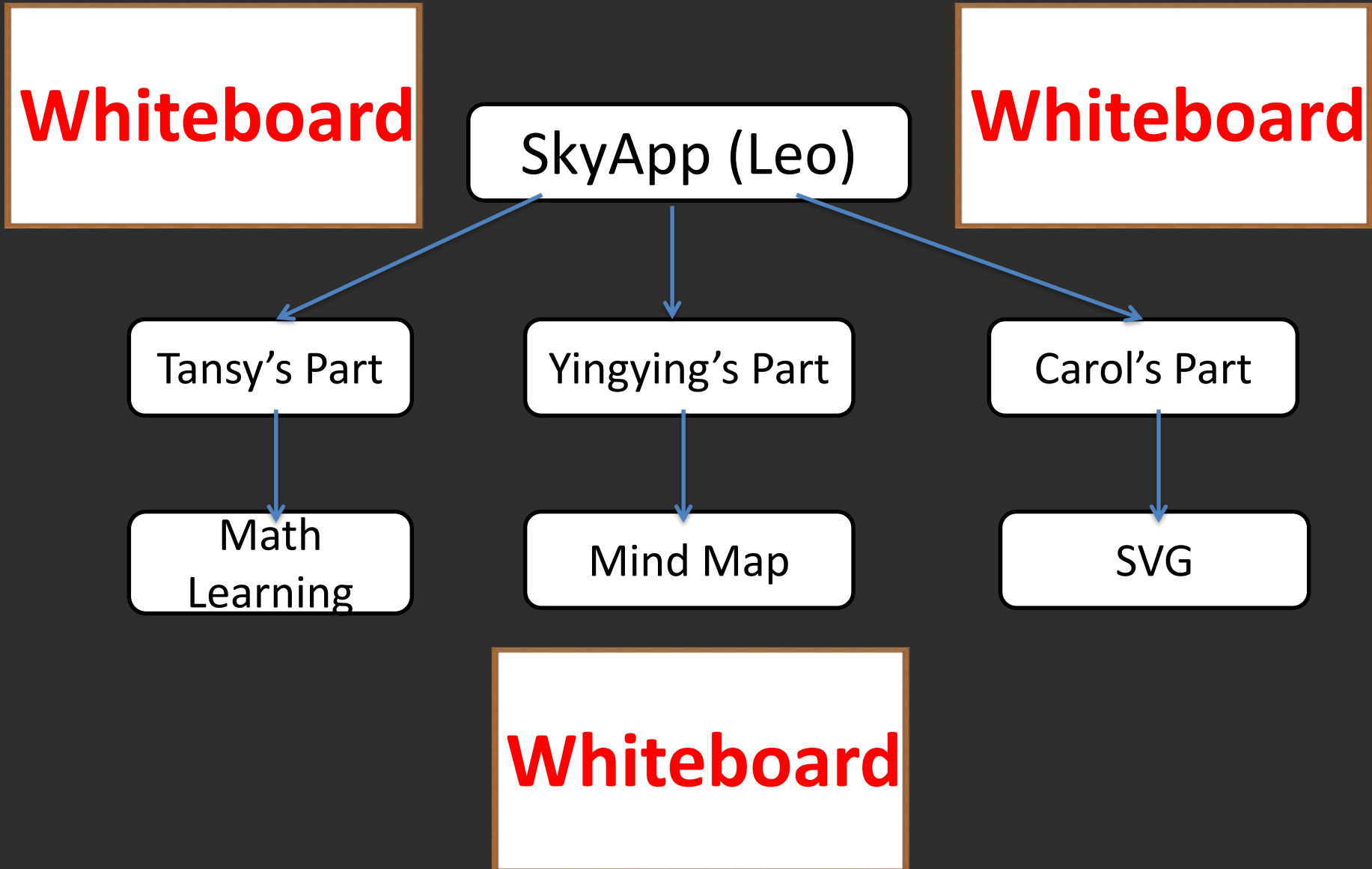


Supervisor: Dr. Lucas Hui

TA: Leo Yeung Cheuk Yu

Date: Monday, 13 July 2015

Efficient Object-structure-based E-learning IOS App



Application

Efficient Object-structure-based E-learning IOS App

1. **Target Users:** Primary school students and teachers
2. **Goal:** We help them to have high efficient work both in and after class.

天空 SKYApp

帳戶 (Account):

密碼 (Password):

語言 (Language):

中文

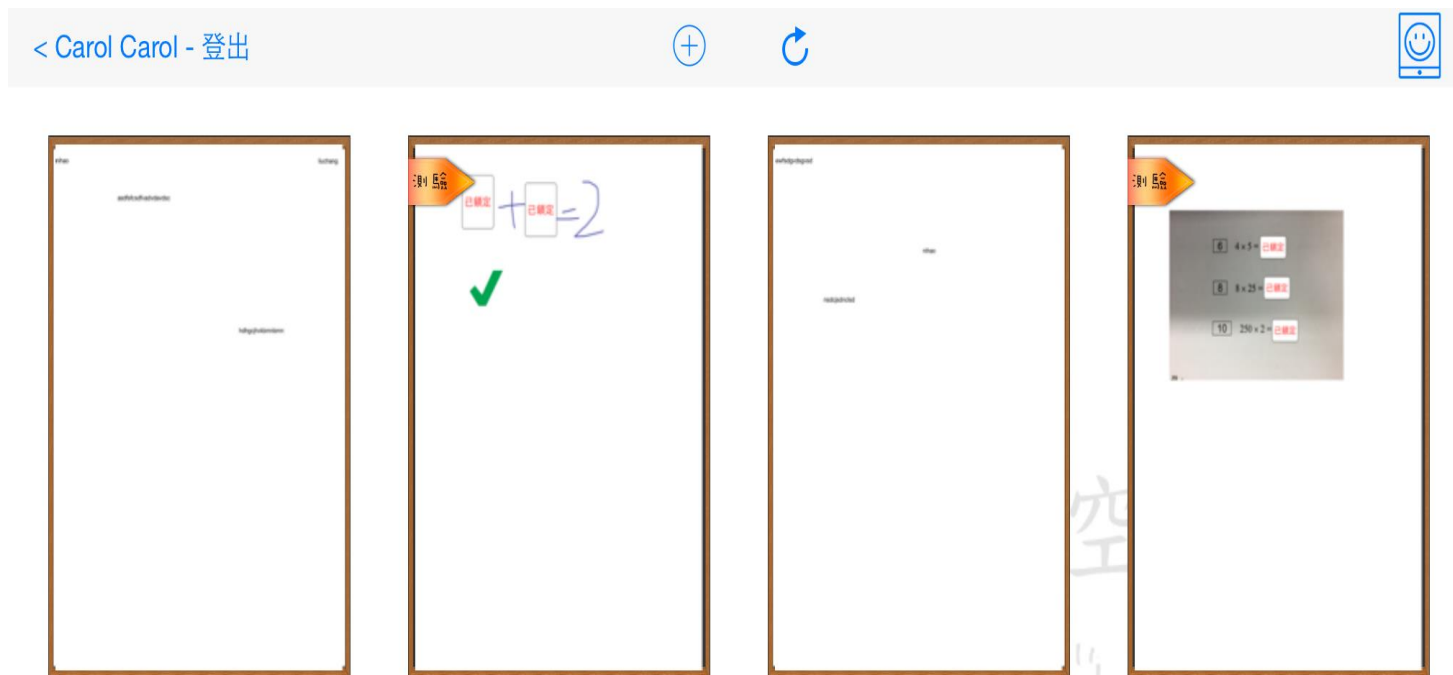
English

登入 (Login)

Application

Efficient Object-structure-based E-learning IOS App

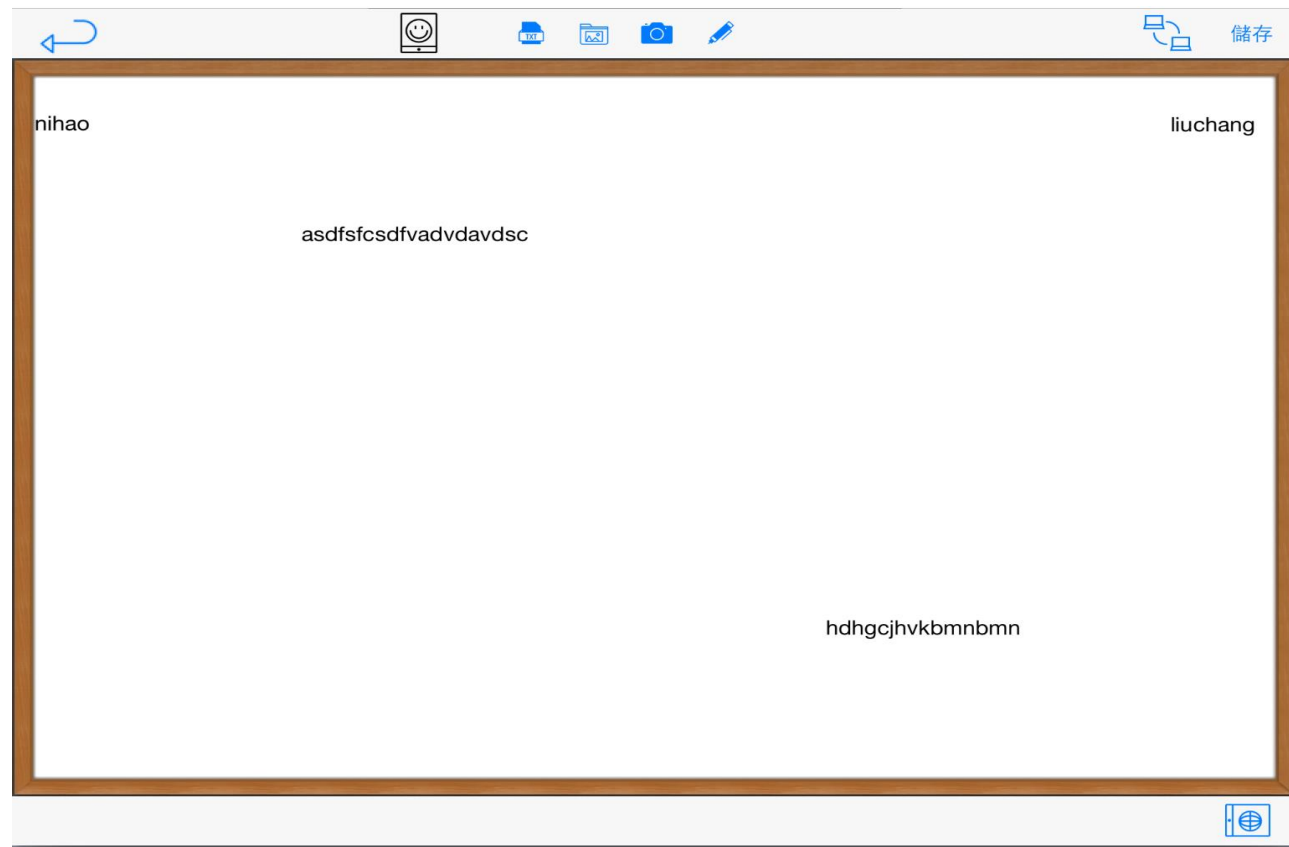
1. **Target Users:** Primary school students and teachers
2. **Goal:** We help them to have high efficient work both in and after class.



Application

Efficient Object-structure-based E-learning IOS App

1. **Target Users:** Primary school students and teachers
2. **Goal:** We help them to have high efficient work both in and after class.



Efficient Object-structure-based E-learning IOS App

The work I have been involved and done:

1. **Design Ideas** (Research, **Interaction** design, **Function** Design, **Comparison** of existing products)
1. **Implementation** (**Login** function with PHP server, Main function)
1. **UI Design and Icons Collection**
2. **Testing** (Functional Testing Document)
1. **User Research and Feedbacks**

Design Ideas

Efficient Object-structure-based E-learning IOS App



BaiBoard - Colla...
LIGHTPLACES LI...



Educreations Int...
Educreations, Inc



iTunes U
Apple



Jot! Whiteboard...
Tabula Rasa, LLC



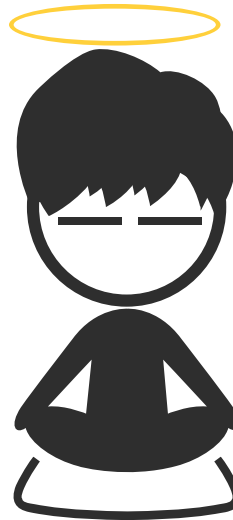
Math Animations...
Xicheng Dong



MyScript Calcula...
MyScript



ShowMe Interact...
Learnbat, Inc.



Research Papers and Market Research

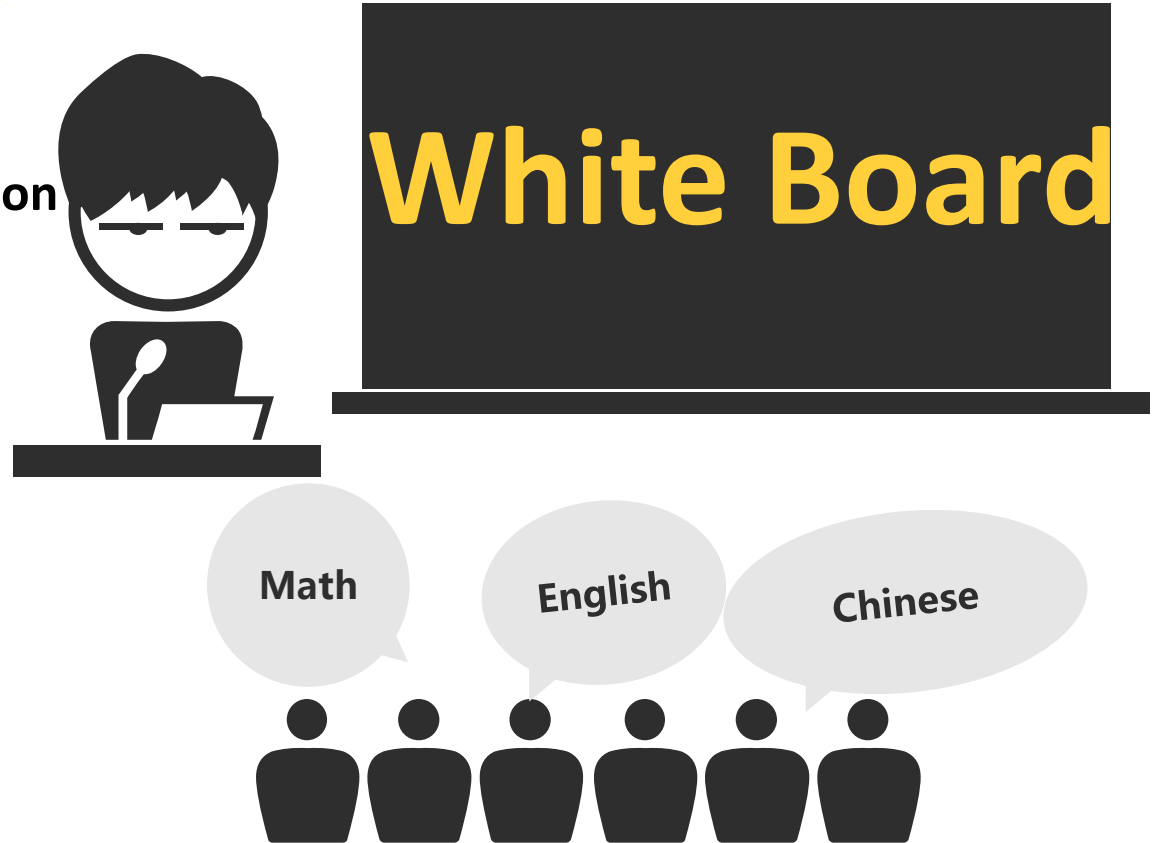
Design Ideas

The **unique characteristics** of our app besides “whiteboard”:

1. **Mind map & Data Visualization**
2. **Automatic Recognition**

Summary:

1. **Teacher mode & Students mode**
2. **Multiple subjects**
3. **Learn & Review Version**
4. **Chinese & English Version**
5. **In & After class**



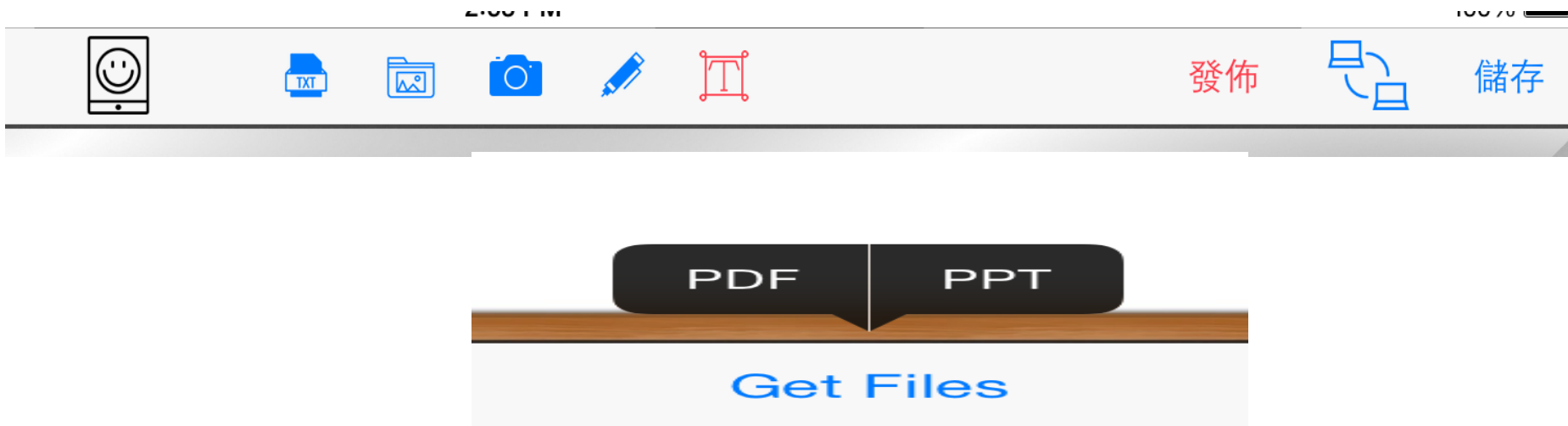
Design Ideas

Efficient Object-structure-based E-learning IOS App

1. Use Case and Scenarios:

- 1) Teachers use the app to prepare for the class. (Before class)
- 2) Teachers distribute tasks in class.
- 3) Teachers give assignment after class.

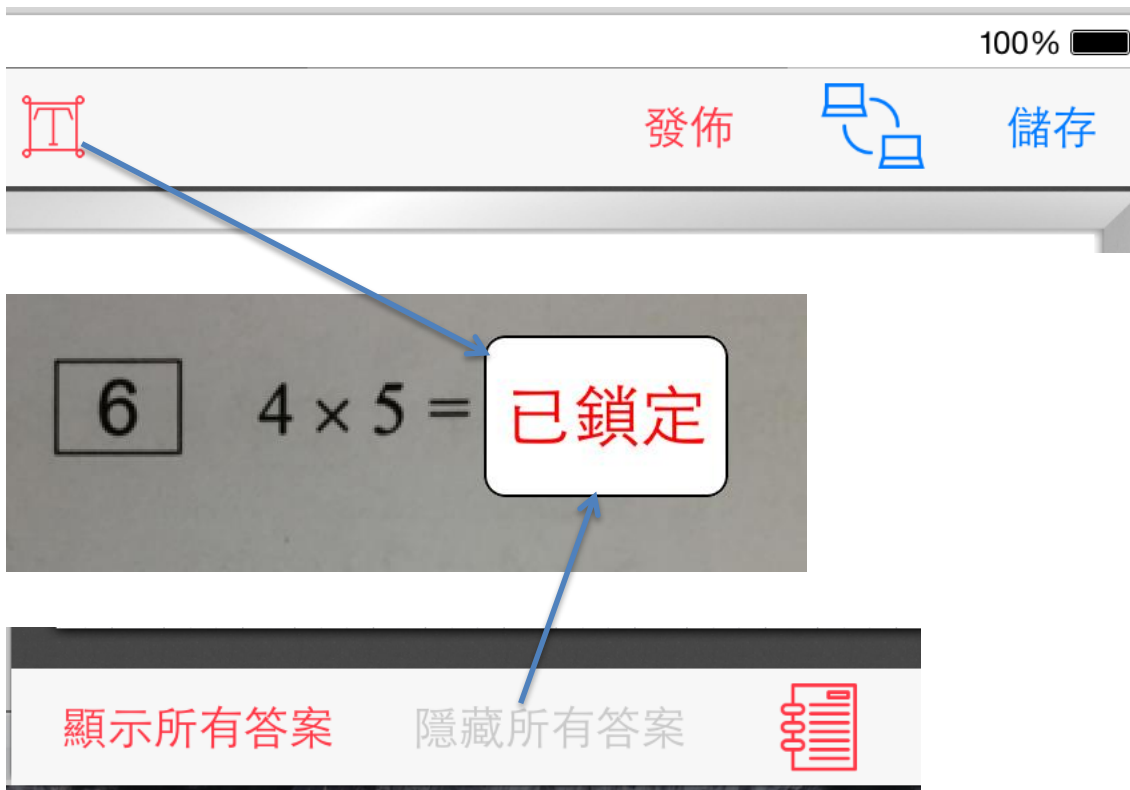
2. Function: (Take teacher's mode as an example)



Design

Efficient Object-structure-based E-learning IOS App

1. Teacher's Mode & Student's Mode



Exercise: open answer




Test:



Design Ideas

Efficient Object-structure-based E-learning IOS App

Teacher's Mode

發佈  儲存

請輸入目標的用戶名或帳戶:

Share

因材施教

Group	Student	Marks	Feeling	Trials	Time Taken	
HKU Develop Team	Tansy Tansy	0		0	0	View
HKU Develop Team	Carol Carol	0		0	0	View
HKU Develop Team	Ying Ying	3		2	34	View
Group	Student	Marks	Feeling	Trials	Time Taken	
HKU Develop Team	Tansy Tansy	0		0	0	View
HKU Develop Team	Carol Carol	3		1	19	View
HKU Develop Team	Ying Ying	0		0	0	View

顯示所有答案 隱藏所有答案 

Design Ideas

Efficient Object-structure-based E-learning IOS App

How to make the app **funny** for **students** to use and **efficient** for **teachers** to use?



Design Ideas

Efficient Object-structure-based E-learning IOS App

Gamification and Rewards

Teacher's Mode

Student's Mode



選擇一份禮物給答對的學生(不選也可)



Gift Number: 1

Gift Number: 2

Gift Number: 3

Gift Number: 4

發佈

NO. 1



NO. 2



NO. 3



NO. 4



NO. 5



NO. 6



NO. 7



NO. 8



Design Ideas

Efficient Object-structure-based E-learning IOS App

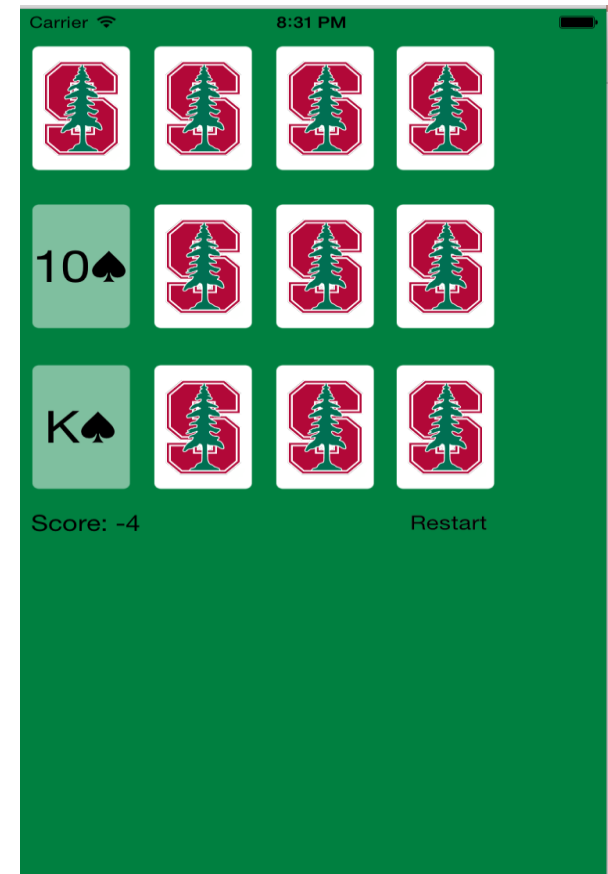
Gamification and Rewards

Teacher's Mode

Student's Mode

Button: Game (Not implemented yet)

The Card Match Game:



Design Ideas

Efficient Object-structure-based E-learning IOS App

How to use our app?

Teacher's Mode

Student's Mode

Step 1: Login



天空 SkyApp

帳戶 (Account):

密碼 (Password):

語言 (Language): ☒ 中文 ☐ English

登入 (Login)



天空 SkyApp

帳戶 (Account):

密碼 (Password):

語言 (Language): ☒ 中文 ☐ English

登入 (Login)

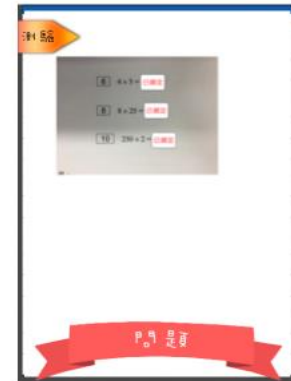
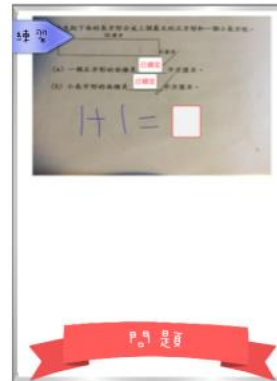
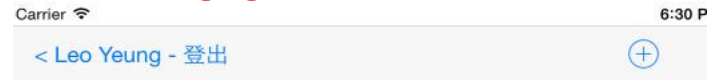
Design Ideas

Efficient Object-structure-based E-learning IOS App

How to use our app?

Teacher's Mode

Step 2: *Teacher adds a new board*



Design Ideas

Efficient Object-structure-based E-learning IOS App

How to use our app?

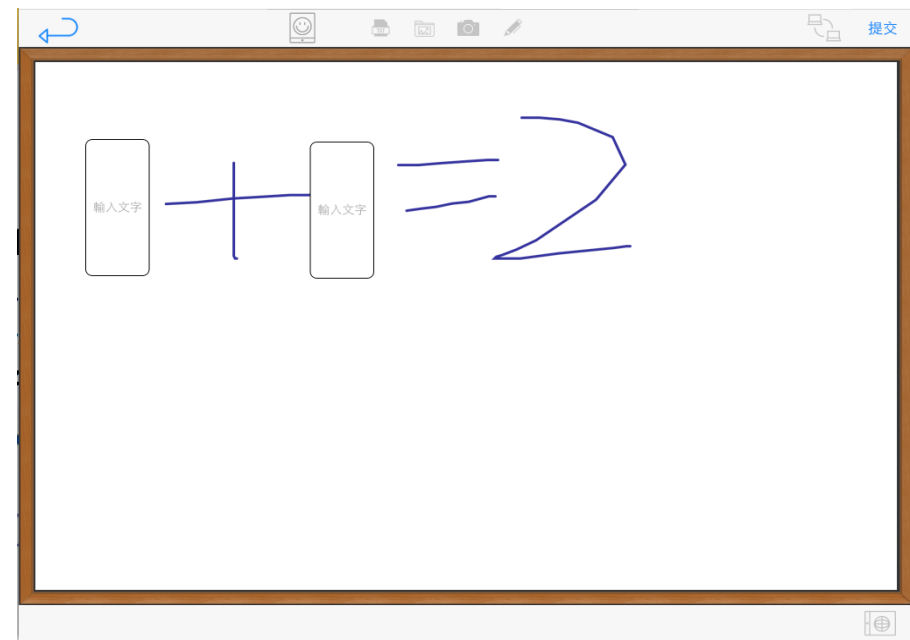
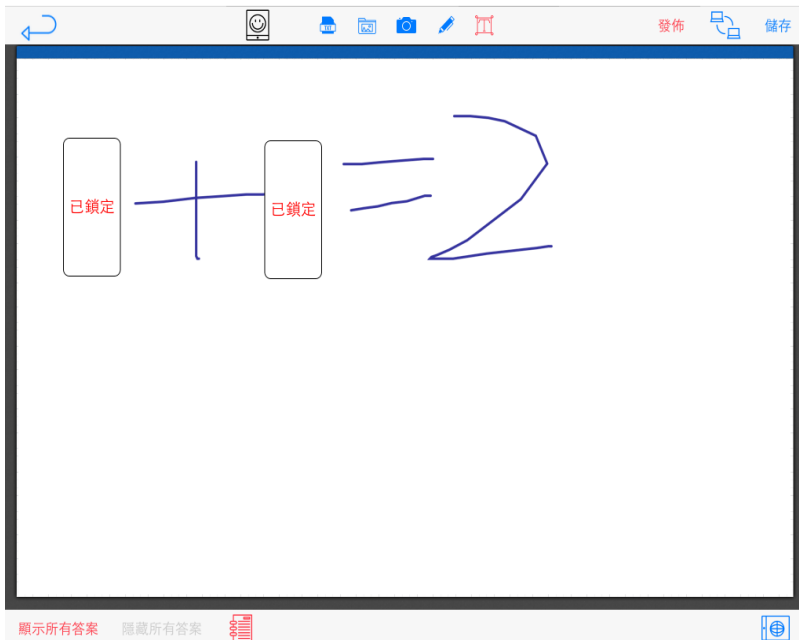
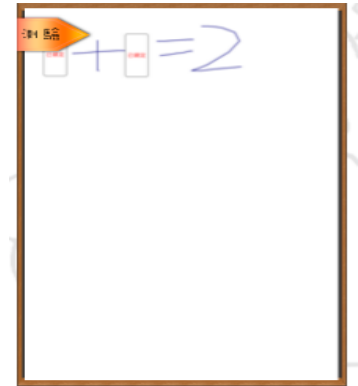
Teacher's Mode

Student's Mode

Step 3: Distribute Test

Question type: exercise/test

The answer box: resizable and movable



Design Ideas

Efficient Object-structure-based E-learning IOS App

How to use our app?

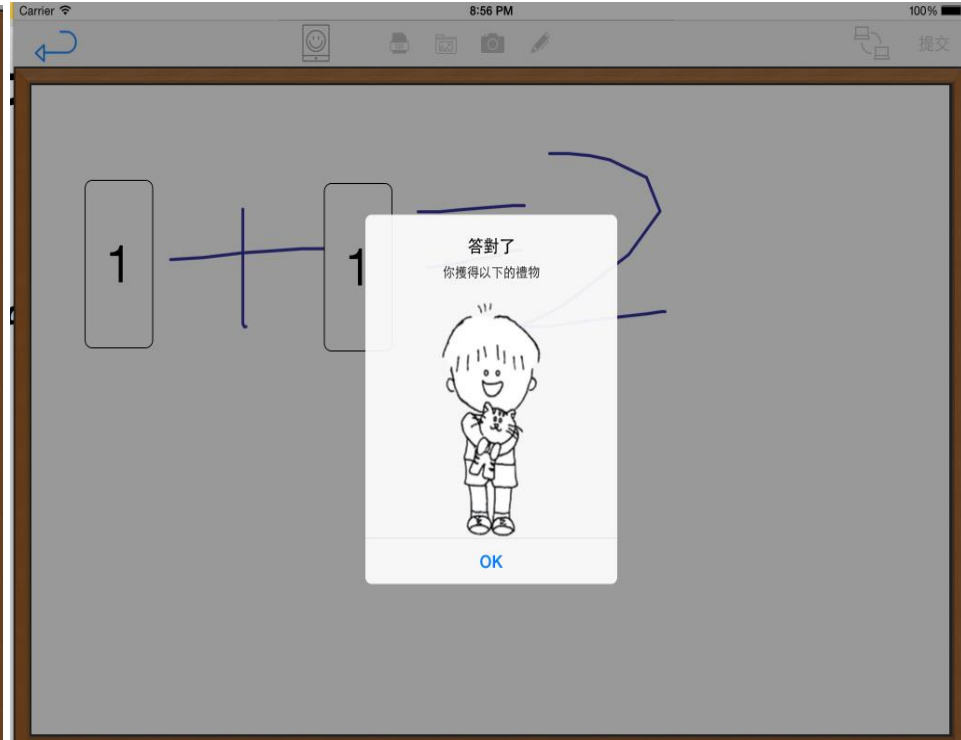
Student's Mode

Step 4: *Students answer questions*

If wrong:



If correct:



Design Ideas

Efficient Object-structure-based E-learning IOS App

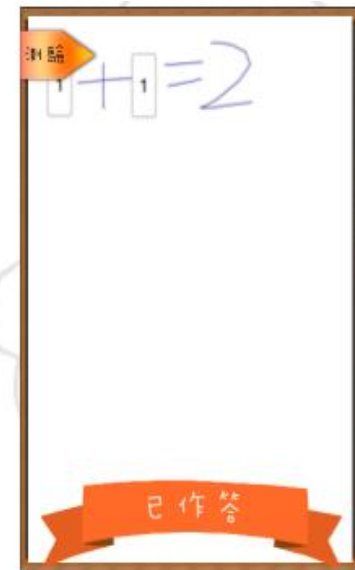
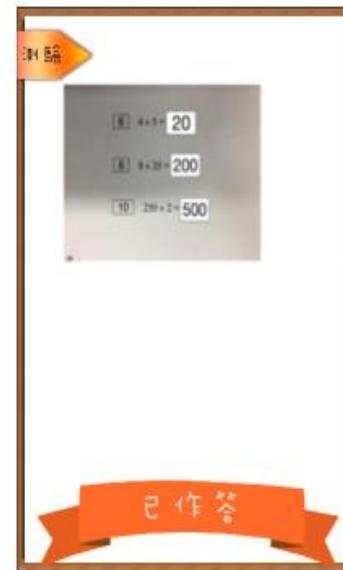
How to use our app?

Teacher's Mode

Student's Mode

Step 5: Teacher **sees** the feedback

Group	Student	Marks	Feeling	Trials	Time Taken	
HKU Develop Team	Tansy Tansy	0		0	0	View
HKU Develop Team	Carol Carol	2		2	220	View
HKU Develop Team	Ying Ying	0		0	0	View



Implementation

Efficient Object-structure-based E-learning IOS App

1. Login Function and Interaction with the server

Xcode:

LoginViewController.h

```
1
2 #define kPostURL @"http://localhost/testingServer/Login.php"
3 #define kName @"name"
4 #define kPass @"password"
5
```

LoginViewController.m:

```
-(void) postMessage:(NSString*) password withName:(NSString *) name{
    if(name !=nil&& password !=nil){
        NSMutableString *postString =[NSMutableString stringWithString:kPostURL];
        [postString appendString:[NSString stringWithFormat:@"%s%@", kName,name]];
        NSLog(kName);
        [postString appendString:[NSString stringWithFormat:@"%s%@", kPass,password]];
        NSLog(kPass);
        [postString setString:[postString stringByAddingPercentEscapesUsingEncoding:NSUTF8StringEncoding]];
        NSMutableURLRequest *request=[[NSMutableURLRequest alloc] initWithURL:[NSURL URLWithString:postString]];
        [request setHTTPMethod:@"POST"];
        postConnection=[[NSURLConnection alloc] initWithRequest:request delegate:self startImmediately:YES];
    }
}
```

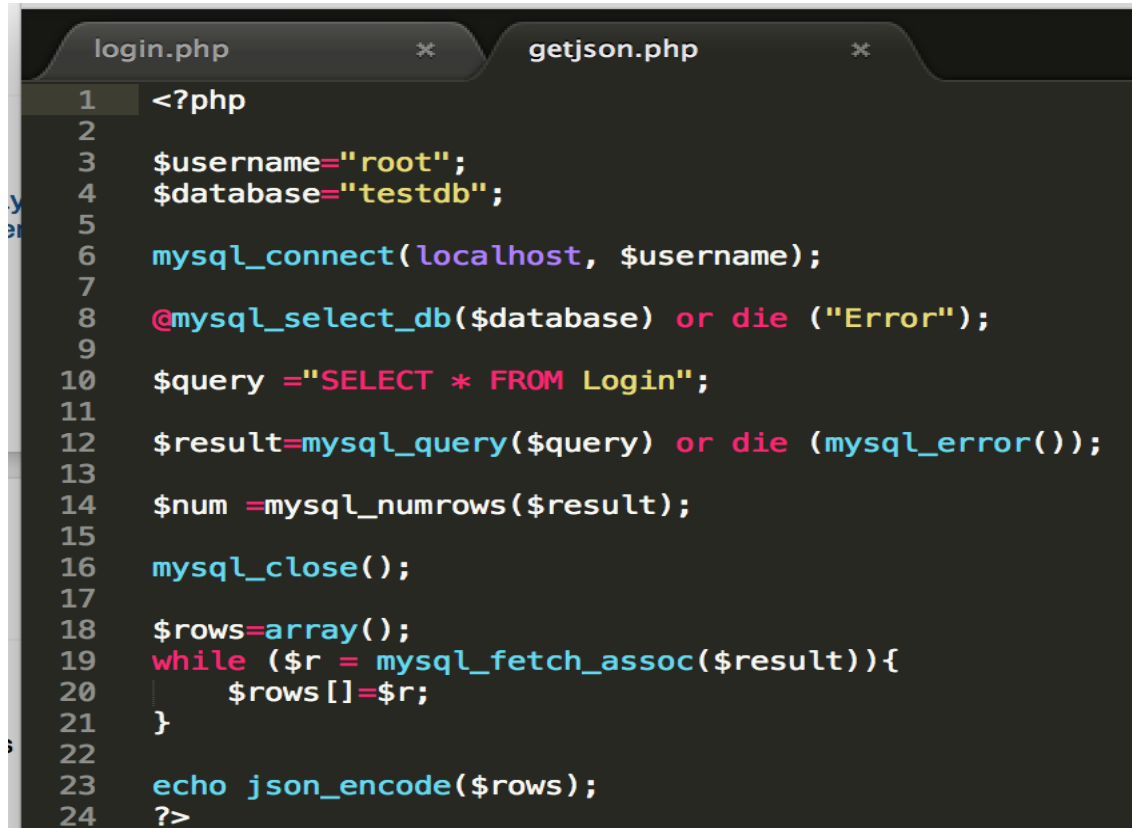
Implementation

Efficient Object-structure-based E-learning IOS App

1. Login Function and Interaction with the server

PHP:

Login.php:



```
login.php  ✖  getjson.php  ✖
1  <?php
2
3  $username="root";
4  $database="testdb";
5
6  mysql_connect(localhost, $username);
7
8  @mysql_select_db($database) or die ("Error");
9
10 $query ="SELECT * FROM Login";
11
12 $result=mysql_query($query) or die (mysql_error());
13
14 $num =mysql_numrows($result);
15
16 mysql_close();
17
18 $rows=array();
19 while ($r = mysql_fetch_assoc($result)){
20     $rows[]=$r;
21 }
22
23 echo json_encode($rows);
24 ?>
```

Implementation

Efficient Object-structure-based E-learning IOS App

1. Login Function and Interaction with the server Result:

Username:

Password:

Login



+ Options

			id	name	password
<input type="checkbox"/>			1	Tansy	123
<input type="checkbox"/>			2	Leo	123
<input type="checkbox"/>			3	Carol	123
<input type="checkbox"/>			4	Lucas	123
<input type="checkbox"/>			5	chim	123

⬆ Check All / Uncheck All With selected:

Implementation

Efficient Object-structure-based E-learning IOS App

2. Main Function:

1) “Add” a board; 2) “Add” a text; 3) “Share” with Email

Implementation

Efficient Object-structure-based E-learning IOS App

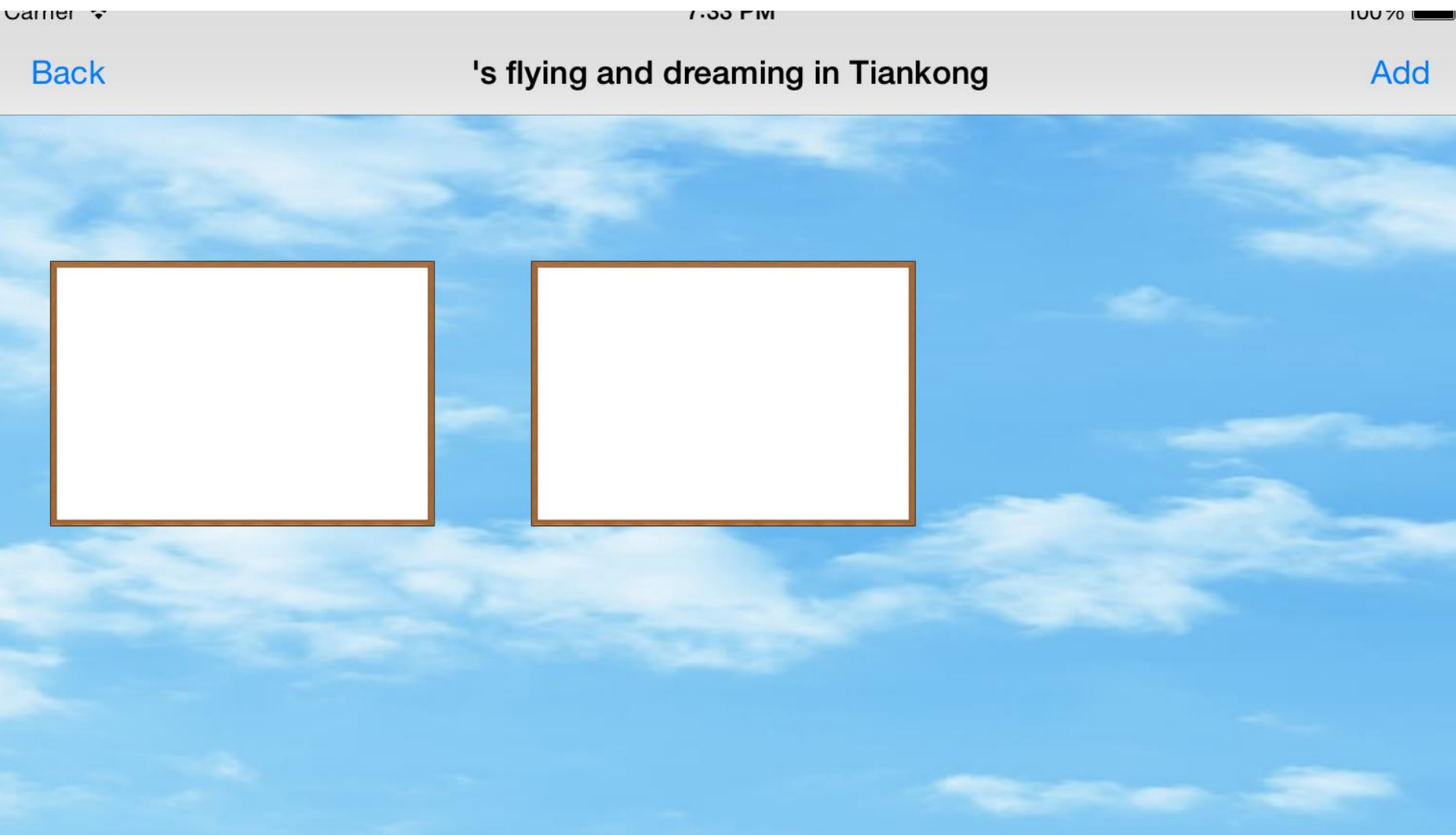
```
-(void) processAddButton{
    boardsNumber=boardsNumber+1;
    int i;
    for (i=0; i<boardsNumber; i++) {
        NSLog(@"processAddButton");
        // create button object
        UIButton * button =[UIButton buttonWithType:UIButtonTypeSystem];
        //set button size
        [button sizeToFit];
        CGRect buttonFrame =button.frame;
        buttonFrame.size=CGSizeMake(200, 138);
        button.frame=buttonFrame;
        //set background image
        [button setBackgroundImage:[UIImage imageNamed:@"whiteboard.png"] forState:UIControlStateNormal];
        // set button center
        button.center=CGPointMake(130+250*(i%4),145+205*(i/4));
        [self.view addSubview:button]; //显示button在view上
        [button addTarget:self action:@selector(whiteBoardButton:) forControlEvents:UIControlEventTouchUpInside];
        NSLog(@"action successful");
        UILongPressGestureRecognizer * longPress=[[UILongPressGestureRecognizer alloc] initWithTarget:self action:@selector(handleLongPress:)];
        longPress.minimumPressDuration=1;
        [button addGestureRecognizer:longPress];
    }
    if (boardsNumber>=13) {
        NSLog(@"SORRY!");

        UIAlertView *alert = [[UIAlertView alloc] initWithTitle:@"Adding Whiteboards Warning"
                                                            message:@"You can only add 12 whiteboards at most now ! "
                                                            delegate:nil
                                                            cancelButtonTitle:@"OK"
                                                            otherButtonTitles:nil];

        [alert show];
        break;
    }
}
```


Implementation

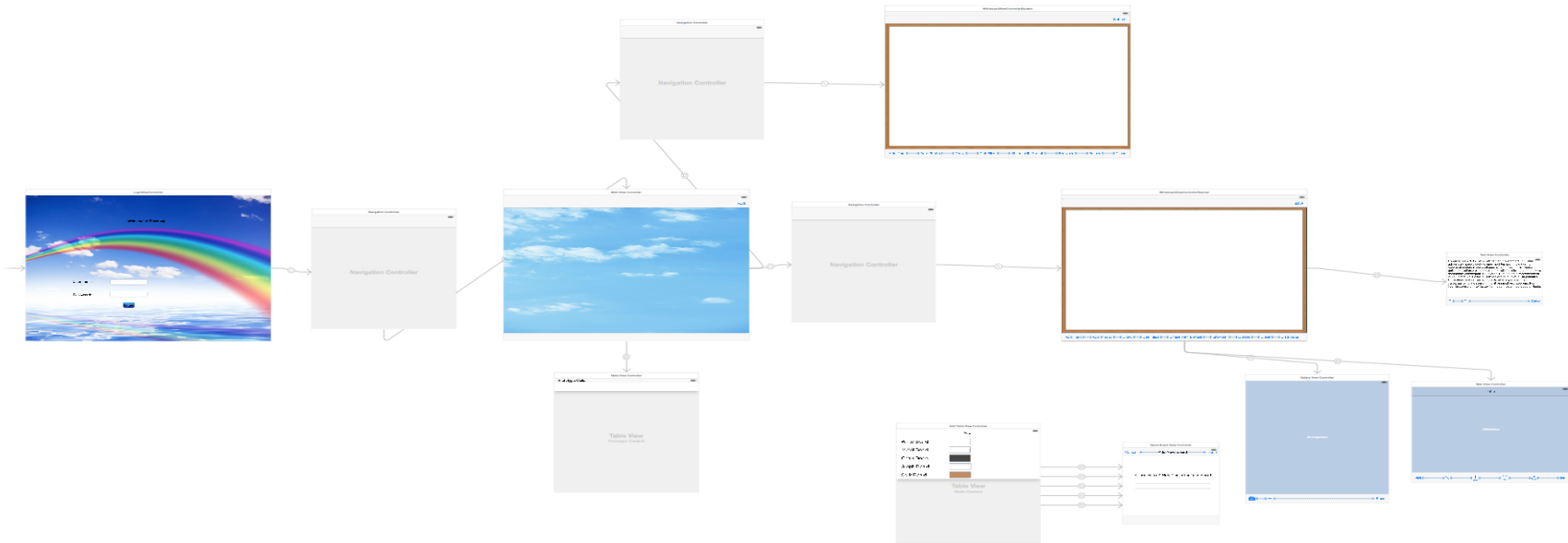
Efficient Object-structure-based E-learning IOS App



UI Design

Efficient Object-structure-based E-learning IOS App

Page Jumping:



Efficient Object-structure-based E-learning IOS App

Icons Collection:

NO. 1



NO. 2



NO. 3



NO. 4



NO. 5



NO. 6



NO. 7



NO. 8



UI Design

Efficient Object-structure-based E-learning IOS App

ICONS DREW:



UI Design

Efficient Object-structure-based E-learning IOS App

ICONS DREW:



UI Design

Efficient Object-structure-based E-learning IOS App

ICONS DREW:



UI Design

Efficient Object-structure-based E-learning IOS App

ICONS DREW:



Design Ideas

Efficient Object-structure-based E-learning IOS App

ICONS BOUGHT:



Save.png



share.png



Pen@2x 2.png



game.png



bookmark



gallery



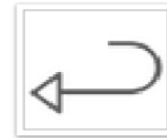
TXT@2x.png



Delete.png



Add@2x.png



Back.png



achievement.png



distribute.png



submit.png



answer box



Filelink@2x.png



browser

Testing

Efficient Object-structure-based E-learning IOS App

Step by step testing use cases and system actions using UML document:

Use case and scenarios for SkyApp

1. Use case

Use case	Actor(s)	Description	Interaction Pattern
A math teacher is preparing class work for Class 4A using SkyApp	Teacher	Teacher could use the app to prepare the content before the class	Teacher
A math teacher is teaching in class	Teacher	Teacher could use white board to teach in class and save the notes of the class.	Teacher->Class
The math teacher is delivering the classwork during/after class	Teacher Students	Teacher uses the whiteboard to give questions and distribute them to students	Teacher->Class/ Student

2. Scenarios for each use case

1. Prepare Class Work

Use Case Name	A math teacher is preparing class work for Class 4A using SkyApp	
Actor(s):	Teacher	
Description:	Teacher could use white board to prepare notes for the class	
Reference:	SkyApp	
Typical Course of Events (Scenarios):	Actor Action Step 1: Initiate this use case when the teacher logs in. Teacher inputs account and password that have been stored in	System response:

User Research and Feedbacks

Efficient Object-structure-based E-learning IOS App

What is
your
requiremen
t?



.....

A good app focus on users: user-oriented and user-friendly.

Mind Map
Studying Foot Print
Automatic Recognition
Data Visualization **Record**
Whiteboard Report
Gamification



An E-learning App for Primary School Students and Teachers

Thanks !!!!!!!

Questions??????

