**project description**

1. **Project Statement**

This app is call bouncing Ball. The purpose for this app is to help people maintain mental health, improve their attention and concentration, and improves their problem-solving skills. Also, it will benefit people when they have some free time such as waiting on a line, taking bus,etc.Maximum their time use.

I want to develop such an app because I want to become a mobile game developer. This app is my first few game app. I want to practice more.

It is a common mobile game. There are plenty of them on Android Market.

This app does not have any requirement. It can be used any where and any time.

**2. Application design**

This app contains only one module named " com.cornez.bouncingball ". All the functions of this application are implemented in this module, and there is no need to interact with other modules.

In "com.cornez.bouncingball" module, there is a Activity. This activity is the LAUNCHER activity of the application . In this application, there is only one activity. This application does not use components such as service , content provider, and broadcast receiver . Therefore, this application does not involve communication between components. The specific quantitative statistics are shown in the table below.

form 1 Statistical table of each component in the application

|  |  |
| --- | --- |
| **Component name** | **Quantity** |
| Activity | 1 |
| Service | 0 |
| Content provider | 0 |
| Broadcast receiver | 0 |

This application is designed for mobile device design. However, although I didn't use a tablet for testing, I think this app can also run properly on a tablet.

**3. Application implementation and testing**

This app contains a total of six classes: Animation Arena , Ball, Bar, BounceSurfaceView, BounceThread , and M yActivity . The relationship between these six classes and packages is shown in the figure below.

图片包含 动物

自动生成的说明

The main functions in each class and their functions are shown in the following table.

|  |  |  |
| --- | --- | --- |
| **Class name** | **Function name** | **Features** |
| AnimationArena | AnimationArena ( ) | Instantiate Ball and Bar |
| u pdate( ) | Update the location of Ball and Bar |
| d raw ( ) | Configure colors to render the shape of the Ball and Bar |
| Ball | Ball( ) | Initialize the position of the Ball and the direction of the initial velocity |
| Move( ) | Calculate the position of the next time Ball |
| Draw( ) | Configure color to render the shape of the Ball |
| Bar | Bar( ) | Ba r initializationposition and the color information |
| u pdata ( ) | Determine whether ball and b ar collide according to the sliding of the finger |
| Draw( ) | According to the sliding of the finger, the position of the bar at the next moment is obtained and rendered. |
| BounceSurfaceView | BounceSurfaceView ( ) | Instantiate a surfaceviewand instantiate a thread |
| surfaceCreated ( ) | Start a new thread when the surfaceview is created |
| surfaceDestroyed ( ) | When surfaceview isdestroyed, close thethread |
| BounceThread | BounceThread ( ) | InstantiateAnimationArena |
| Run () | Child thread update UI |
| endBounce ( ) | Thread stop |
| MyActivity | onTouchEvent () | Get the user's finger touch information |

The app was tested on both the simulator and the real machine. Mainly based on the actual operation of the user, the various scenarios that may be encountered are simulated.

**4**. **References**

[https://developer.android.com/reference/android/view/SurfaceView](https://translate.google.com/translate?hl=zh-CN&prev=_t&sl=auto&tl=en&u=https://developer.android.com/reference/android/view/SurfaceView)

[Http://www.edu4java.com/en/androidgame/androidgame2.html](https://translate.google.com/translate?hl=zh-CN&prev=_t&sl=auto&tl=en&u=http://www.edu4java.com/en/androidgame/androidgame2.html)

**5. Experience and Thoughts**

The app has some problems in some scenarios. For example, when the ball moves normally, moving the bar closer to the ball will make the distance between the ball and the bar smaller, so that the ball will start moving in the opposite direction. However , the distance between the ball and the bar is still small , and all will start moving in the opposite direction again . The result is that the ball is shaking near the bar and not far from the bar.