Trap x00

项目展示

第10组 Trap x00
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# 目录

- 展示
- 特性
- 教训

展示

展示内容

1. 填写单据->保存草稿->继续填写
2. 提交单据->审批通过->查看通知->丢弃单据
3. 银行账户管理
4. 客户模糊查询
5. 导出报表
6. Face ID注册和登录
7. 日志查看和云备份

特性

技术栈

- UI层：JavaFX + JFoenix，遵循Material Design
- 网络层：RMI
- 数据层：SQLite + ORMLite
- 依赖管理、构建：Gradle
- 测试：JUnit
- 持续集成：GitLab CI/CD, Runner在腾讯云
- 代码风格统一：CheckStyle
- 人脸识别：Microsoft Cognitive Service

Gradle

- 依赖管理
- Multi-project build

```
project(':Lightx00.Server') {

    mainClassName = 'trapx00.lightx00.server.Server'

    dependencies {
        compile project(':Lightx00.Shared')
        compile 'com.j256.ormlite:ormlite-jdbc:5.0'
        compile 'org.xerial:sqlite-jdbc:3.21.0'
        compile 'com.amazonaws:aws-java-sdk-s3'
        compile 'com.google.code.gson:gson:2.8.2'
        testCompile group: 'junit', name: 'junit', version: '4.12'
    }

}

project(':Lightx00.Client') {

    mainClassName = 'trapx00.lightx00.client.Client'
    dependencies {
        compile project(':Lightx00.Shared')
        compile files('../libs/jxl.jar')
        compile 'com.jfoenix:jfoenix:1.9.1'
        compile 'de.jensd:fontawesomefx-commons:8.15'
        compile 'de.jensd:fontawesomefx-materialicons:2.2.0-5'
        compile 'de.jensd:fontawesomefx-fontawesome:4.7.0-5'
        compile 'de.jensd:fontawesomefx-materialdesignfont:1.7.22-4'
        compile 'com.github.sarxos:webcam-capture:0.3.11'
        testCompile group: 'junit', name: 'junit', version: '4.12'
    }
}

project(':Lightx00.Shared') {
    dependencies {
        compile 'com.j256.ormlite:ormlite-jdbc:5.0'
        compile 'org.xerial:sqlite-jdbc:3.21.0'
        compile 'com.amazonaws:aws-java-sdk:1.10.6'
        compile 'com.google.code.gson:gson:2.8.2'
        compile 'com.j256.ormlite:ormlite-core:5.0'
        compile 'io.github.lukehutch:fast-classpath-scanner:2.9.3'
        testCompile group: 'junit', name: 'junit', version: '4.12'
    }

}
```

构建脚本


```yaml
stages:
  - build
  - test

cache:
  paths:
    - ./src/.gradle/wrapper
    - ./src/.gradle/caches

buildjob:
  stage: build
  script:
    - cd ./src/
    - chmod +x gradlew
    - ./gradlew ':Lightx00.Server:assemble'
    - ./gradlew ':Lightx00.Client:assemble'


testjob:
  stage: test
  script:
    - cd ./src/
    - chmod +x gradlew
    - ./gradlew ':Lightx00.Server:check'
    - chmod +x test.sh
    - ./test.sh
  only:
    - develop
    - master
```

```bash
#!/bin/bash

rm -f server.out
./gradlew :Lightx00.Server:run > server.out &
PID_OF_SERVER=$!
tail -f -n 1 server.out | echo | grep -qe "Initialization done"
./gradlew :Lightx00.Client:check
RETURN_CODE=$?
rm -f server.out
kill -9 $PID_OF_SERVER
exit $RETURN_CODE
```

测试Stage：
1. 开服务器，等待加载完成
2. 运行测试
3. 杀掉服务器

持续集成

passed	#103 ⎇ develop ⌥ d476d86b removed a Sun proprietory api usage	✓	✓	⏱ 00:51 📅 about a month ago
failed	#102 ⎇ develop ⌥ 86e2ab79 Merge branch 'master' into 'develop'	✕	-	⏱ 00:17 📅 about a month ago
passed	#100 ⎇ master ⌥ 80946878 latest Merge branch 'develop'	✓	✓	⏱ 00:45 📅 about a month ago
passed	#99 ⎇ develop ⌥ bcc97c3d passed all tests	✓	✓	⏱ 00:47 📅 about a month ago
failed	#98 ⎇ develop ⌥ b26ff812 passed all tests	✓	✕	⏱ 00:33 📅 about a month ago
failed	#97 ⎇ develop ⌥ 07e3a985 fixed failed tests	✓	✕	⏱ 00:53 📅 about a month ago
failed	#96 ⎇ develop ⌥ 4c78aa0b 解决冲突	✓	✕	⏱ 00:48 📅 about a month ago

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master build status build success

develop build status build failed

CheckStyle

- Google的Java规范基础上自定义的规范
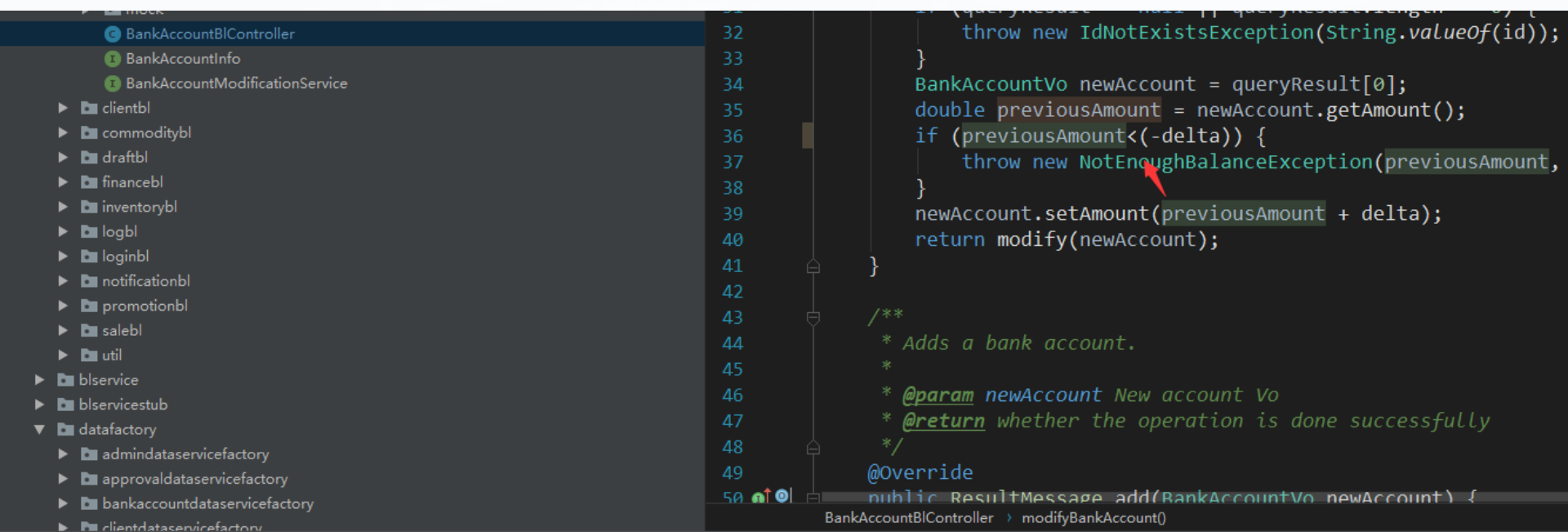
Git

- From Day One
- 每个人一个分支
- 到目前有586次commit
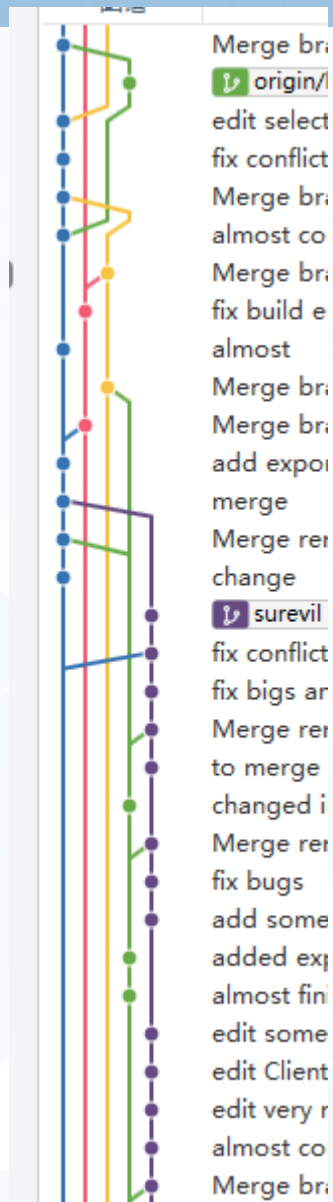
争议的选择

- 不使用Checked Exception
    - 自定义异常继承RuntimeException
    - 框架丢出的异常用RuntimeException包装

```java
@Override
public String authenticate(byte[] image) {
    try {
        List<EmployeeFaceIdInfo> employeeFaceIdInfos = dao.queryForAll();
        String inputFaceId = faceIdService.fetchFaceId(image);
        for (EmployeeFaceIdInfo employeeFaceIdInfo : employeeFaceIdInfos)
            faceIdService.updateEmployeeFaceInfo(employeeFaceIdInfo);
            if (match(inputFaceId, employeeFaceIdInfo.getFaceId())) {
                return employeeFaceIdInfo.getEmployeeId();
            }
        }
    } catch (SQLException e) {
        throw new DbSqlException(e);
    }
    throw new NotRegisteredException();
}
```

争议的选择

- 大量反射：方便

```java
public static void export(Remote remoteObj) throws RemoteException, MalformedURLException {
    for (Class clazz : remoteObj.getClass().getInterfaces()) {
        if (Remote.class.isAssignableFrom(clazz)) {
            String url = RmiHelper.generateRmiUrl(clazz);
            logService.printLog(caller, String.format("registered %s to %s", url, remoteObj.toString()));
            Naming.rebind(url, remoteObj);
            return;
        }
    }
}
```

导出RMI远程接口

```java
private static void initializeTables() {
    FastClasspathScanner scanner = new FastClasspathScanner();

    scanner.matchClassesWithAnnotation(DatabaseTable.class, classWithAnnotation -> {
        try {
            TableUtils.createTableIfNotExists(connectionSource, classWithAnnotation);
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }).scan();

    initializeData();
}
```

Classpath scan
根据Annotation
建表

反射

- 主界面切换功能

```java
/**
 * 切换功能界面的方法。这个重载方法每次都会重新加载一个新的功能界面，以前的功能界面的状态将会被丢弃。
 *
 * @param clazz    对应功能界面的类对象
 * @param title    标题名称
 * @param refresh 如果新的UI界面和原来的界面是同一个界面的话，是否需要刷新。
 */
public void switchFunction(Class<? extends ExternalLoadableUiController> clazz, String title, boolean refresh) {

    if (refresh || !clazz.isAssignableFrom(subController.getClass())) {
        try {
            ExternalLoadedUiPackage externalLoadedUiPackage = clazz.newInstance().load();
            if (subController != null) {
                subController.onClose();
            }
            subController = externalLoadedUiPackage.getController();
            this.contentPane.getChildren().clear();
            this.contentPane.getChildren().add(externalLoadedUiPackage.getComponent());
            this.titleText.setText(title);
        } catch (InstantiationException | IllegalAccessException e) {
            e.printStackTrace();
        }
    }
}
```

```java
public void onLogFetchButtonClicked(ActionEvent actionEvent){
    switchFunction(LogBackupUiController.class, title: "远程日志", refresh: true);
}
```

教训

教训

- 早做决定，思全面
  - 库存赠送表是系统生成还是人工输入？
  - 经营历程表那些数据怎么算？
  - 主界面设计成啥样？
  - ……
- 遵守可以实现的deadline
  - 太早："不切实际的需求"
    - "Documentathon"
  - 太晚：项目迟迟完不成，质量不行
- 重视stub/test

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谢谢！