



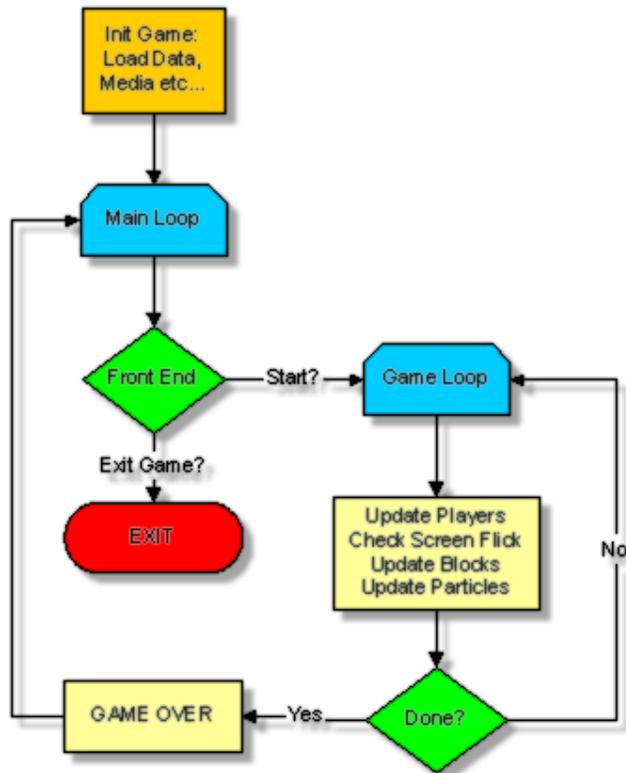
Building a Platformer – Tutorial 11

Welcome to what is the penultimate episode in this series, Bruce is almost done, however the code hasn't actually changed very much, compared to the time it's taken to get the media done, there's some new effects and block handling techniques, along with the boss stuff of course. So there's no code mentioned in this installment.

NEW LOGIC

To help mix up the level design, I decided to add some spiral stairs for Bruce to run up and down, instead of boring old ladders every time. These are standard blocks marked with a command flag depending on which direction the stairs go, 10 or 11. If you press UP or DOWN at the foot of the stairs or the top, Bruce will use the stairs to change level. Enemies can use the stairs as well, although really I need to smarten up the AI now, so expect a tougher challenge with the next installment. As it became apparent just how difficult Bruce can be, I decided that the player start markers should also act as a spawn point, so now the tougher sections can save the player some frustration, as the spawn point can be activated and used instead of just a random one. Some hint alert arrows have been added as well, and the ability to hide a block or show it – these are based on the lanterns collected, so for example, once all the lanterns in the first room have been collected, an arrow particle will spawn showing the direction to go.

Some specific logic is used to handle the game loops as well. There are 100 lanterns to collect, and in the last room where you face the dragon, simply collecting the last lantern destroys him and the evil lord character (based on Ninja) spawns. The game loop finishes when you run out of lives or you collect over 100 lanterns. Once the lord character is dead the lantern count is set to 101 and the game loop ends. After that there's a simple game over screen if you've run out of lives, or a fireworks display if the lantern count matches. The front end is also looped, so it works a bit like this:



For a change, the main loops were quite easy to add, often when developing a game that has an integrated editor it can be difficult to establish the game structure later on. As the game code starts to take over, the editor can start to lose functionality – for instance the cheap TEXT output that shows the block command flag and screen number etc, well as I use a widescreen monitor, and have added sprite curtain borders, I could no longer see the text. So I disable the sprites when using the editor, but then the camera view has changed as well so now the text is not cleared. So I added a clear screen key [<] or comma.

To speed up testing the boss characters and game end sequence I also added a lantern number cheat. So if you start in the editor mode, then spawn Bruce at the entrance to the dragon's tomb and press [>] or full stop, this will set the lantern count to 98, collecting the lantern in that screen will reveal the door and going in the door gets Bruce to the dragons tomb quickly.

DRAGON BOSS

This guy is the evil lords manifestation, destroy all the lanterns to kill it, which is a case of running along the screen and collecting the last lantern. This is how the last game ended, but this time round you'll have to kill the evil lord as well. The dragon is an animated mesh, with a bone structure with extra marker bones. These marker bones give the location of the mouth and throat for firing at the player, and also the nostrils for the smoke effect. Once the last lantern is collected the object is removed, and replaced by a load of bone particles. As you can probably tell, the body is just a 2D plain, textured with a dragon body, once the dragon is gone that is replaced by a version of the texture without the body. With the UPDATE_BLOCKS() function, the special string for the block is checked, if it specifies that the block is a dragon, it handles things like animation and particles. A few cases are looked after in the function, waterfalls for instance. Special case code can really bloat a project as it nears completion, the traceability in the object system plays it's part in this. As long as you can quickly find out the properties of a block, special case coding can be quite straightforward. The dragon is the most complex block but it was actually quite straightforward to add, probably spent more time on the nostrils than anything.

Once the dragon has been dealt with, this guy makes an appearance...



FINAL BOSS



Handsome eh? He's based on one of the statues littered around the game. Only a much older, skinnier version, he's pretty deadly with that knife as his sword animation is a lot more elaborate than the ninja. He also throws stars at Bruce when he gets too far away. The throwing stars are particles, flagged as deadly that kill Bruce instantly. You can lie down to avoid them of course, but it can get messy if you're doing a flying kick and he throws one at you. He uses unique animation modes, but the animation system handled the new character without issue, so I'm glad I went to those lengths. Get him down 3 times to beat the game.

NEW EFFECTS

Along with the dragon, a few new particle effects have been added. Fireworks are a pretty obvious addition I must admit, but really it's the best way to fill the end screen with colour. Due to the differences in screen resolution, some vertical borders have been added so the correct aspect ratio can be applied when the display is widescreen. These are made from a single image, a sprite is positioned at each side of the screen. The sprites have a curtain effect as well, which helps improve the look of screen transitions. Score, time, and lives are now displayed using the bitmap font system.



NEXT TIME

Bruce will be a finished game, the article will summarise how everything works together in the game build, with some much needed tidying and tweaking here and there. A kind-hearted demo scene musician has offered to do the soundtrack, he's a big fan of the original game and will be elaborating the original theme, so I can't wait to hear what he comes up with. Until then, I suggest you hum the theme tune, and maybe do your own Kung Fu sound effects as well!

Editor Controls

- **Left** and **Right** cursor keys to run left and right.
- **Down** cursor key to lie down.
- **Up** cursor key to jump.
- **Control** key to attack.
- **Shift+Arrow keys** to select a screen.
- **L** to re-load the map.
- **S** to save the map.
- **U** to undo changes made on current screen.
- **B** to bring up the block selection screen.
- **M** to bring up the map screen.
- **C** to specify a COM and COM_VAL at the current position.
- **Return** to render a 2D lightmap