

Blockly/Scriptcraft for Minecraft

Level 2

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Created with
OfficeSuite

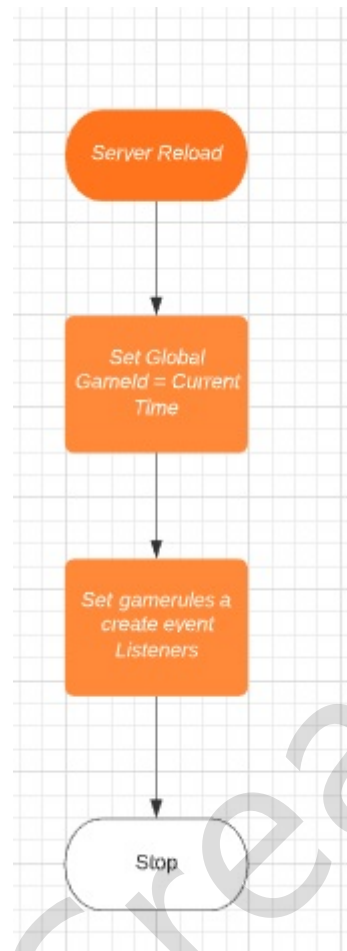
This course will be divided into 3 sessions, each session consisting of 8x1 hour classes.

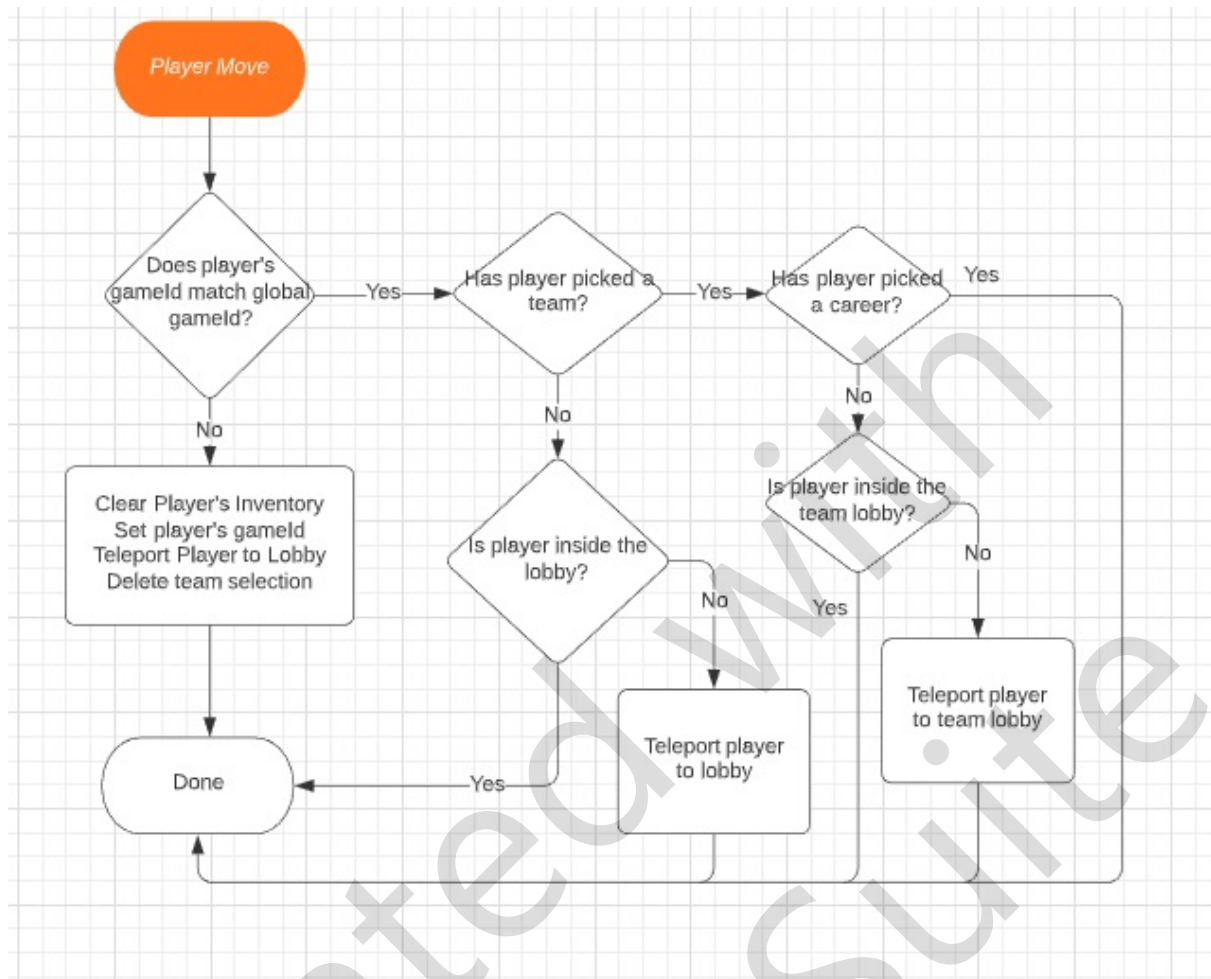
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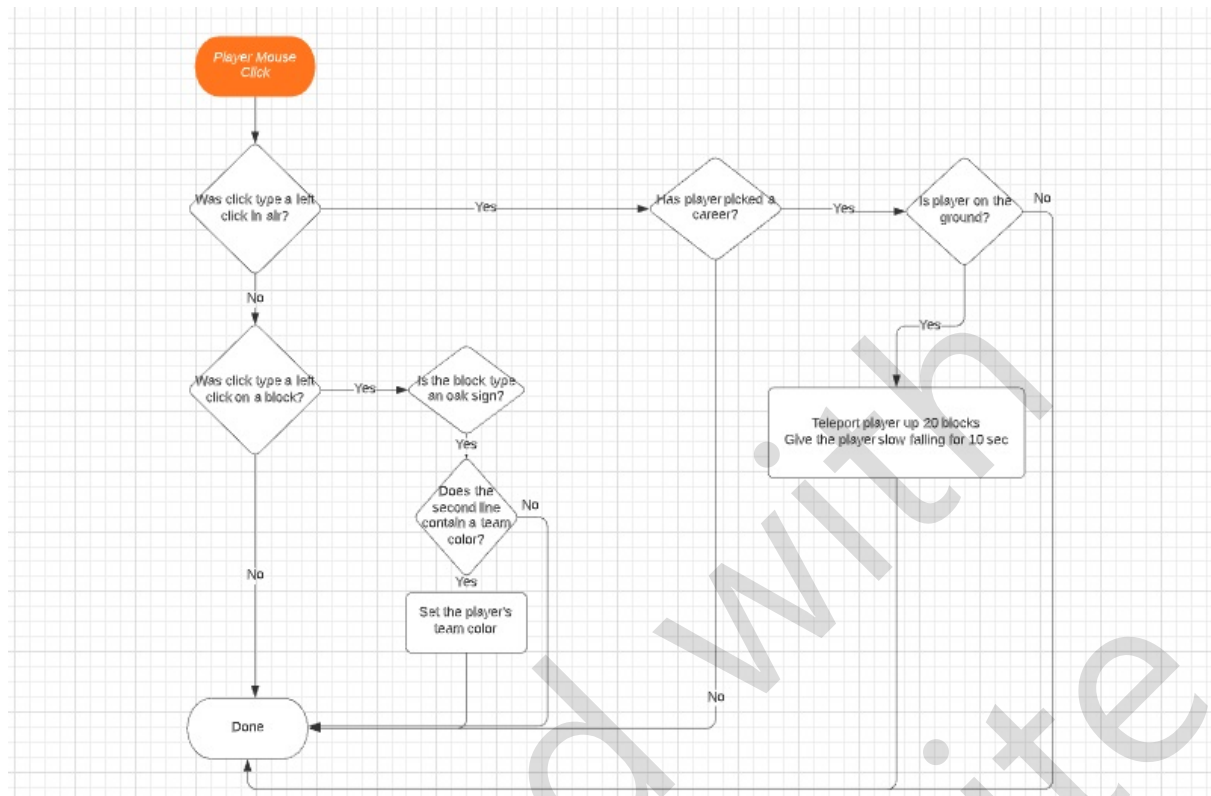
1.1 Game Design FlowChart

First we will go over the game design from a high-level perspective.

I have used flowcharts to represent the game design:





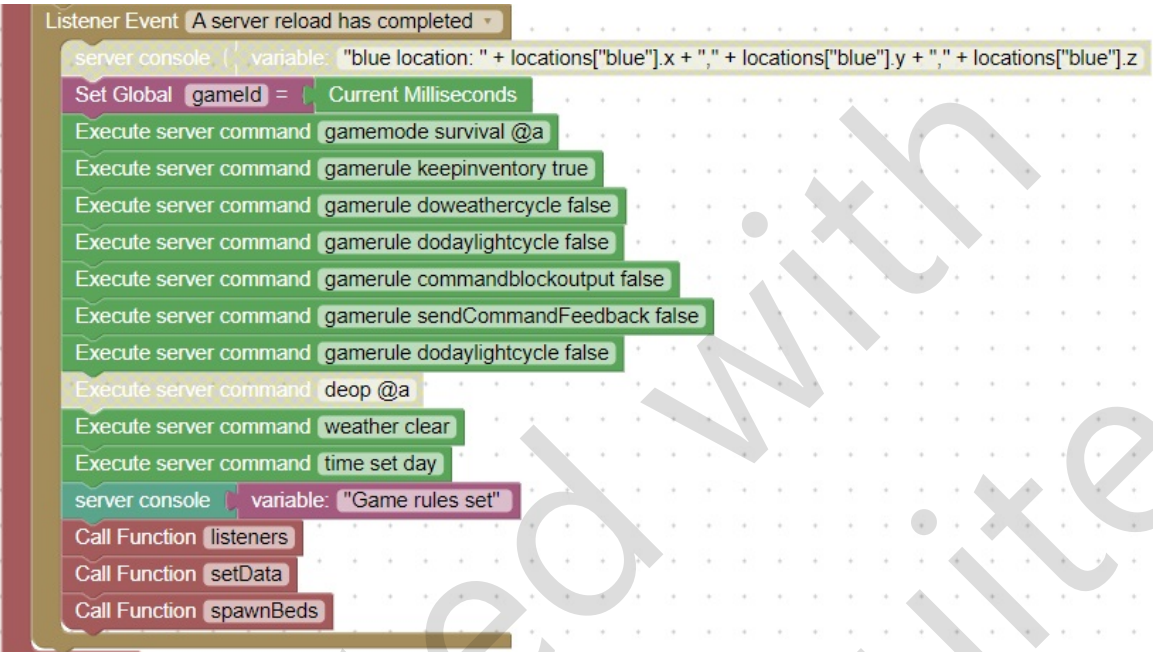


1.2 Game Initialization on Reload

The server reload is the event that drives the game initialization

Notice the global variable gameId is set to the current time in milliseconds

When a player joins the server their gameId will be checked, if it does not match this means that they are joining the game for the first time.



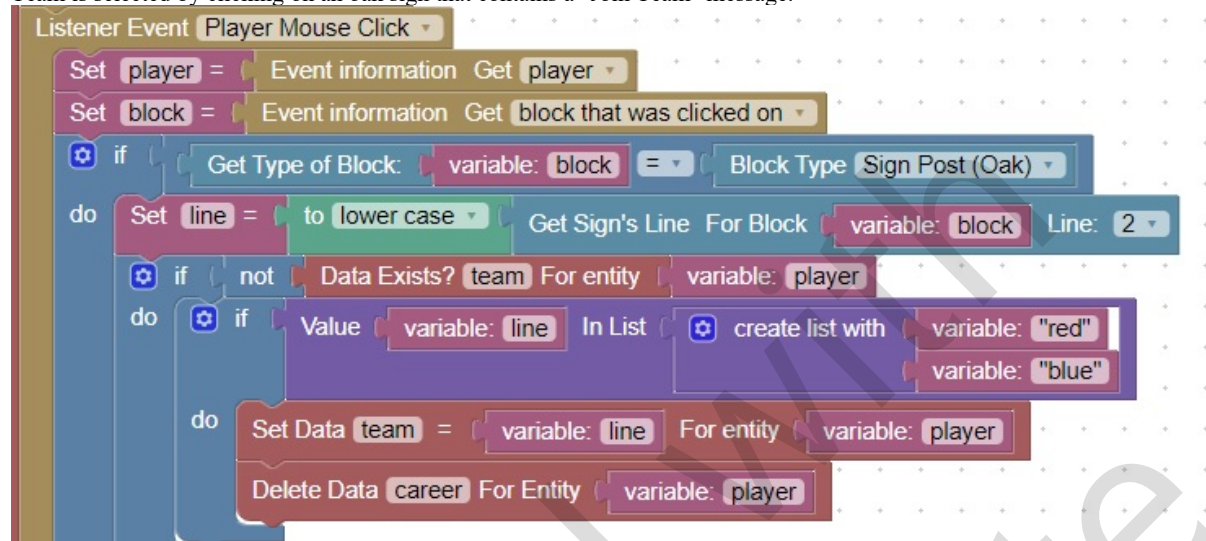
The image shows a Scratch script for game initialization on a server reload. The script is triggered by the event "A server reload has completed". It contains the following blocks:

- server console** (comment): variable: "blue location: " + locations["blue"].x + ", " + locations["blue"].y + ", " + locations["blue"].z
- Set Global** gameId = Current Milliseconds
- Execute server command** gamemode survival @a
- Execute server command** gamerule keepinventory true
- Execute server command** gamerule doweathercycle false
- Execute server command** gamerule dodaylightcycle false
- Execute server command** gamerule commandblockoutput false
- Execute server command** gamerule sendCommandFeedback false
- Execute server command** gamerule dodaylightcycle false
- Execute server command** deop @a
- Execute server command** weather clear
- Execute server command** time set day
- server console** (comment): variable: "Game rules set"
- Call Function** listeners
- Call Function** setData
- Call Function** spawnBeds

A large, diagonal watermark reading "Created with OfficeSuite" is overlaid on the script.

1.3 Player Team Selection

Team selection is the first task that a player must accomplish when joining a server for the first time. Team is selected by clicking on an oak sign that contains a "Join Team" message.

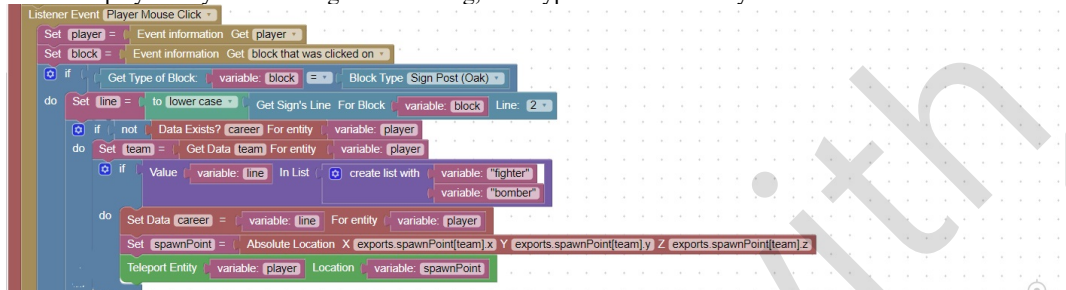


1.4 Player Career Selection

A player must select from the careers:

1. Fighter
2. Bomber

When the player's elytra is no longer functioning, both types become infantry

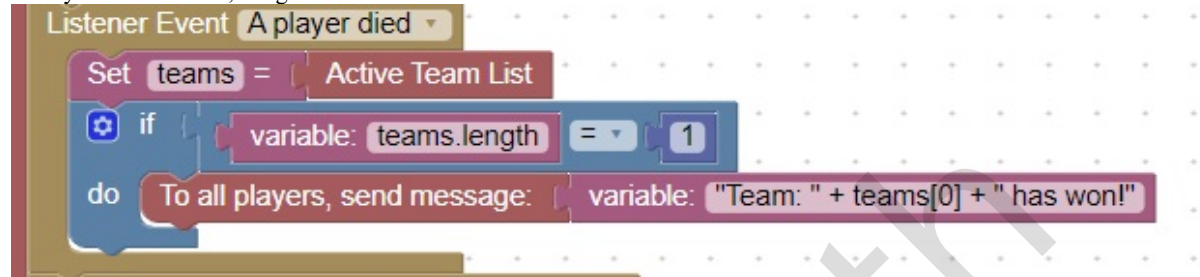


1.5 Player Death

When a player dies, end of game detection can be run

You can check how many teams are still active.

If only 1 team remains, the game is over



1.6 Player Command Entered

/t command is similar to the whisper command

When a user enters a command such as: /t Hello what is up?

You can use the list from text block with a space as delimiter

You end up with the list:

1. /t
2. Hello
3. what
4. is
5. up?

Then you can use the get and remove block on the first element and your command becomes

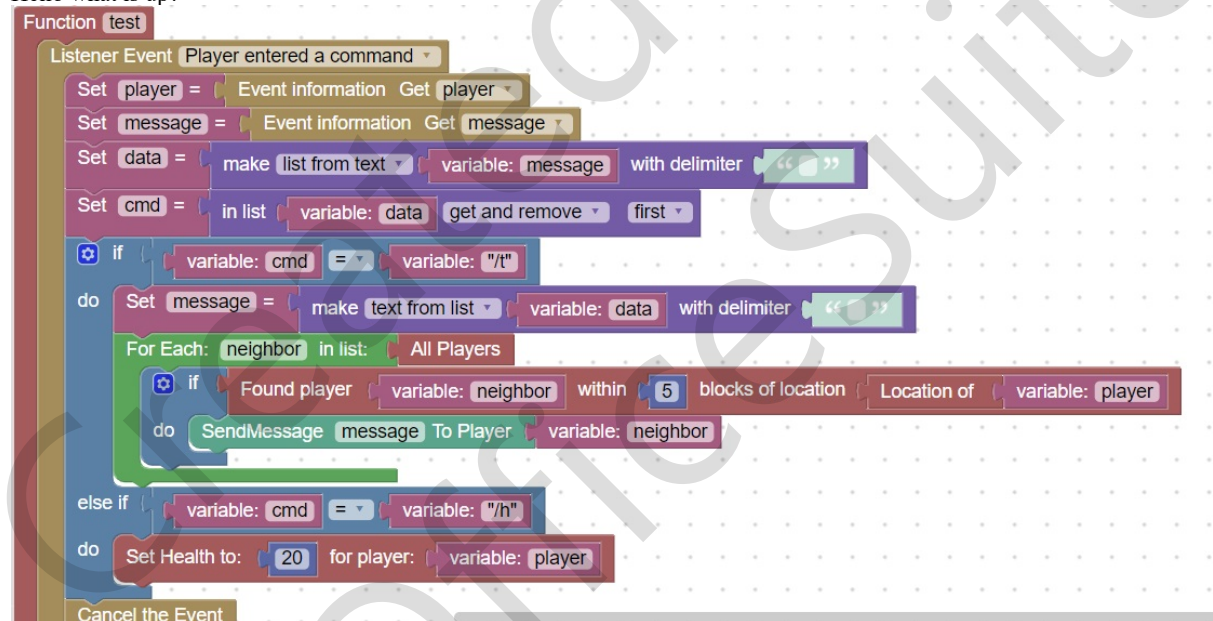
/t

And the list becomes:

1. Hello
2. what
3. is
4. up?

You can then use text from list block to reform the message :

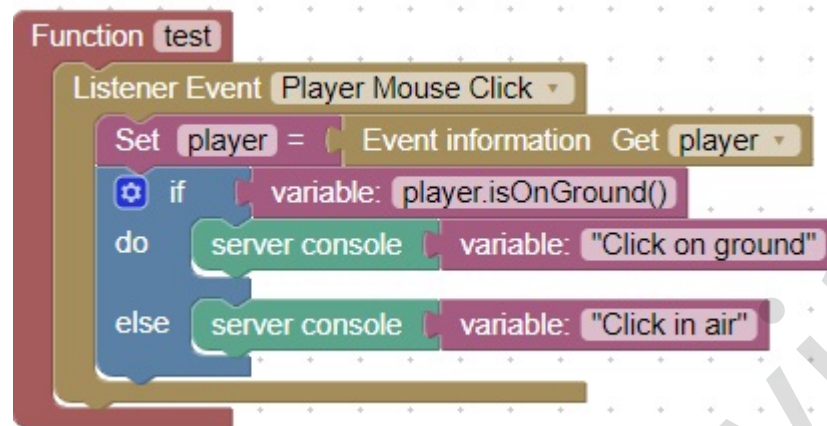
Hello what is up?



1.7 Player On Ground

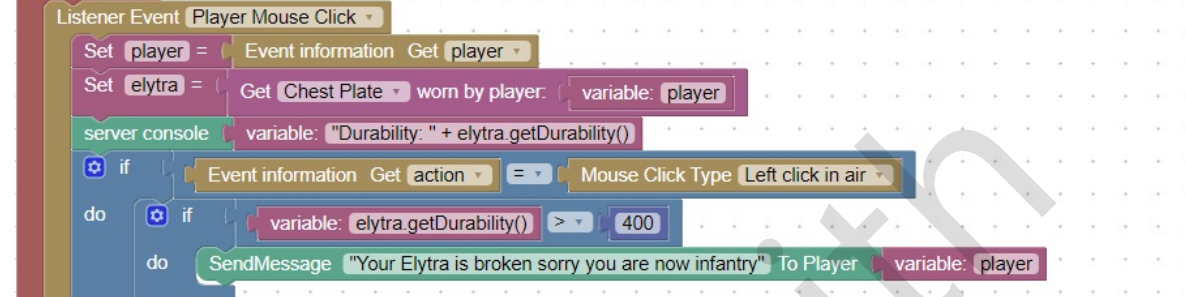
When the block below a player is solid, they are considered on ground.

This code will output in the server console, whether they are on ground or not



As an elytra is used, it wears out, and its durability increases. Also if the player takes damage while flying, the elytra also takes damage.

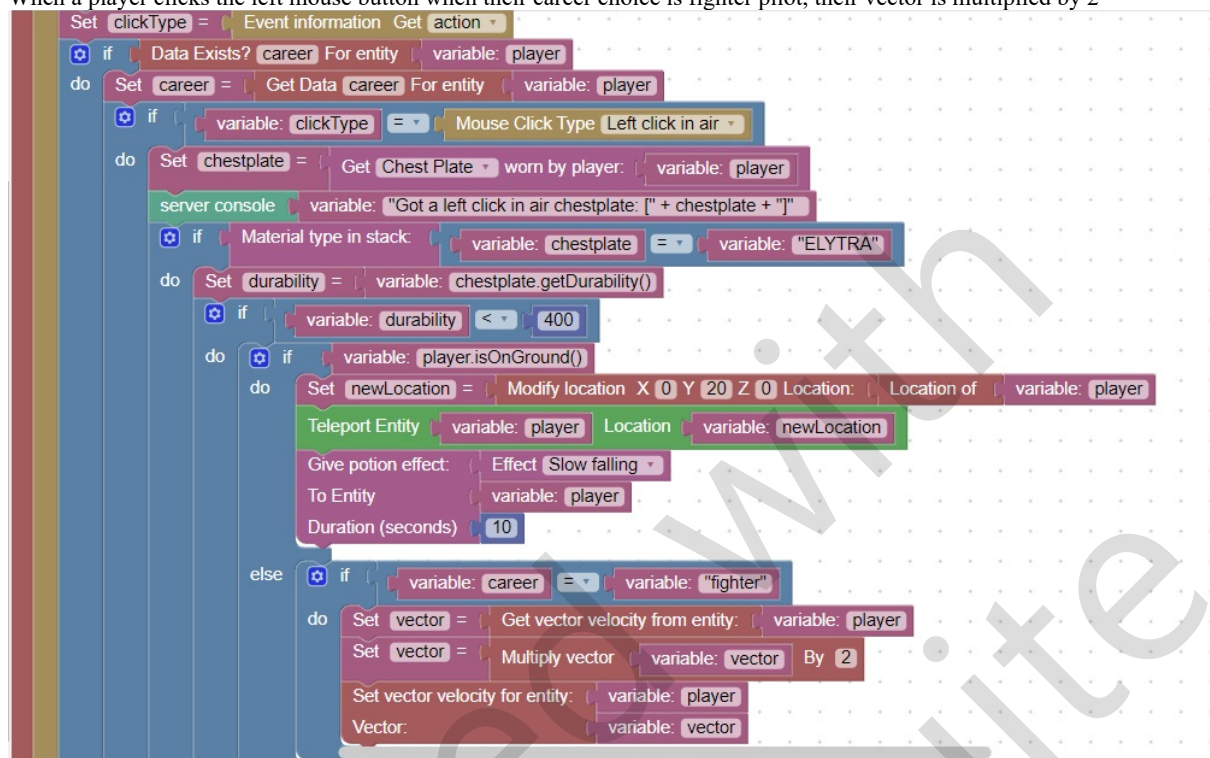
Function test



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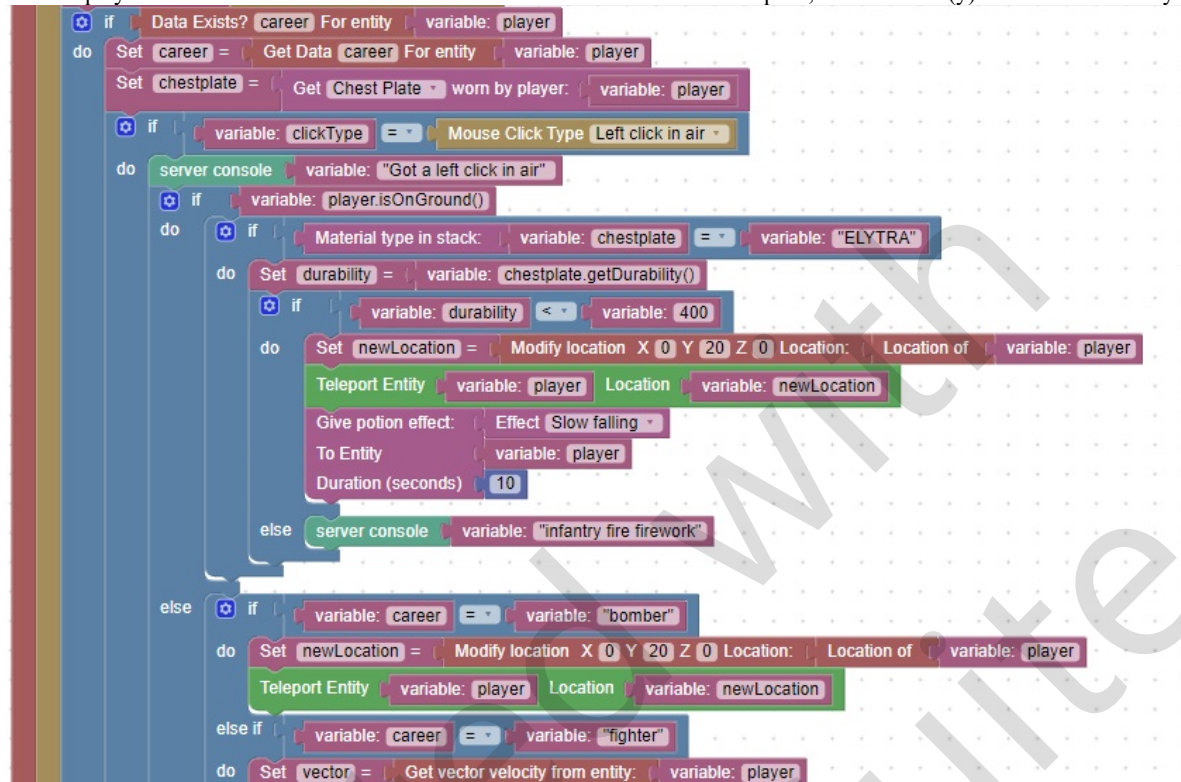
2.1 Left Click for Fighter

When a player clicks the left mouse button when their career choice is fighter pilot, their vector is multiplied by 2



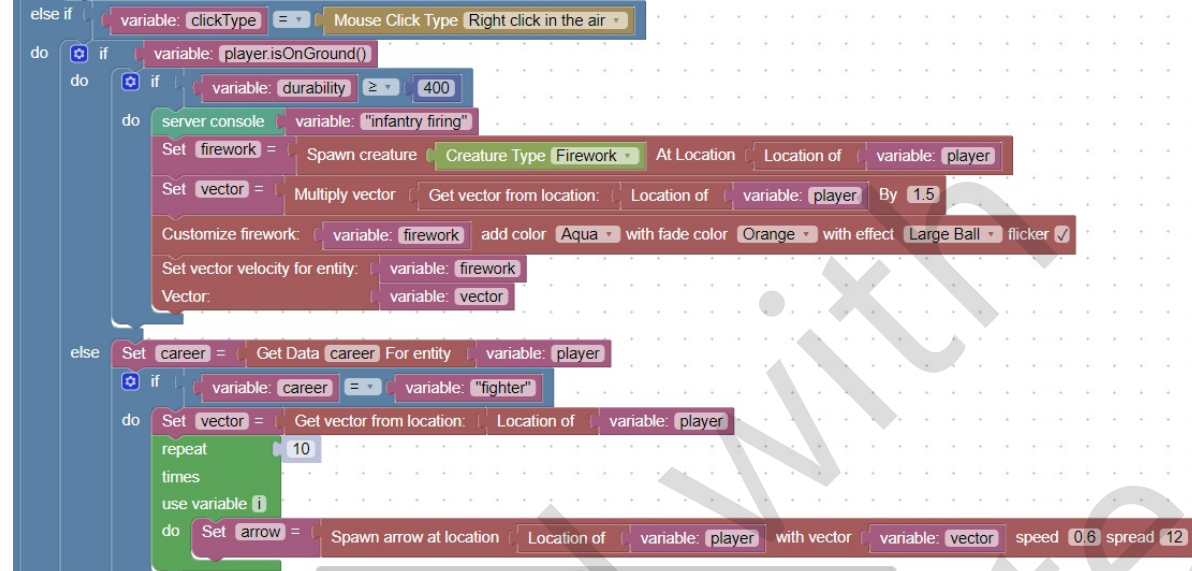
2.2 Left click for Bomber

When a player clicks the left mouse button and their career choice is a bomber pilot, their altitude (y) will be increased by 20



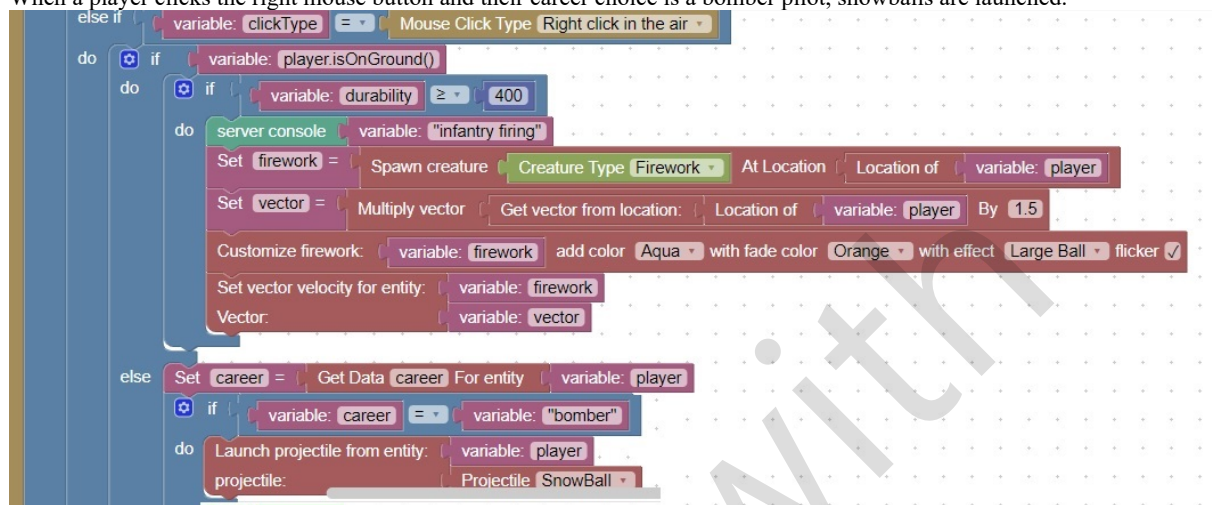
2.3 Right click for fighter

When a player clicks the right mouse button and their career choice is a fighter pilot, arrows are shot.



2.4 Right Click for Bomber

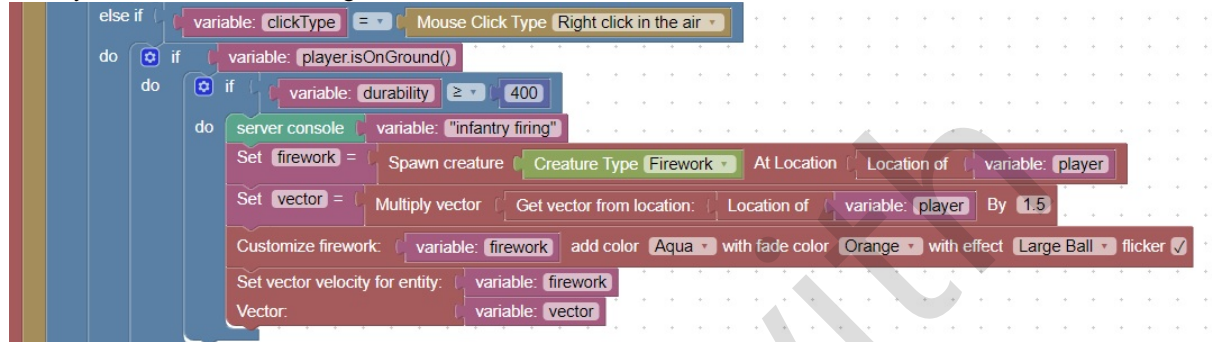
When a player clicks the right mouse button and their career choice is a bomber pilot, snowballs are launched.



2.5 Right Click for Infantry

When a player clicks the right mouse button and they are on the ground and their Elytra is damaged, they are considered infantry.

Infantry units fire fireworks on a right click

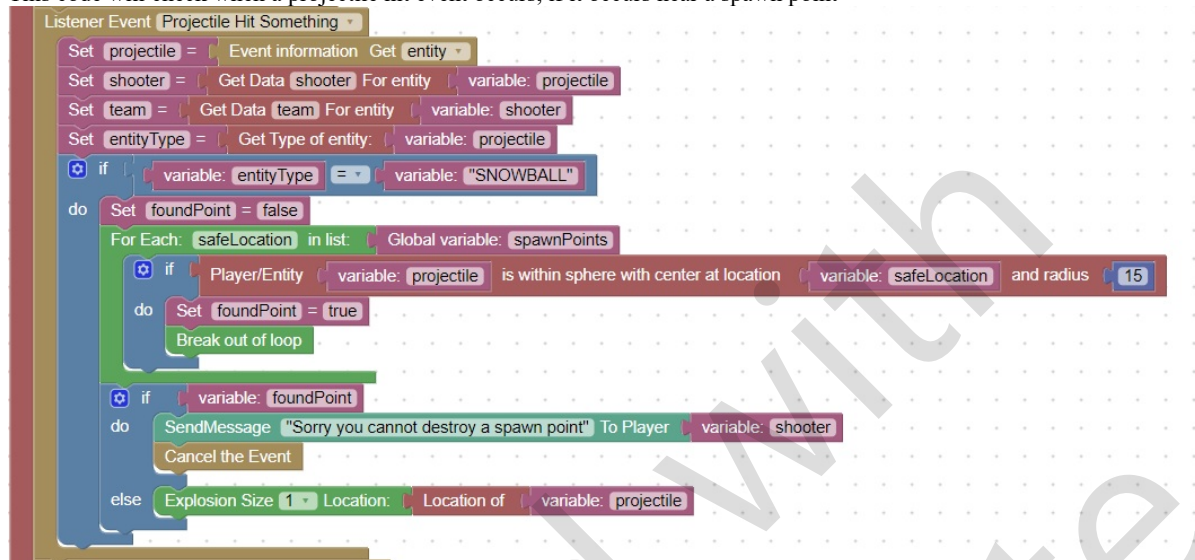


2.6 Spawn Protection

Players will accidentally try to explode spawn points and signs

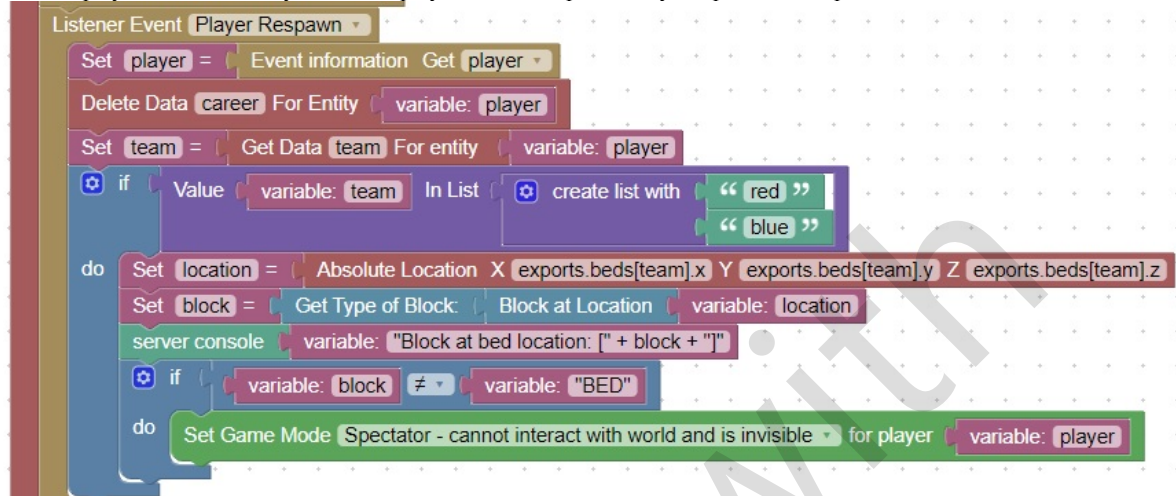
Since an explosion is not considered a block break, another method needs to be used to protect these locations

This code will check when a projectile hit event occurs, if it occurs near a spawn point



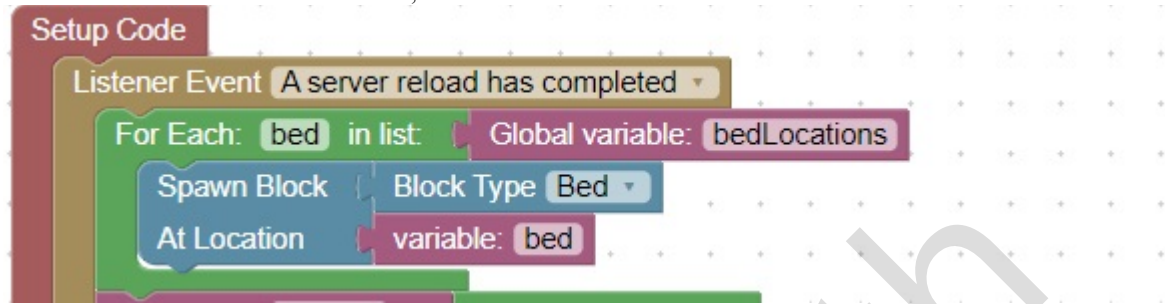
2.7 Bed Destruction

When a player's bed is destroyed and the player tries to respawn, they are placed into spectator mode



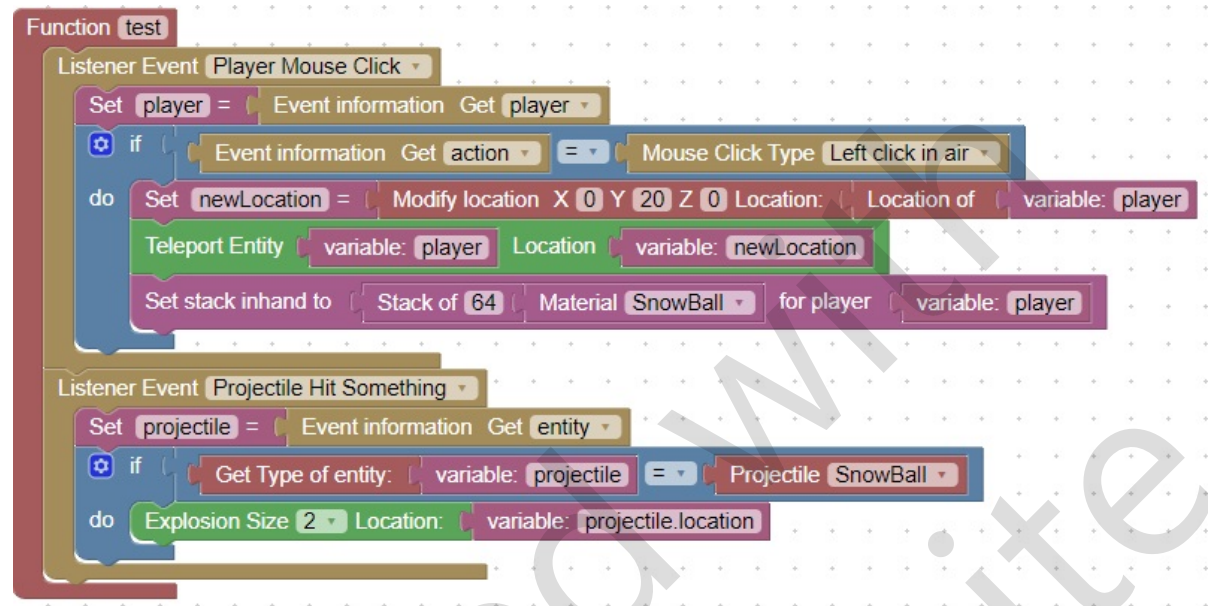
2.8 Bed Creation on Reload

When the server finishes the reload event, it creates beds for all teams.



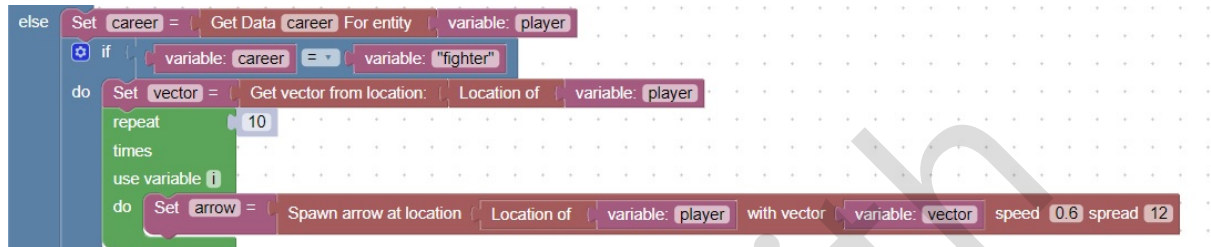
3.1 Exploding Snowballs for Bomber

When the player performs a right click and their career path is Bomber, an exploding snowball is launched.



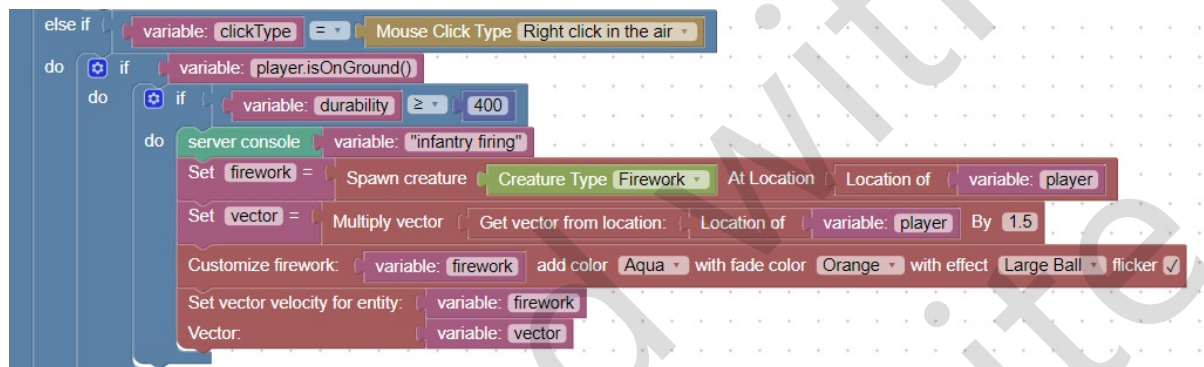
3.2 Multiple arrows launched by fighter

When the player performs a right click and their career path is fighter pilot, multiple arrows are launched.



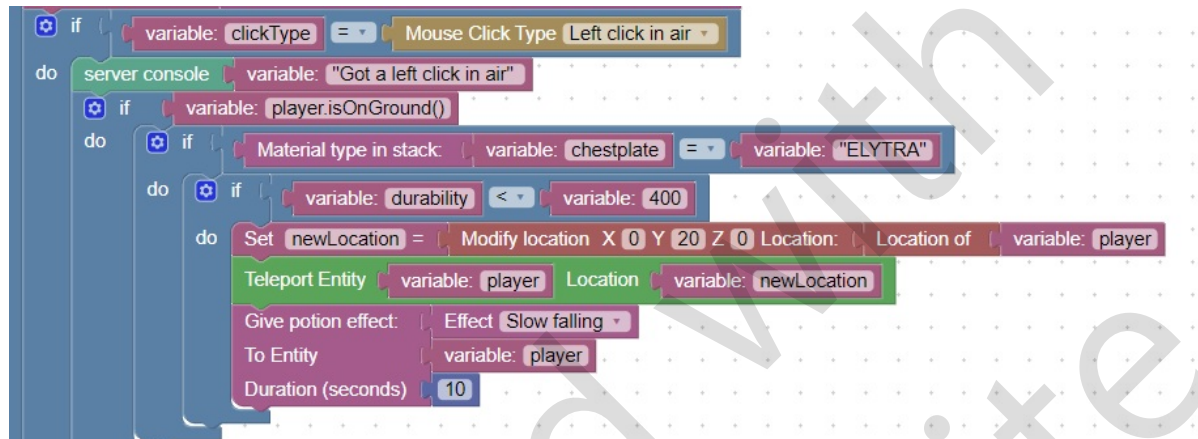
3.3 Firework with fade and flicker for infantry

When the player performs a right click and they are on the ground and their elytra is damaged. Fireworks are launched.



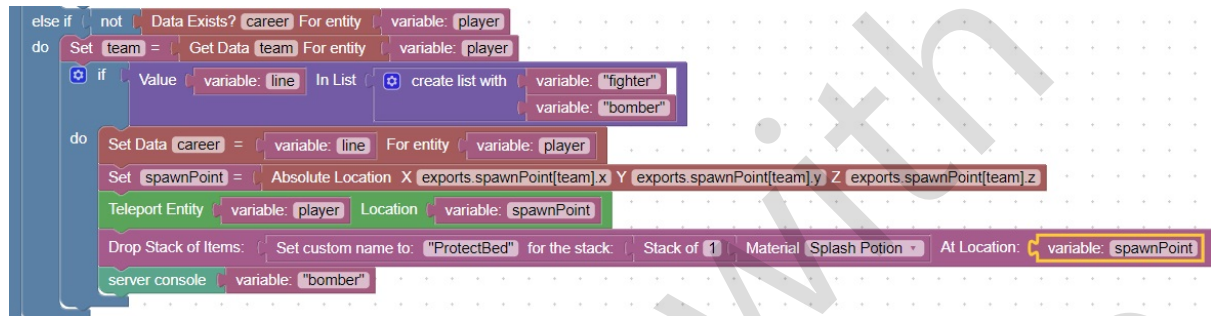
3.4 Slow falling on left click

When a player performs a left click and their elytra is still functioning, they are propelled into the air and given slow falling so that they have time to deploy the elytra.



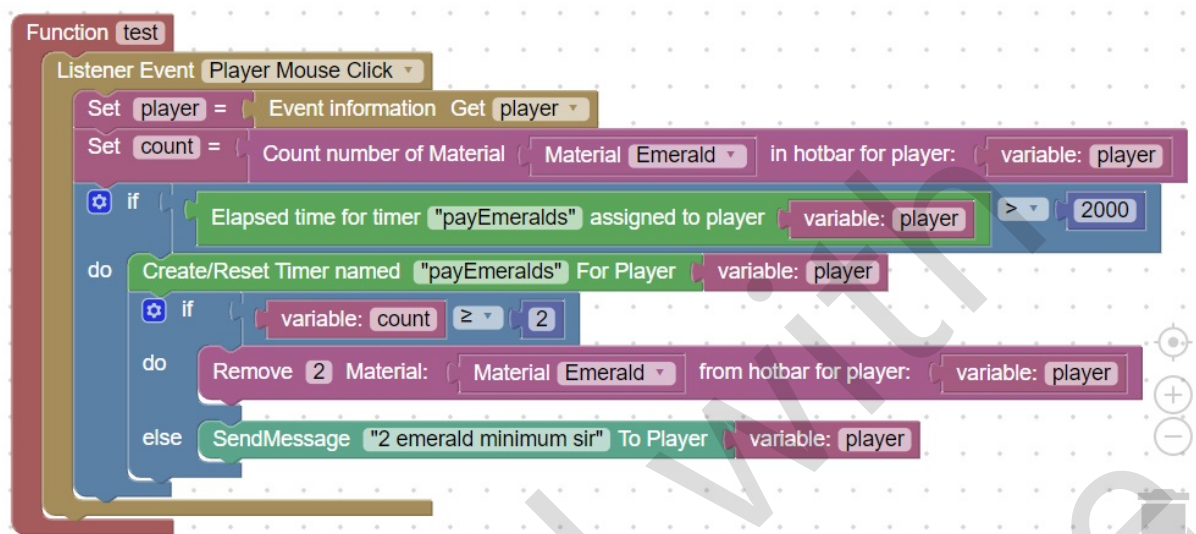
3.5 Splash Potion to protect bed

When the player selects a career for the first time, a special splash potion is dropped at their location which will help protect their bed.



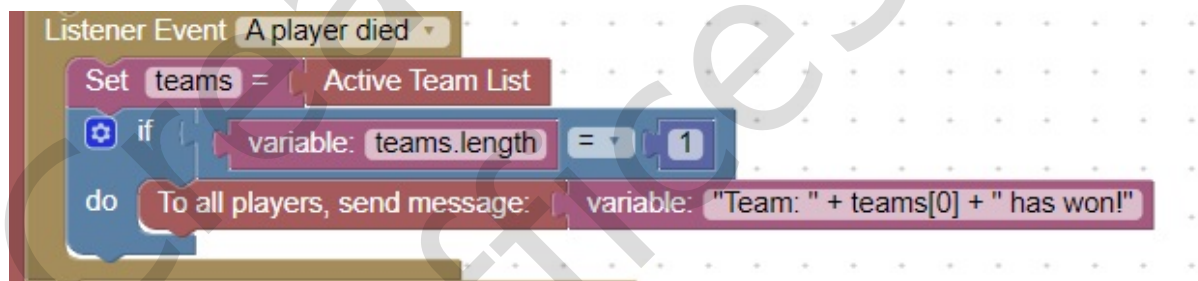
3.6 Purchase Potion in game

A player can purchase more potions in game using precious metals



3.7 End game detection

When a player dies, the number of active teams is determined. When only 1 team is still active they are considered the winner.



3.8 Public server considerations

There are [many public minecraft servers available](#). Most are very similar.

It all comes down to cost versus playability

Here is the price chart for apexminecraft hosting.com:

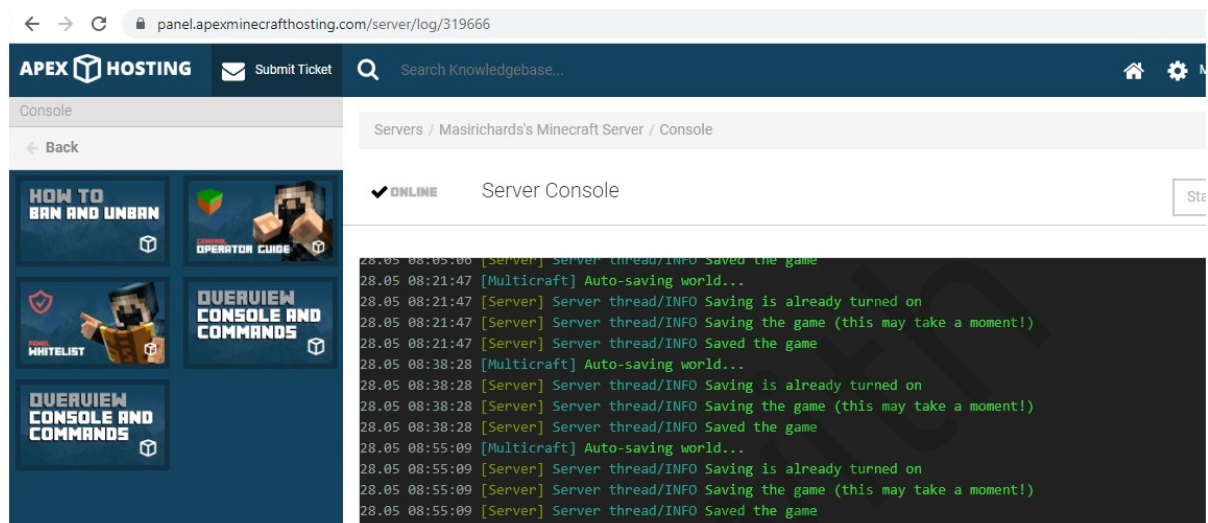
The screenshot shows the Apex Hosting website's pricing page. The navigation bar includes links for Home, Pricing, Features, Reviews, FAQ, Blog, Support, and a Get Started button. The main content area displays eight server plans in a grid:

RAM	Description	First Month Price	Recurring Price	Billing Cycle
1GB	Basic servers	\$4.49	\$5.99/mo	Monthly
2GB	Basic servers & some modpacks	\$7.49	\$9.99/mo	Monthly
3GB	Basic servers & some modpacks	\$11.24	\$14.99/mo	Monthly
4GB	Basic servers & most modpacks	\$14.99	\$19.99/mo	Monthly
5GB	Basic servers & most modpacks	\$18.74	\$24.99/mo	Monthly
6GB	Basic servers & all modpacks	\$22.49	\$29.99/mo	Monthly
7GB	Basic servers & all modpacks	\$26.24	\$34.99/mo	Monthly
Proxy	512mb Only for Proxy	\$2.24	\$2.99/mo	Monthly

File transfer protocol is used to move files

The screenshot shows the Apex Hosting control panel for a server named 'Masrichards's Minecraft Server'. The left sidebar contains a list of management tools, with 'FTP File Access' circled in red. The main panel displays server status (ONLINE), a 'Start' button, and server details including location (Vint Hill, Virginia), node (#1052), and player slots (1337). A 'Craft-List' section is also visible.

Server console is available from the server screen:



The screenshot shows the Apex Hosting web interface for a Minecraft server. The browser address bar displays `panel.apexminecrafthosting.com/server/log/319666`. The page header includes the Apex Hosting logo, a 'Submit Ticket' button, and a search bar. The main navigation bar shows 'Servers / Masirichards's Minecraft Server / Console'. The left sidebar contains links to 'HOW TO BAN AND UNBAN', 'OPERATION GUIDE', 'WHITELIST', and 'OVERVIEW CONSOLE AND COMMANDS'. The main content area is titled 'Server Console' and shows a log of server events. The log entries are as follows:

```
28.05 08:05:00 [Server] Server thread/INFO Saved the game
28.05 08:21:47 [Multicraft] Auto-saving world...
28.05 08:21:47 [Server] Server thread/INFO Saving is already turned on
28.05 08:21:47 [Server] Server thread/INFO Saving the game (this may take a moment!)
28.05 08:21:47 [Server] Server thread/INFO Saved the game
28.05 08:38:28 [Multicraft] Auto-saving world...
28.05 08:38:28 [Server] Server thread/INFO Saving is already turned on
28.05 08:38:28 [Server] Server thread/INFO Saving the game (this may take a moment!)
28.05 08:38:28 [Server] Server thread/INFO Saved the game
28.05 08:55:09 [Multicraft] Auto-saving world...
28.05 08:55:09 [Server] Server thread/INFO Saving is already turned on
28.05 08:55:09 [Server] Server thread/INFO Saving the game (this may take a moment!)
28.05 08:55:09 [Server] Server thread/INFO Saved the game
```