

# Software engineer Project - PicU

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# Division of Labor

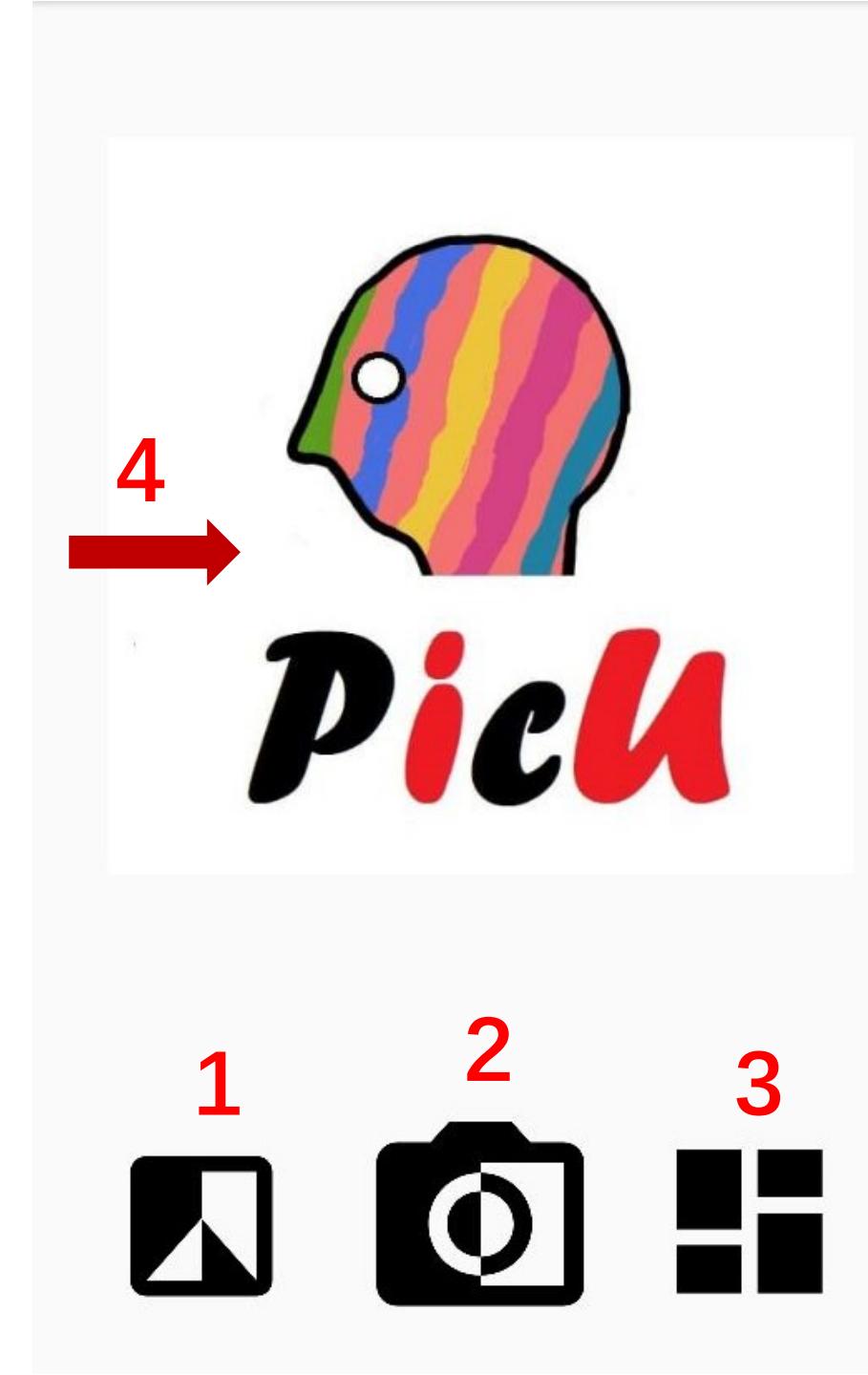
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- Shiyi Li
  - Developer & Tester
- Mengwei Guo
  - Designer & Developer
- Zhijian Wang
  - Developer & Tester
- Hao Tan
  - Developer & Tester
- Kai Wang
  - Documentation & Tester

# What's the PicU?

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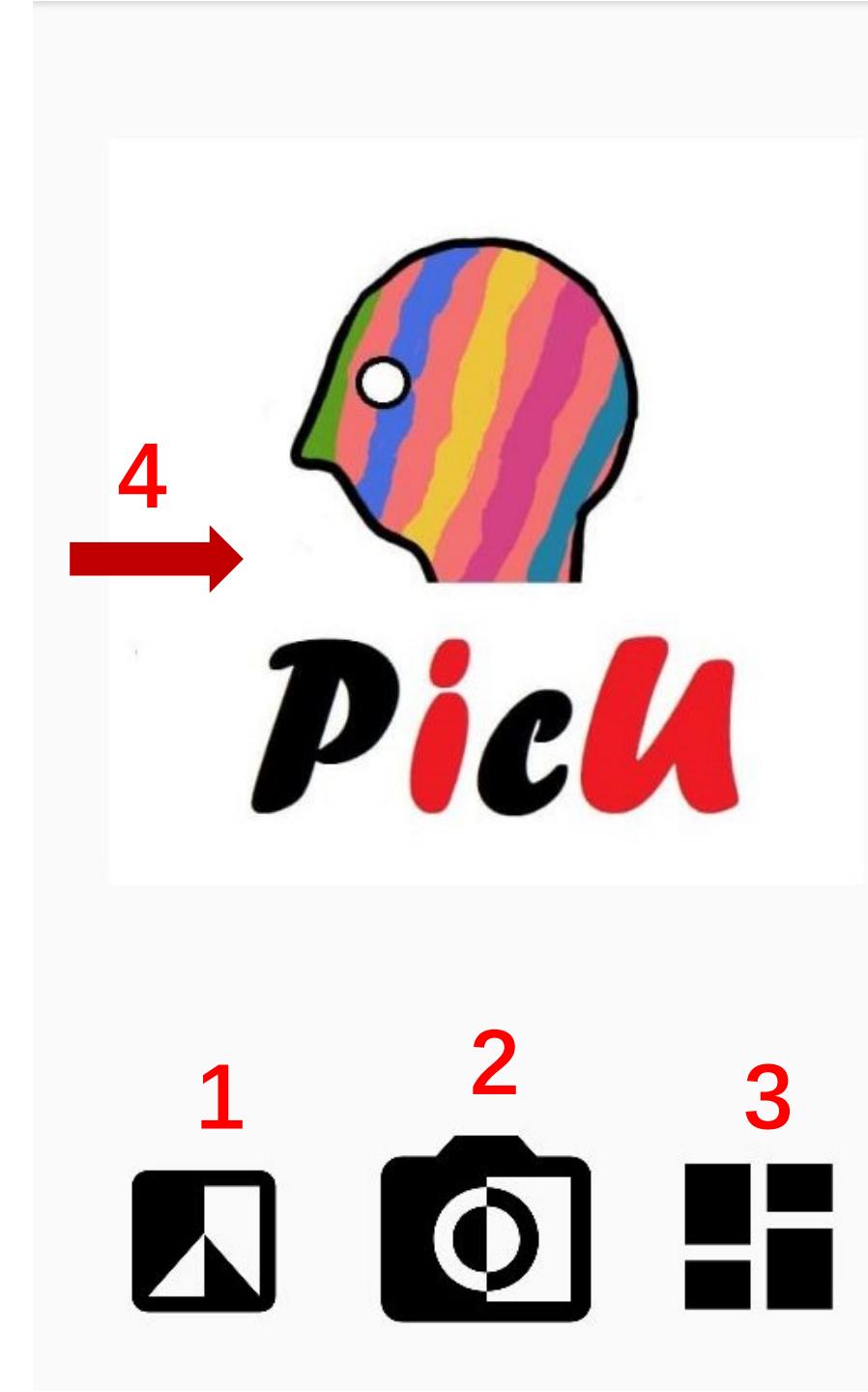
- “Picture of yourself”
- Basic photo editing
- Take photos / stylize it!
- Save and share



# Main Screen

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1. Photo albums (**edit**)
2. Camera (**take photo**)
3. Image stitching
4. Drawer layout (**settings**)



# Time Line

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Week	Feature1	Feature2
8	Basic UI	Dark Mode
9	Image embellishment manually	Take photo / Select photo from album
10	Picture auto embellishment	Share to everywhere
11	Default style transfer	Fix OOM
12	Movable chartlet	Basic filters
13	Login	Image stitching(1)
14	Image stitching(2)	User setting

# Time Line

- 110+ commits
- Week commits
- No lazy guys

main-project-repository-picu created by GitHub Classroom

Code Issues 0 Pull requests 0 Projects 0

116 commits 2 branches

Branch: master ▾ New pull request

 tanbox08 Update README.md

 .gradle

 .idea

 app

 gradle/wrapper

 javacode

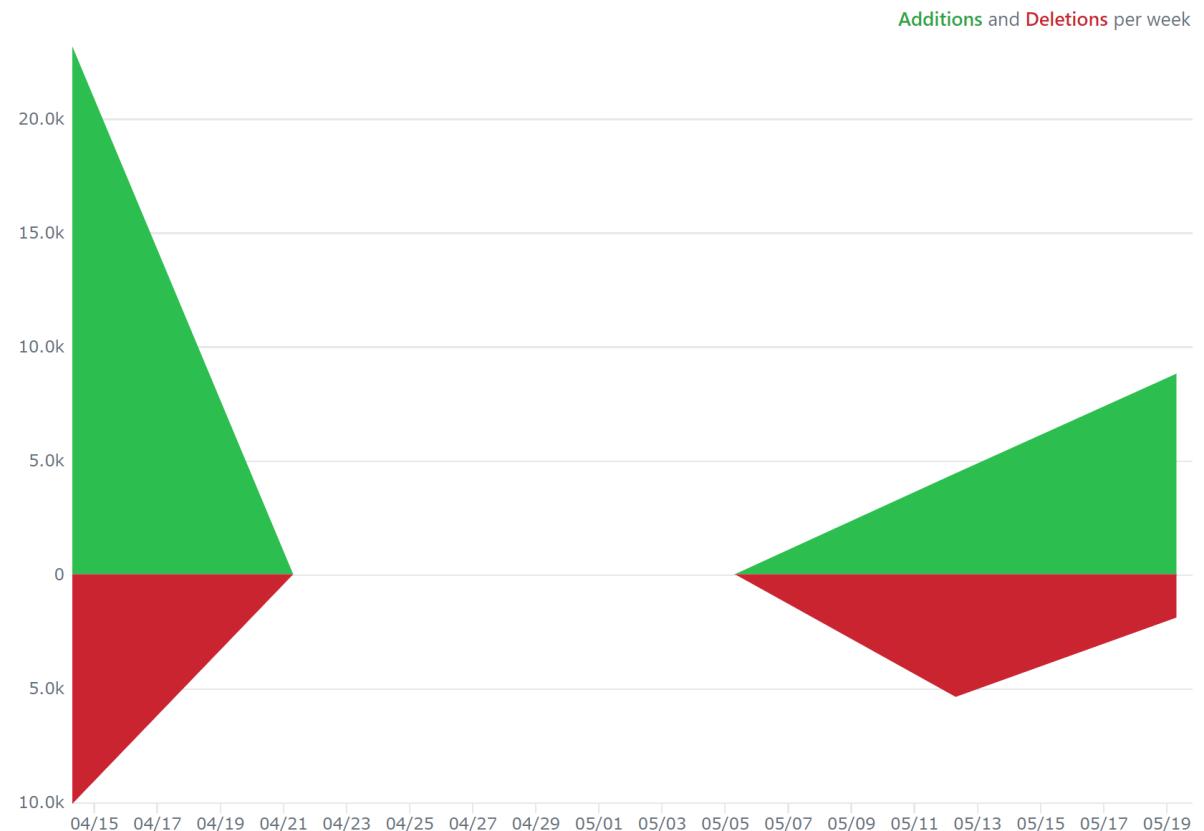
 multi-image-selector

 pics

# Time Line

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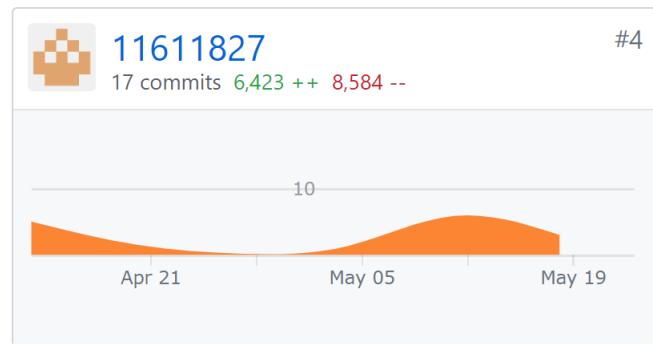
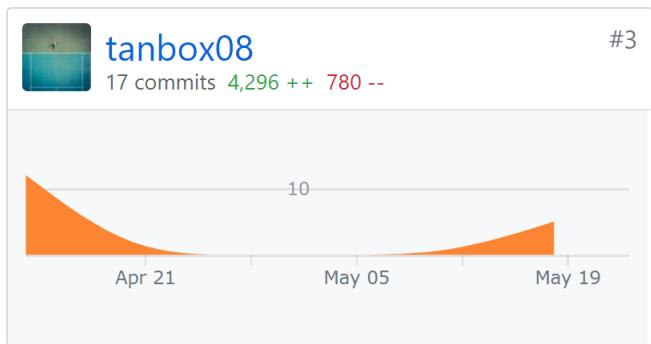
- 110+ commits
- Week commits
- No lazy guys



# Time Line

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- **110+ commits**
- **Week commits**
- **No lazy guys**



# Features

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- **Login**
- **Password fix**

晚上7:20 ... 57 晚上7:20 ... 57

Old Password

New Password

Confirm Password

CONFIRM



Name

admin

Password

.....

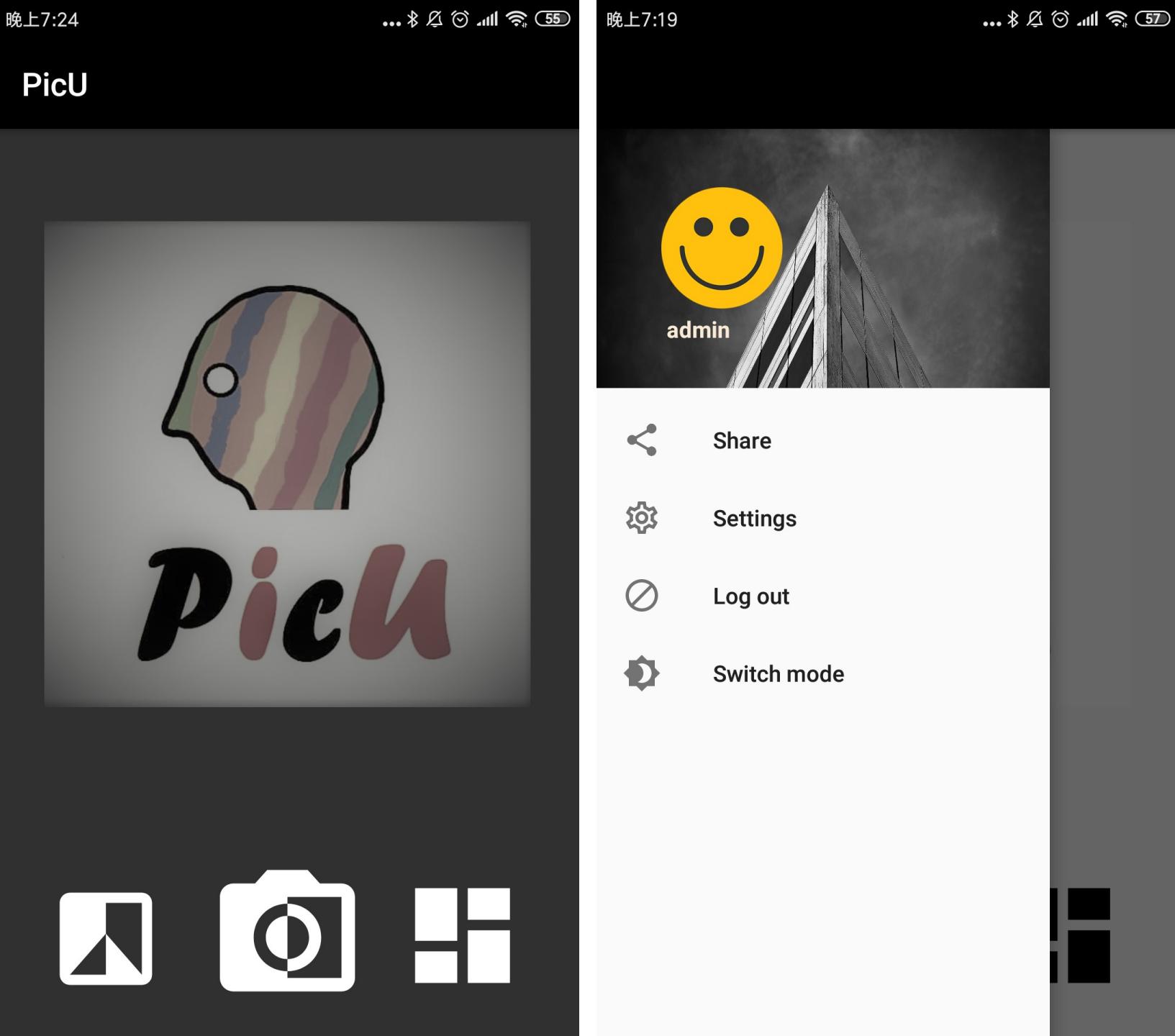
LOGIN

No account yet? Create one

# Features

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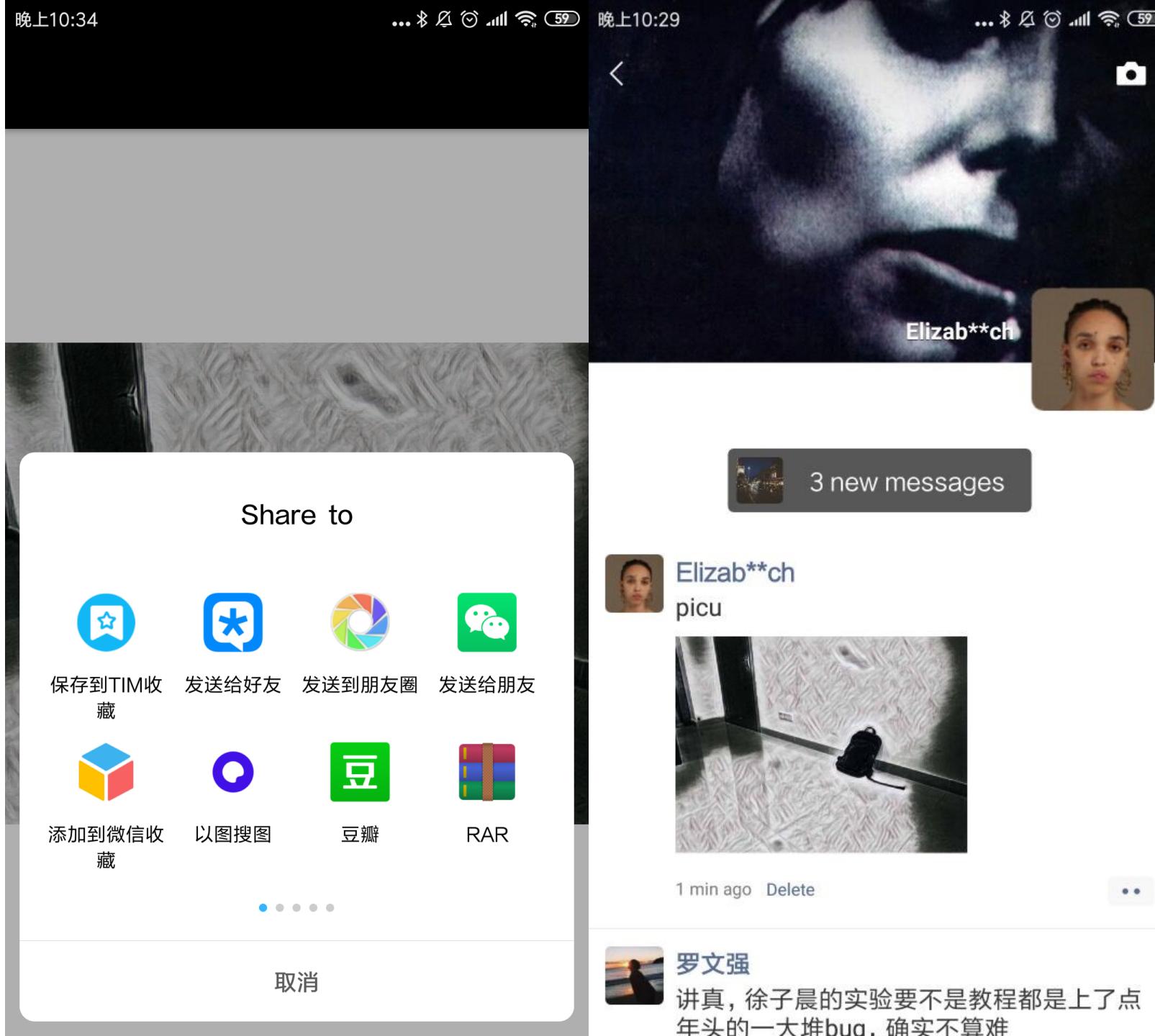
- Dark Mode



# Features

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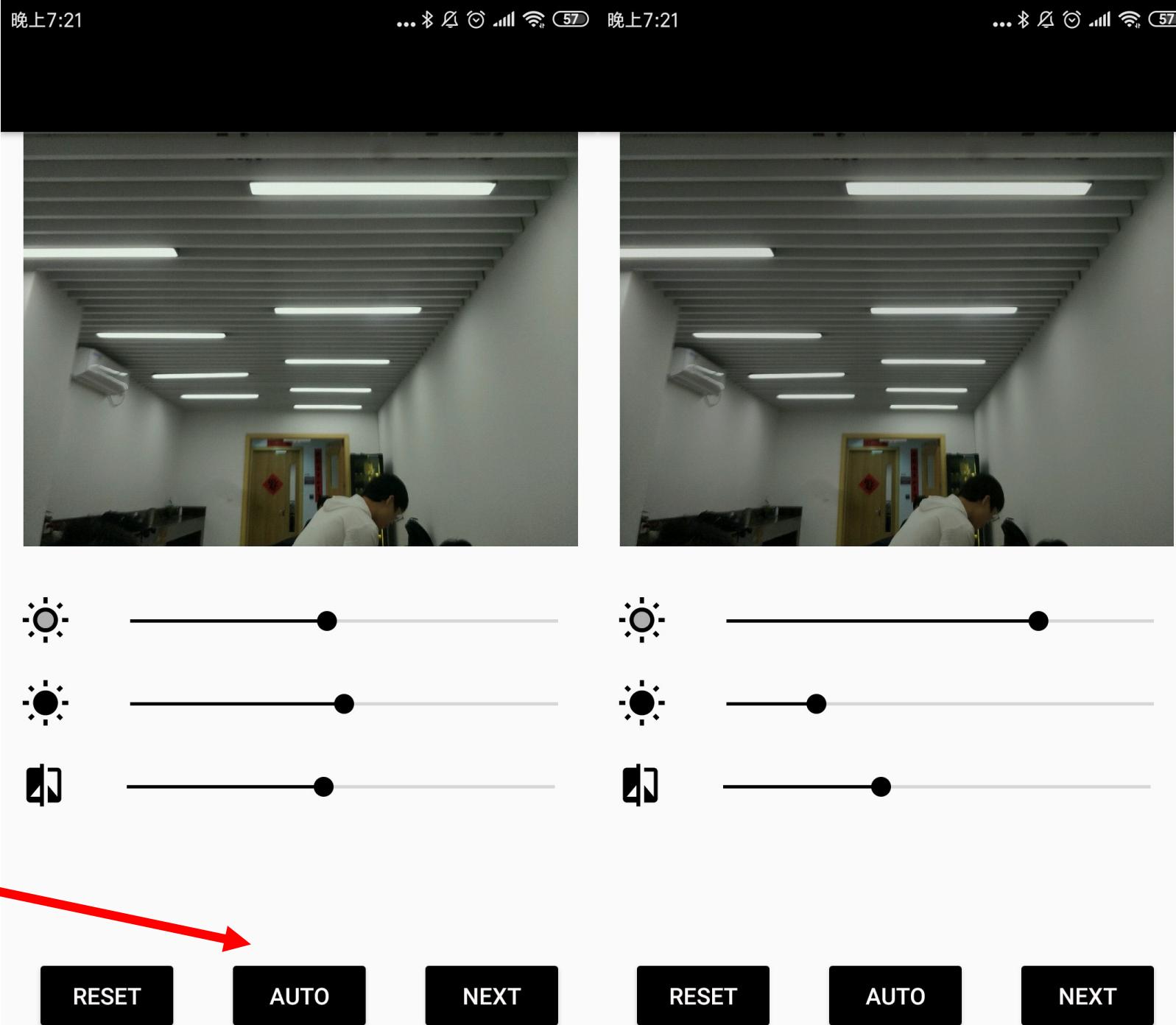
- Share
  - QQ
  - WeChat
  - Moments
  - E-mail
  - .....



# Features

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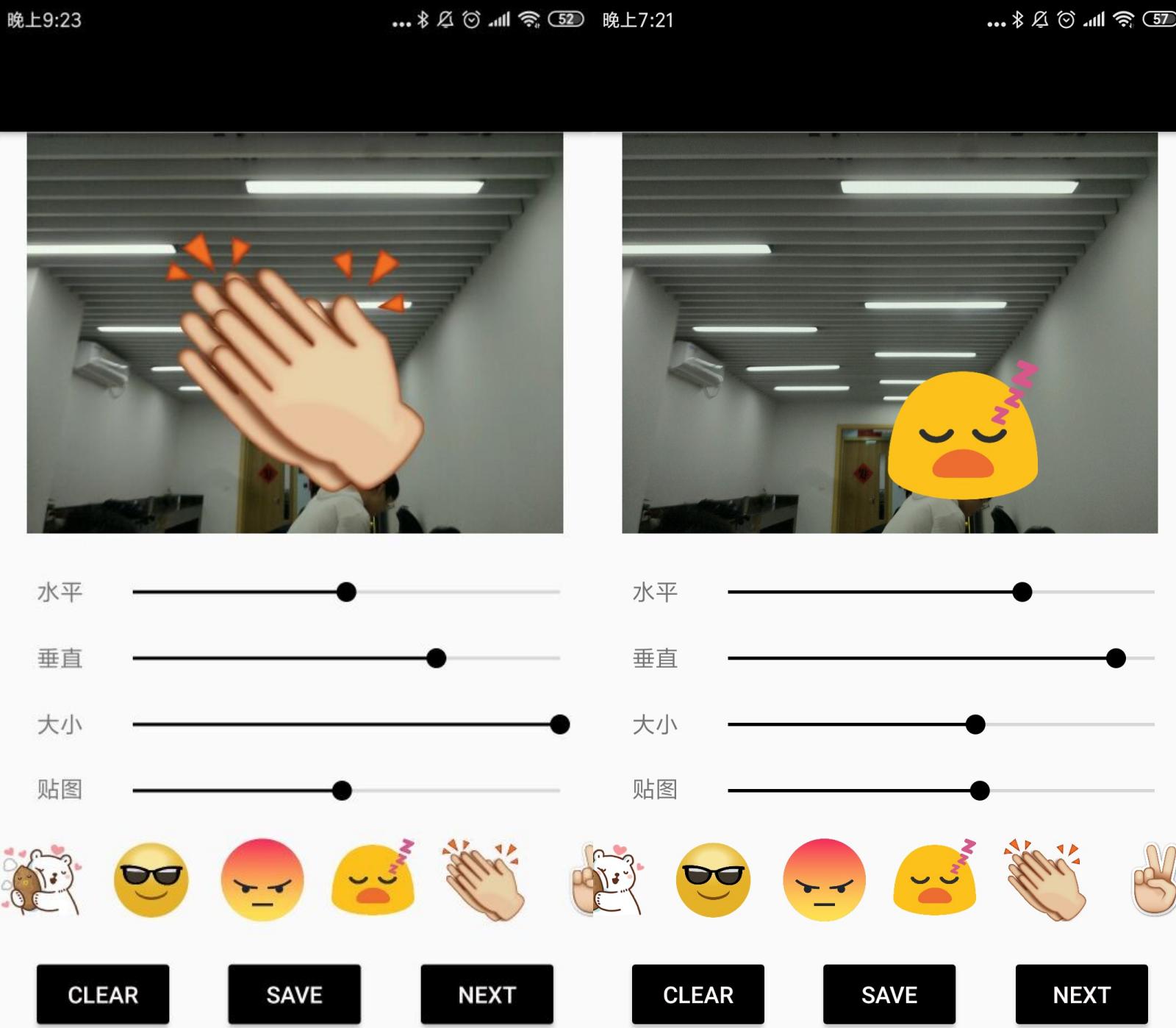
- Photo Attribute
  - Lightness
  - Contrast ratio
  - Saturation
- Auto photo fix



# Features

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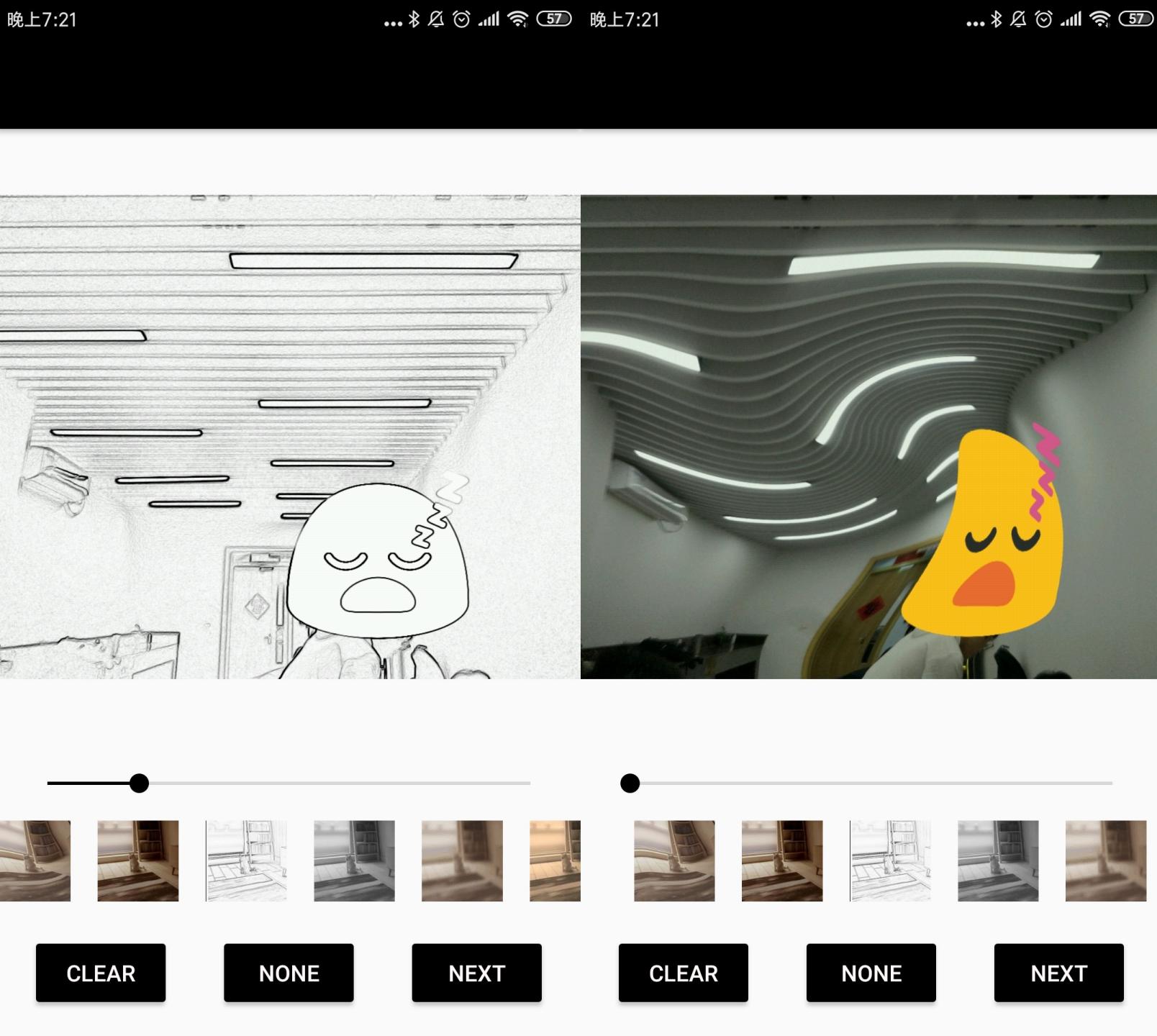
- Chartlets
  - Size
  - Position
  - Types
- Save photo here



# Features

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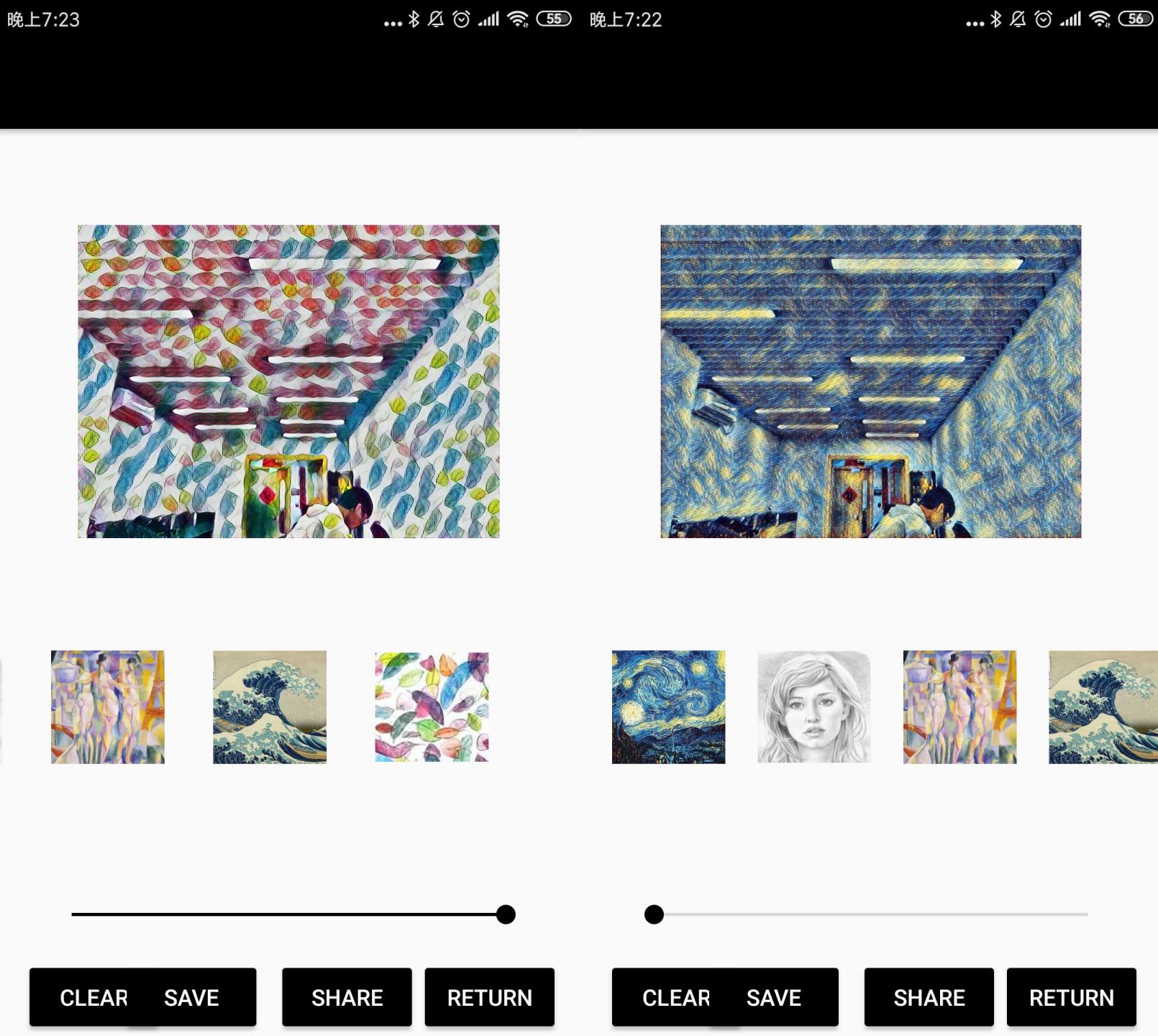
- Filters
  - Color
  - Shape
  - Texture
- Save photo



# Features

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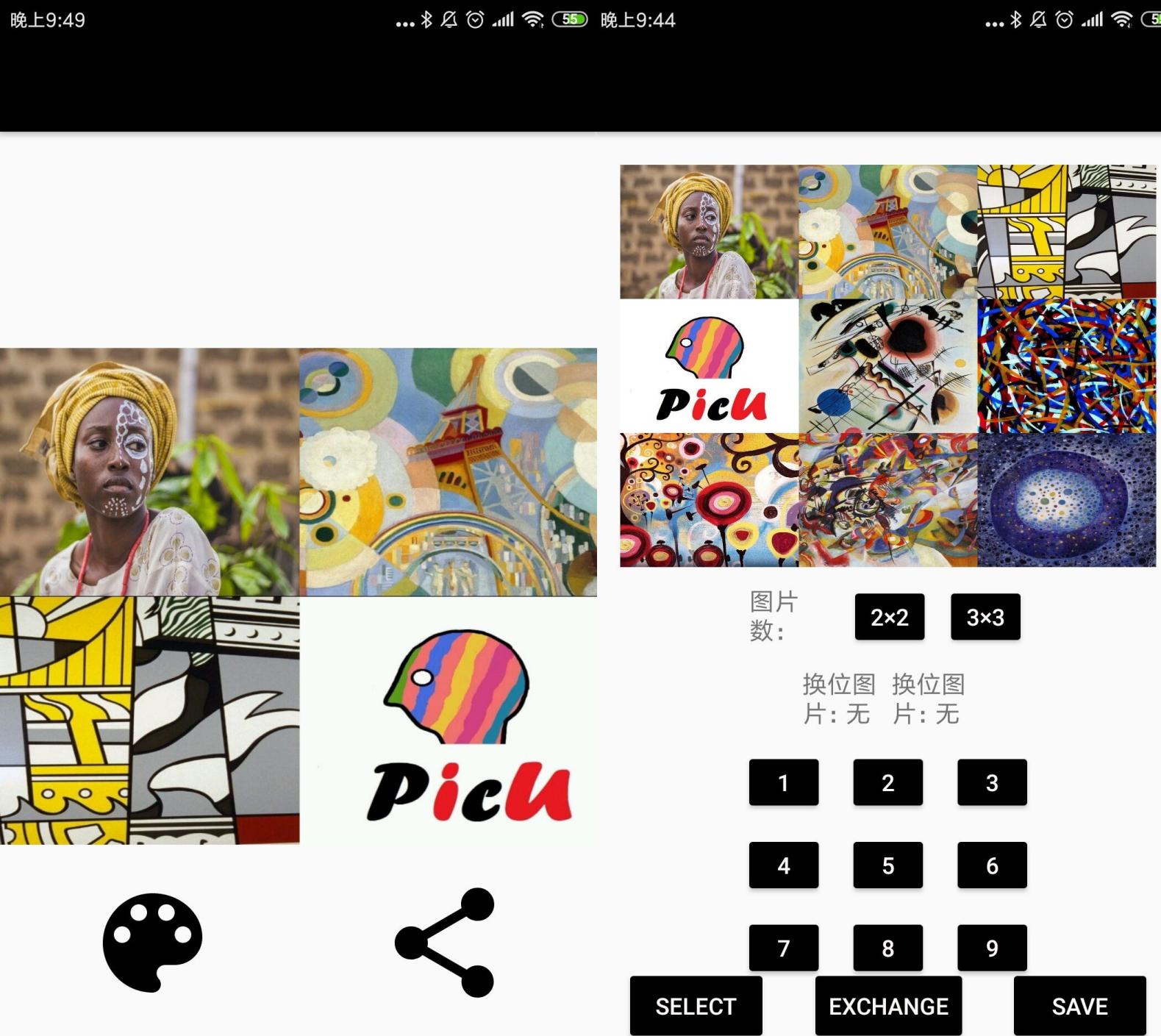
- Neural style
  - 5 styles
  - Tensorflow
  - Crash  
(sometimes)
- Save photo



# Features

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- Photo puzzle
  - 2x2, 3x3
  - Multiple selection
  - Position Change
- Save photo



# Testing techniques

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```
@Rule
public ActivityTestRule<MainActivity> mActivityTestRule = new ActivityTestRule<>(MainActivity.class);

@Test
public void mainActivityOncreateTest1() {
    int mode = mActivityTestRule.getActivity().getResources().getConfiguration().uiMode & Configuration.UI_MODE_NIGHT_MASK;
    int testmode = Configuration.UI_MODE_NIGHT_NO;
    assertEquals(testmode, mode);
}

@Test
public void mainActivityOncreateTest2() {
    int mode = mActivityTestRule.getActivity().getResources().getConfiguration().uiMode & Configuration.UI_MODE_NIGHT_MASK;
    int testmode = Configuration.UI_MODE_NIGHT_YES;
    assertNotEquals(testmode, mode);
}

public void onNavigationItemSelectedTest1(){
    int mode = mActivityTestRule.getActivity().getResources().getConfiguration().uiMode & Configuration.UI_MODE_NIGHT_MASK;
    int testmode = Configuration.UI_MODE_NIGHT_NO;
    assertEquals(testmode, mode);
}

public void onNavigationItemSelectedTest2(){
    int mode = mActivityTestRule.getActivity().getResources().getConfiguration().uiMode & Configuration.UI_MODE_NIGHT_MASK;
    int testmode = Configuration.UI_MODE_NIGHT_YES;
    assertNotEquals(testmode, mode);
}
```

Run: **MainActivityTest**

Tests passed: 2 of 2 tests – 1s 374 ms

All Tests Passed 1s 374 ms Testing started at 下午8:45 ...

```
05/24 20:45:46: Launching MainActivityTest
No apk changes detected since last installation, skipping installation of /Users/wangkai/Desktop/main-project-repository-picu/app/build/outputs/apk/debug/app-debug.apk
$ adb push /Users/wangkai/Desktop/main-project-repository-picu/app/build/outputs/apk/androidTest/debug/app-debug-androidTest.apk /data/local/tmp/cn.edu.sustech.picu.test
$ adb shell pm install -t -r "/data/local/tmp/cn.edu.sustech.picu.test"
Success
APK installed in 783 ms
Running tests

$ adb shell am instrument -w -r -e debug false -e class 'cn.edu.sustech.picu.MainActivityTest' cn.edu.sustech.picu.test/android.support.test.runner.
```

Logcat Profiler Run TODO Version Control CheckStyle FindBugs-IDEA Terminal Quokka Build Event Log

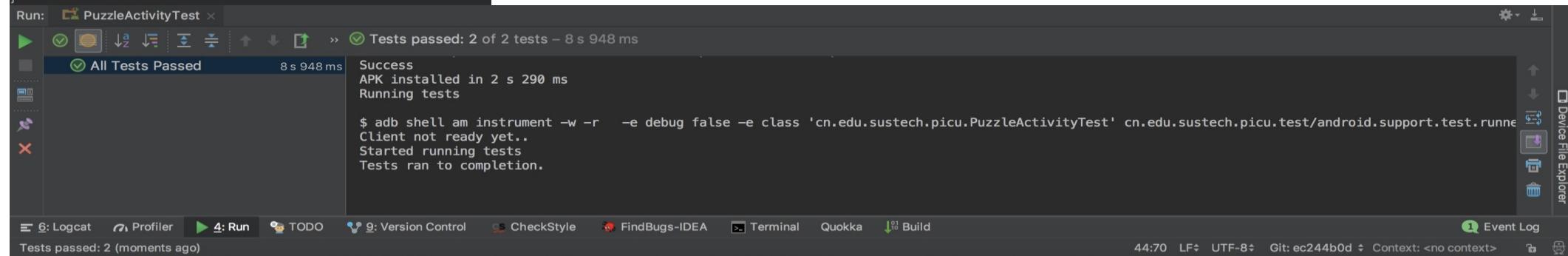
Tests passed: 2 (moments ago)

## Junit test 1

# Testing techniques

```
@Test  
public void onClickTest1(){  
    onView(allOf(withId(R.id.selectBtn))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.exchangeBtn))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.saveBtn))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.x2))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.x3))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic1))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic2))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic3))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic4))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic5))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic6))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic7))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic8))).check(matches(isEnabled()));  
    onView(allOf(withId(R.id.pic9))).check(matches(isEnabled()));  
}  
  
@Test  
public void onClickTest2(){  
    onView(allOf(withId(R.id.selectBtn))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.exchangeBtn))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.saveBtn))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.x2))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.x3))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic1))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic2))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic3))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic4))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic5))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic6))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic7))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic8))).check(ViewAssertions.matches(isDisplayed()));  
    onView(allOf(withId(R.id.pic9))).check(ViewAssertions.matches(isDisplayed()));  
}
```

## Junit test 2



# Testing techniques: MonkeyTest

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The screenshot shows the Android Studio interface with the 'Terminal' tab selected. The terminal window displays the following command and its execution:

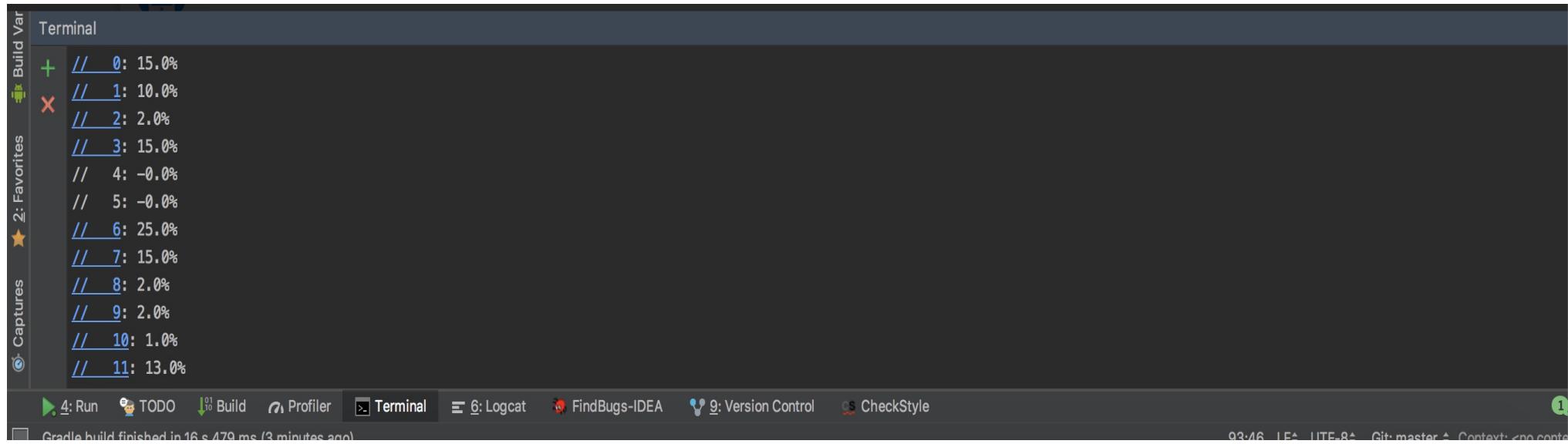
```
wangkai (master *) main-project-repository-picu $ adb shell monkey -p "cn.edu.sustech.picu" -v 2000
bash: abd: command not found
wangkai (master *) main-project-repository-picu $ adb shell monkey -p "cn.edu.sustech.picu" -v 2000
    bash arg: -
    bash arg: cn.edu.sustech.picu
    bash arg: -
    bash arg: 2000
args: [-p, cn.edu.sustech.picu, -v, 2000]
arg: "-p"
arg: "cn.edu.sustech.picu"
```

The terminal window has a dark background with light-colored text. The command `adb shell monkey` is run twice. The first attempt fails because the `abd` command is not found. The second attempt succeeds, showing the arguments being passed to the `monkey` command.

# Command

# Testing techniques: MonkeyTest

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The screenshot shows the Android Studio interface with the Terminal tab active. The terminal window displays the output of a MonkeyTest run, showing the proportion of time spent on each of 12 different UI events. The results are listed below:

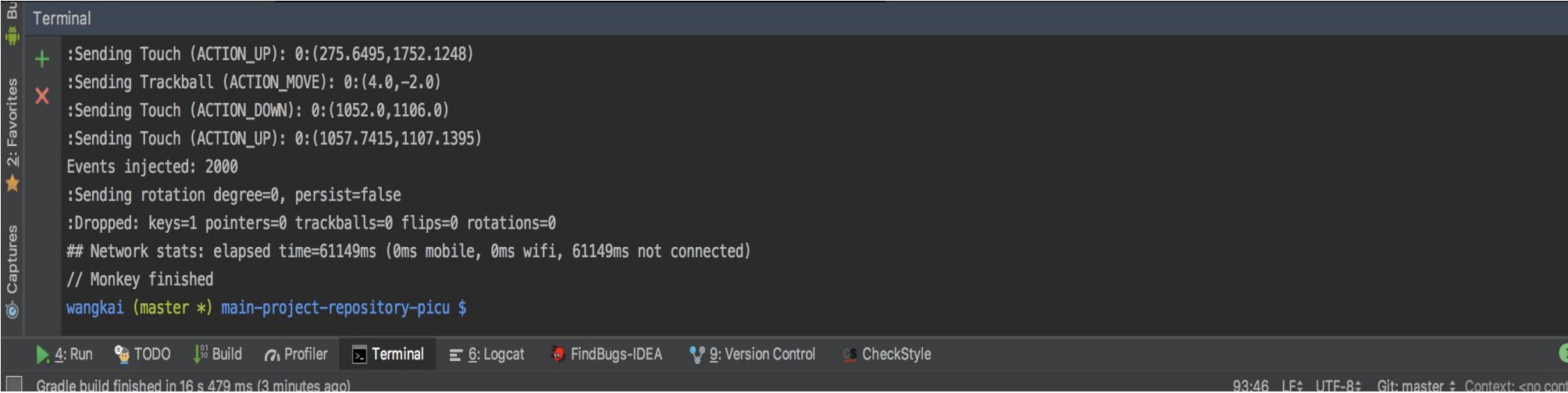
Event	Proportion (%)
// 0	15.0%
// 1	10.0%
// 2	2.0%
// 3	15.0%
// 4	-0.0%
// 5	-0.0%
// 6	25.0%
// 7	15.0%
// 8	2.0%
// 9	2.0%
// 10	1.0%
// 11	13.0%

The terminal window also shows the following status bar information: 4: Run, 0: Build, 0: Profiler, Terminal, 6: Logcat, FindBugs-IDEA, 9: Version Control, CheckStyle, Gradle build finished in 16 s 479 ms (3 minutes ago), 93/16 LE^ LITE-8^ Git: master ^ Context: <no context>, and a notification icon with the number 1.

# Proportion

# Testing techniques: MonkeyTest

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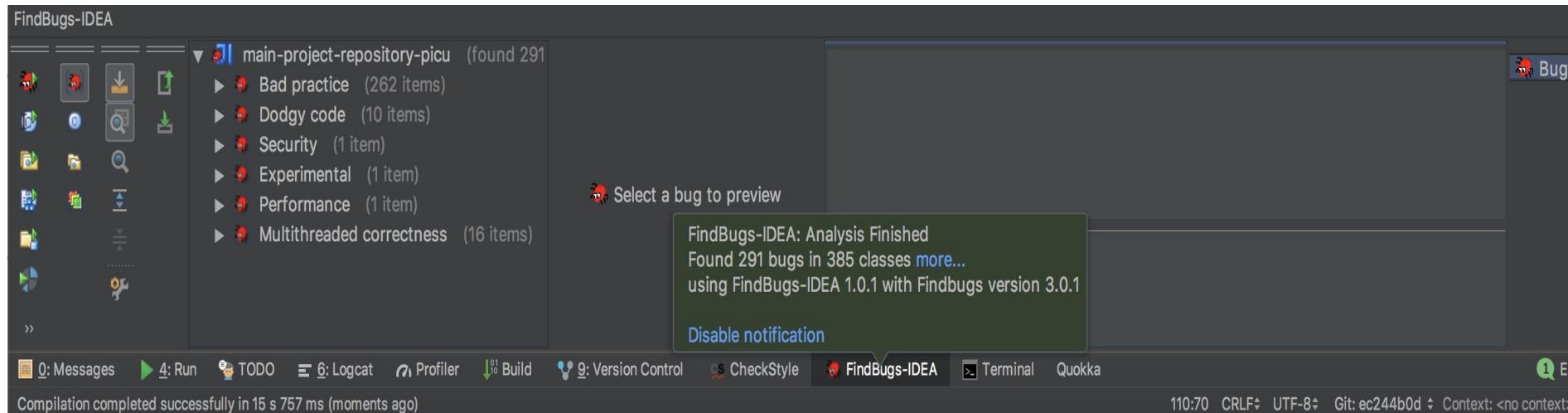
The screenshot shows the Android Studio interface with the terminal tab active. The terminal window displays the output of a MonkeyTest session. The output includes various touch events (ACTION\_UP, ACTION\_MOVE, ACTION\_DOWN), a summary of injected events (Events injected: 2000), and network statistics. The session concludes with a message indicating it has finished. The bottom of the screen shows the standard Android Studio navigation bar with icons for Run, TODO, Build, Profiler, Terminal, Logcat, FindBugs-IDEA, Version Control, and CheckStyle. A status bar at the bottom indicates a Gradle build was finished 16 seconds ago.

```
+ :Sending Touch (ACTION_UP): 0:(275.6495,1752.1248)
+ :Sending Trackball (ACTION_MOVE): 0:(4.0,-2.0)
- :Sending Touch (ACTION_DOWN): 0:(1052.0,1106.0)
+ :Sending Touch (ACTION_UP): 0:(1057.7415,1107.1395)
Events injected: 2000
:Sending rotation degree=0, persist=false
:Dropped: keys=1 pointers=0 trackballs=0 flips=0 rotations=0
## Network stats: elapsed time=61149ms (0ms mobile, 0ms wifi, 61149ms not connected)
// Monkey finished
wangkai (master *) main-project-repository-picu $
```

## Test Result

# Analysis tool: FindBugs

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# Testing techniques: PMD

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# Testing techniques: CheckStyle

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# Scenario

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- Want a more **artistic photo** shot by yourself ?
- Want to add some **chartlets** to image to show your mood?
- Want to **combine** your favorite photos **together**?
- Want to **share** your photos to your friends?

# Conclusion

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- We want to let user can edit the picture and make it become an **artware**.
- The main function all are finish, although the UI and others are not good enough for **user's experience**.
- We have learnt lots of thing, broke through the difficulties and achieved our goal.

# Future Work: What we find?

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- Develop a system is not only about develop, **test** is also an important part
- Enable our app to adapt all android devices is not an easy work
- Be **careful, careful, careful** about our code
- Use **version control** tools to track out work

# Future Work: What was difficult?

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- Picture editing is so dangerous, we met **00M** million times.
- It's hard to keeping up with the steps of other team members. **Communication is everything.**
- **Keeping confident** is hard when you failed so many times

# Future Work: What do you wish you could have done?

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- A more user-friendly UI
- More fluently style transfer function
- Slide menu by finger, not by seekbar

# Future Work: What's next?

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- Enable more kinds of functions
  - mosaic
  - add words
- more filters
- more layouts in image stitching

THANK YOU

