Software Project Detailed Design

The project name： King of the Hot Dog

Group number : The tenth group

Team members : 覃爽，李慧香，周曼曼，林锵

Content

1.Introduction

1.1 Purpose

On the basis of the design of the outline of this manual, king of the hot dog game of the modules, procedures, subsystems are implemented on the level of the requirements and instructions.

The purpose is to:

1.Provide basis for coders;

2.Provide conditions for modification and maintenance;

3.Project leader will arrange and control the whole process of development according to the requirements of the plan;

4.Project test team will conduct periodic and summary performance testing and validation according to this plan.

5.Product implementers in the software development team read and refer to this manual for coding and testing.

Intended readers of this manual:

1.Software development team coders;

2.Software tester;

3.Teacher;

4.Project leader and all participants.

1.2 Background

Description:

System name: King of the hot dog game

Developer : all members of group 10th

Development tools: Photo Shop interface design, image processing

PyCharm game production

Application environment: Windows 10 operating system

1.3 Design and Rules of the Game

1.3.1 Game Mode

1) players select the game mode as "classic mode", "Infinite mode" and "limited time mode".

2) [Classic Mode] : initial 3 HP. The game ends if you eat the bomb or miss the hot dog 3 times.

3) [Time-limited Mode] : the user receives hot dogs within the specified time (60s),

and the game ends when the time ends. If a bomb is eaten, the score is reduced by 10.

4) [Infinite Mode] : 3 health and 3 satiety points (full value 10).If the life value of bomb is decreased by 1, if the hot dog is eaten, the integral value and satiety will increase, and the decline speed of hot dog will accelerate with the increase of satiety. When the satiety reaches the maximum, it can be converted into 1 life value, that is, the life value will be increased by 1.When health is 0, the game ends.

1.3.2 Material Preparation

Select materials according to the requirements of the game: select the pictures of characters, bombs and backgrounds to be used, use Photoshop to synthesize and process the pictures into the picture styles and formats that meet the production requirements, download the appropriate music material for later use.

1.4 References

Zhang Haifan. Introduction to software engineering. 5th edition. Tsinghua university press

Xiao gang et al. Writing with software documents. Tsinghua university press

2.Overall Design

2.1 Software Description

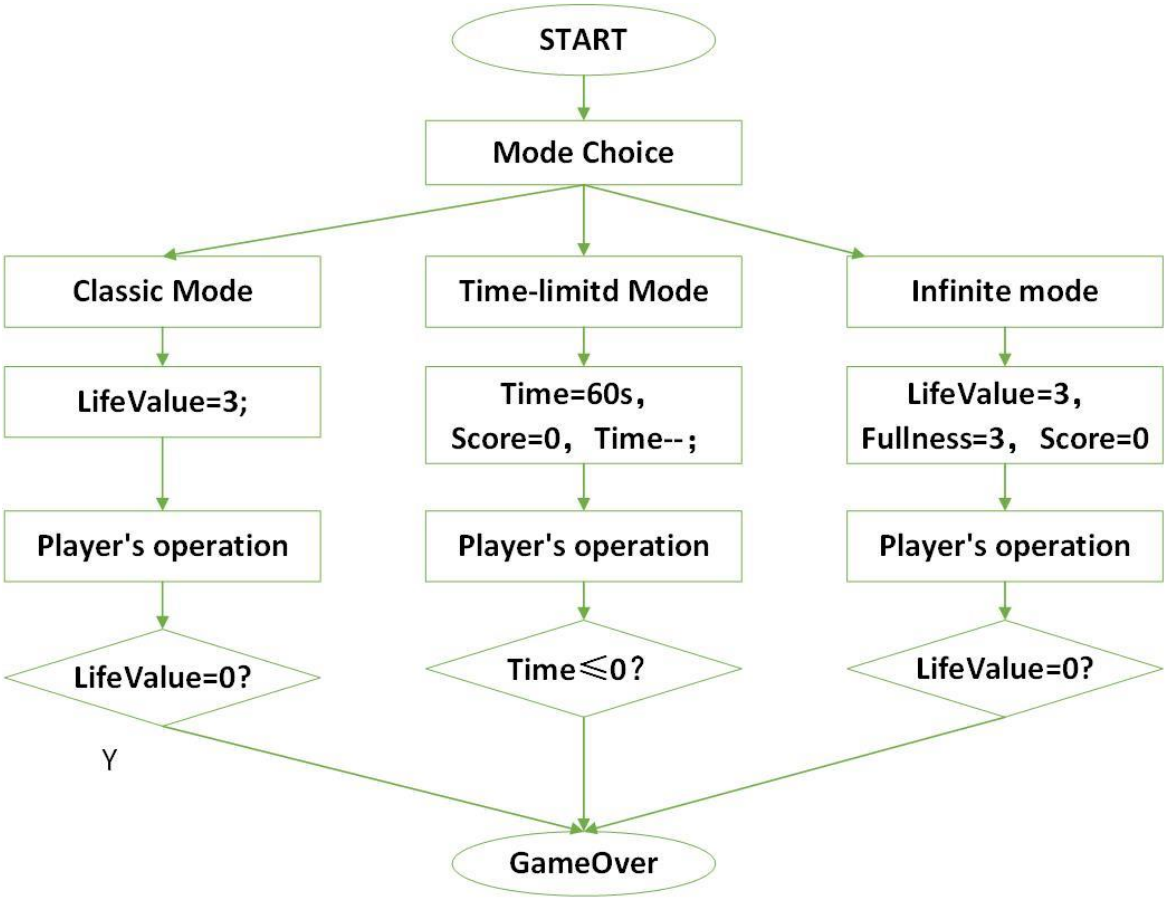
The project is developed using PyCharm software.

2.2 Design Method

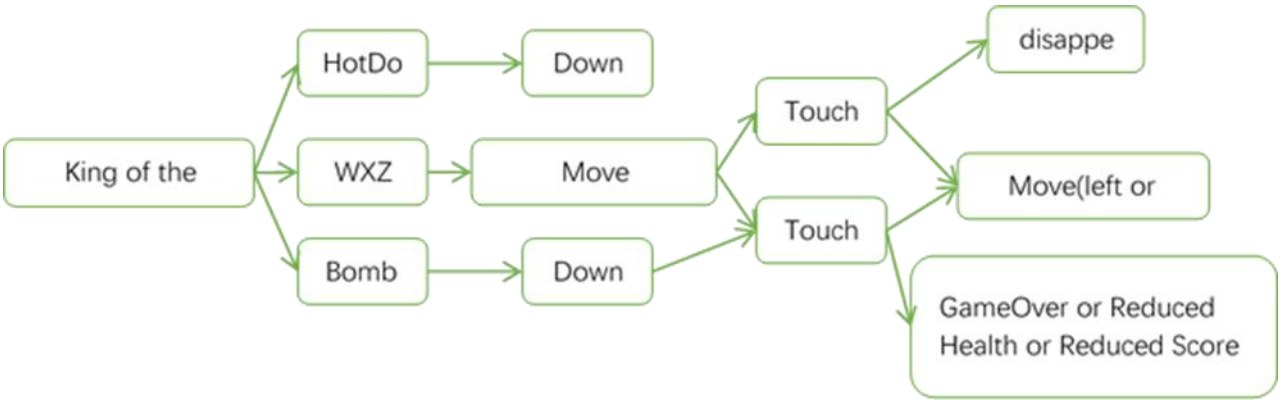
This project adopts the combination of traditional software development life cycle method and agile development, and adopts the top-down and gradually refined structured software design method.

2.3 Software Structure

2.3.1 Overall Flow Chart



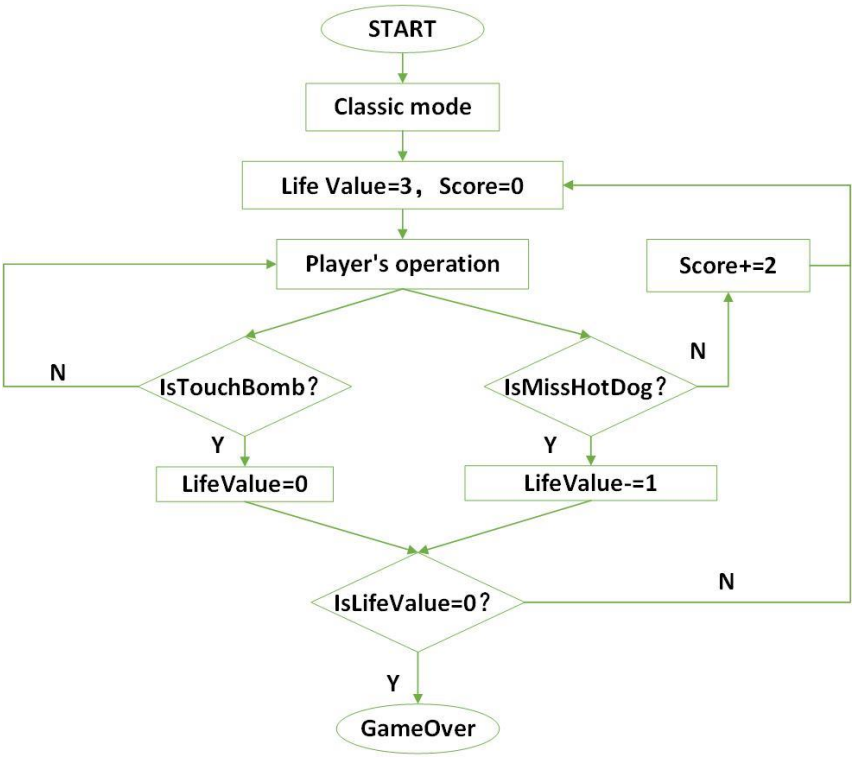
2.3.2 Structure Chart



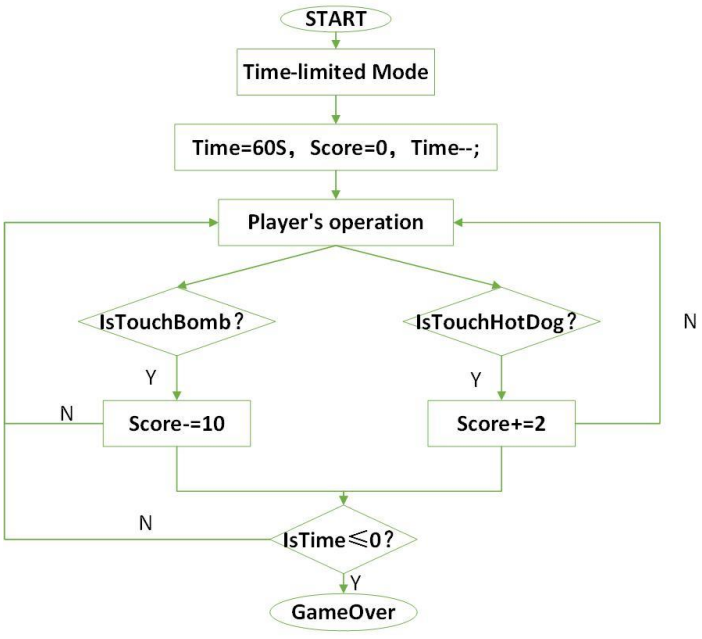
3．Module Design

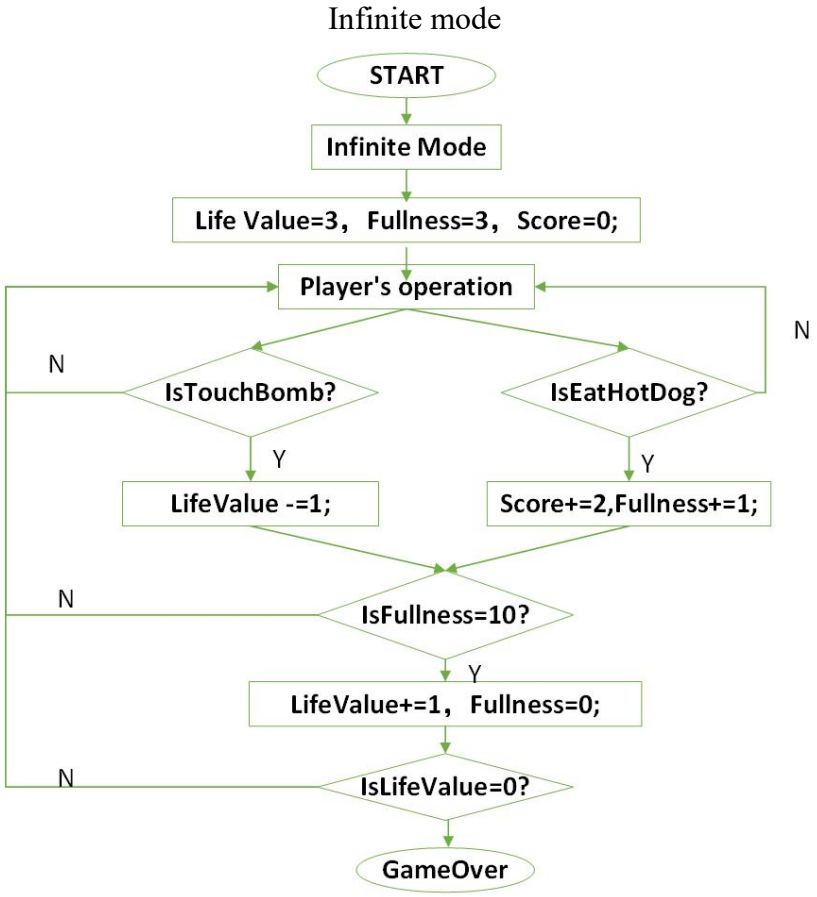
3.1Module Flow Chart

Classic mode:



Timed mode

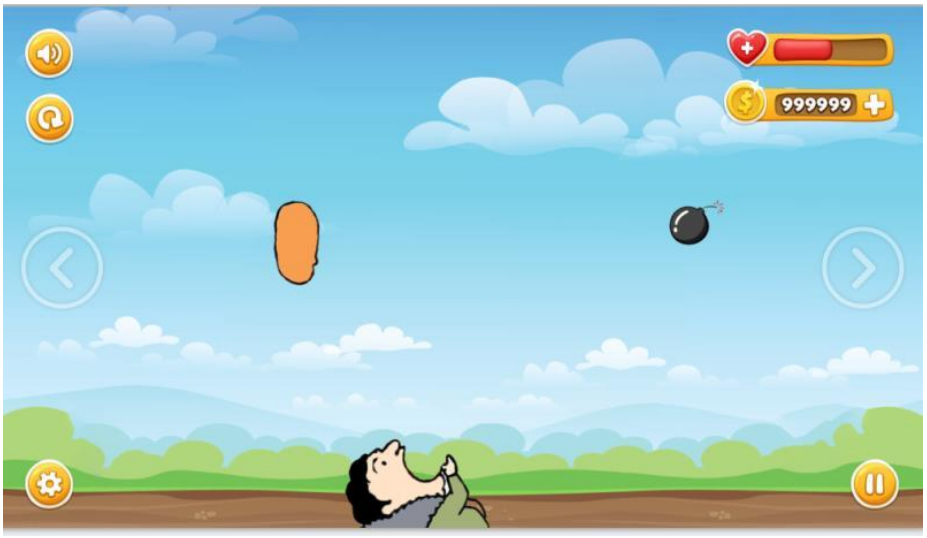


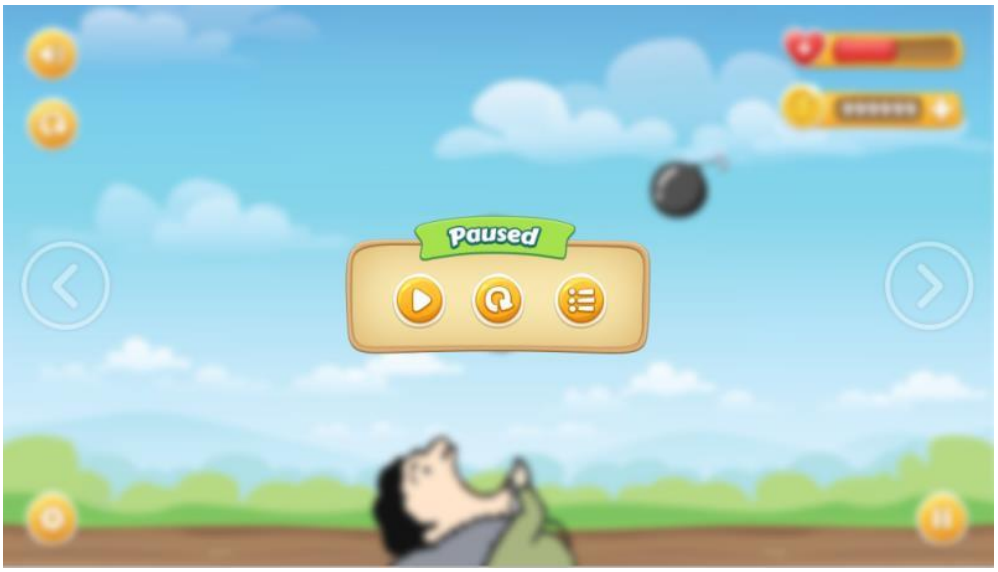


3.2 Name and Identifier of Each Module and Subroutine

Player class (Sprite) : properties: global properties, image properties (size, location), move sign, score, satiety
Function: blitme(): show role update(): move role
Bomb class (Sprite) attribute: global attribute, image attribute (size, location)
Function: blitme(): show bomb update(): bomb drop
Hotdog class (Sprite) properties: global properties, image properties (size, location)
Blitme (): show hot dog update(): hot dog drop
Settings class () : properties: screen properties, background properties, game progress control properties, score control properties, character movement speed properties, hot dog movement speed properties, bomb movement speed properties
Function: initialize _dynamic _settings(): reset the speed attribute, increase e_speed()
Game Starts class (): properties: global properties, character health, game activation state
Function: reset_stats() : the game reset function
Scoreboard class (): attribute: global attribute, Scoreboard attribute
Functions: prep_score () scoreboard style adjustment function, show_score() scoreboard display function

4. UI Design Sketch





5.Description of Program Design

5.1 Program Description:

1. Purpose and significance:
The game to keyboard shortcuts for users to provide a friendly means of control. For the majority of users to provide a simple and interesting game.
2. Description of feature
1) the program has good interactivity and strong operability.
2) simple and interesting, easy to operate.
3) comprehensive functions, such as: start a new game, pause, set levels, sound effects, view the game description.

5.2 Performance

This game in the design of convenient, practical and entertaining purposes, in the process of interface design always adhere to clear, in terms of performance can achieve high efficiency, not easy to make mistakes and other advantages.
The main interface of the game should strive to be beautiful, pleasing to the eye. Game control module should be easy to understand, easy to operate and high accuracy, not easy to make mistakes.

5.3 Input Item

Select the user's button operations, such as START, PAUSE, MODESELECT, or select the directional keys on the keyboard.

5.4 Output Item

Points, hit points, time, satiety, speed.

5.5 Test Plan

1. Test the main functions of START, CLASSIC MODE, time-limited MODE, INFINITE MODE and GAME OVER one by one.
2. Due to the small program, In order to ensure the accuracy, we will write the program while testing.
3.UI test: test whether the style of the game interface meets the requirements, whether the text is correct, whether the page is beautiful, whether the combination of text and pictures is perfect, whether the operation is friendly and so on.
4. Predicted results:
1) after starting the game, the user can enter the mode selection page and select the mode he wants to play.
2) select the classic mode, the initial life value of the character is 3 points. If the character misses the hot dog three times or touches the bomb, the game ends.
3) select the time-limited mode, pick up hot dogs within the specified time, and finish the game at the end of time. If you eat a bomb, subtract 10.
4) select infinite mode, with initial hit points of 3 and satiety points of 3 (full value of 10).If the life value of bomb is decreased by 1, if the hot dog is eaten, the integral value and satiety will increase, and the decline speed of hot dog will accelerate with the increase of satiety. When the satiety reaches the maximum, it can be converted into 1 life value, that is, the life value will be increased by 1.When health is 0, the game ends.