

SQL queries, convenience annotations that minimize repetitive and error-prone boilerplate code and finally streamlined database migration paths. Room is offered as an alternative to Realm, ORMLite, GreenDao and more.

In order to facilitate the development of the project, some design patterns were used. For this application development was used MVVM pattern. The choice of this pattern is explained by the fact that it is ideal for the implementation of our project. Model-View-ViewModel is a client application architecture pattern that is an alternative to MVC and MVP patterns when using Data Binding technology. In our project, it helped to produce a separate development of UI, the operational unit and the part with data storage. View-Model - an object that describes the logic of View behavior depending on the result of the Model. It describes the behavior that was initiated by the user.

Also were used Adapter, Observer and Singleton. Adapter pattern is used when it's needed to combine two different interfaces without changing them. Observer provides a way to react to events happening in other objects without coupling to their classes. Singleton design pattern ensures that a single-threaded application will have a single instance of a certain class, and that provides a global access point to that instance.

During the course project implementation was developed a mobile client for distribution network. The project was written in Java using various frameworks to achieve the best user interaction with the system. All the necessary functionality was implemented with the goal of maximum performance, speed and quality. The user interface was designed in the most minimalistic style to improve the understanding of information and user experience. The project fully meets all requirements.

For testing purposes was used JUnit, which allows us to test each program module of our project. During the tests, the application worked stably, which indicates the proper implementation of design patterns.

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DEVELOPMENT OF IN-GAME OBJECTS

Game object is any isolated entity in the game space with which the player can interact. Game objects in video games are represented as ordinary accessories, as well as characters, objects and other things that have their own parameters or behavior.

Game objects can be implemented in any software for creating graphics or 3D models. The main question is only how much work will be done to create all the objects of a particular game and how much space in memory these objects will occupy.

The main goal of the project is to create objects for the game «Save». The goal of the game is to teach the user how to sort the garbage correctly. Based on this, the main objects will be various items that need to be disposed of. In addition to the main objects, there are objects with which you can or need to interact during the game and various accessories that complement the interface. Elements are bitmaps or a collection of images that were created in the graphics editor Inkscape.

Ordinary garbage includes about sixty objects, which are represented by static images. For a variety of gameplay, under the guise of mu-sora, two types of objects can appear that complicate the gameplay, putting additional tasks for the player. The first objects are conditional antagonists that interfere with the player. They have simple animation and an additional effect that covers the entire screen. The second are animals in trouble, which consist of two images: the animal itself and the garbage, also animated.

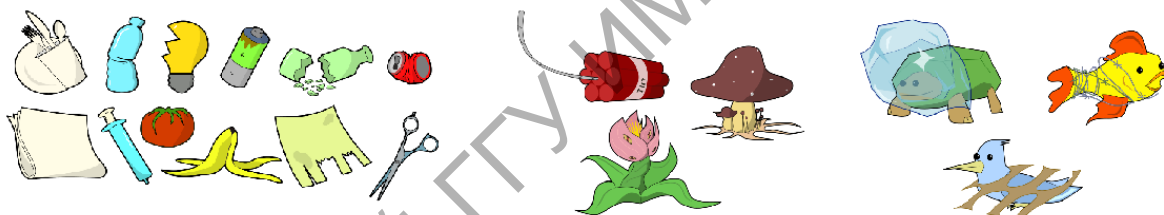


Figure 1 – Objects representing garbage

There are three types of accessories in the game. The first are those that can be hung. These include various trinkets and medals for completing assignments. The second are static objects: pots of flowers, a stack of paper, tools and others. Still others are animated objects that move during the game. Such objects consist of several images. There is a special place for hanging objects on the in-game interface. All other objects can be placed anywhere. There can be up to ten items on the screen in total.

During the game, various insects may appear on the screen, which do not affect the gameplay, but you can interact with them. They consist of several parts, which allows you to create motion tweens.

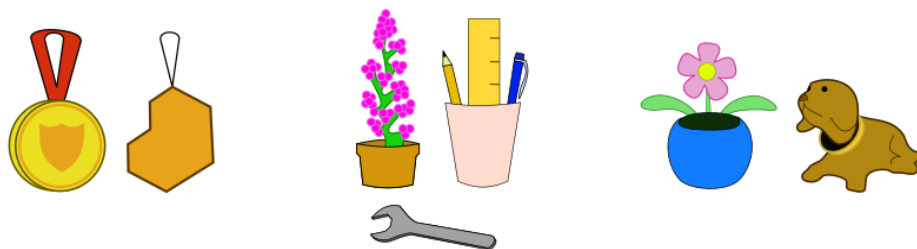


Figure 2 – Accessories



Figure 3 – Insects

The implemented project is aimed at creating game objects that represent both simple cosmetic items and the main objects with which the player interacts. Some of the elements are animated by software, made in a hand-drawn style that matches the style of the game.

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DEVELOPMENT OF THE INTERFACE OF THE GAME «SAVE»

The in-game interface is one of the most important parts of the game, as it accompanies the user throughout the entire gameplay. The player receives the necessary information through the interface, and the better his elements are made, the faster the information will reach the user.

The main goal of the project is to implement the elements of the «Save» game interface. The goal of the game is to teach the user how to sort the garbage correctly. Based on this, the elements of the in-game interface are stylistically reminiscent of a garbage recycling plant. Elements are bitmaps that were created in the graphics editor Inkscape.

The game screen is a horizontal area with a resolution of 1920x1080 px. The screen is divided into three conventional parts. The upper part informs the player about the remaining time, the points scored and gives the