

Part III

Structures and Patterns



Fig. III.1 A screenshot of the game Jewel Jam

Deep, deep down in the mines, you are looking for your fortune. You know that the priceless gems are there, but they are all mixed up and you have to collect as many as possible before the cart that can transport them leaves. Can you make as many sets of jewels as possible before your time is up?

Jewel Jam is a puzzle game where combinations of jewels need to be found. A screenshot of this game can be seen in Fig. III.1. There is a limited amount of time, though.

A jewel cart is moving slowly away. Once this cart is out of the screen, your time is up. Every time the player makes a valid combination of jewels, he/she gains points and the jewel cart is moved back a few steps. The playing board consists of ten rows and five columns. There are different jewels on the playing field. The jewels are different according to three different properties: they can have a different color (red, blue or yellow), they can be different shapes (diamond-shaped, sphere-shaped and ellipse-shaped) and they can be different numbers (one, two or three jewels).

The player can shift rows to the left or to the right using the arrow keys, and the goal is to find matching combinations of three adjacent jewels in the middle column. A combination of three jewels is valid if each of the properties is either the same for all objects, or different for all objects. For example, a yellow single diamond object, a blue single diamond object, and a red single diamond object is a valid combination of objects, since the color is different for each object, and the shape and number is the same for all objects. A yellow sphere object, a yellow double diamond object and a yellow triple ellipse object is also a valid combination, because all objects have the same color, they all have a different shape, and they all have a different number. The combination yellow diamond, red double sphere and blue double ellipse is not a valid combination, because although the color and the shape is different for each object, the number for the diamond object is different from the other two. The combination yellow diamond, red double sphere and blue triple ellipse on the other hand, is valid. Once the player has found a valid combination by shifting the rows around, he/she presses the space bar and the jewels that form a valid combination disappear, upon which the remaining jewels fall down to fill the empty slots, and three new jewels fall down from the top of the screen. When there are two or three combinations at the same time in the middle column when the player presses the space bar, extra points are awarded and an overlay is shown on the screen for some time to indicate that a double or triple combination was made.

In the following chapters, we will be developing this game. If you want to play the complete version of the game to get a feel for how the game works, open the solution belonging to Chap. 18 and run the JewelJam project.