

# Coding Standards

- [Coding Style](#)
- [Bad Diff vs Good Diff](#)

# Coding Style

Every developer has opinions about the way they want their code to look: tabs vs spaces, single quotes vs double quotes, 80 char line length vs 120. Languages often provide guides on how you're meant to style your code. Python has "[PEP 8](#)" and GDScript has a [style guide](#).

The problem with these languages is that they don't enforce their own code styles. This means, every developer on a team will probably have slightly different styles. This is a problem when working with a version control system like Git. Every change is tracked, no matter how minor. If three developers touch the same script, we need to be able to see the meaningful diff between the changes, without conflating those changes with style changes. See why this matters here: [Bad Diff vs Good Diff](#)

For this reason, among other benefits, BUGJam will require the use of automatic code formatting tools. Formatting tools are designed to automatically fix all of these style choices so that they adhere to the style guide of the language. Modern implementations of these tools run incredibly fast, and can be configured to automatically format your code upon saving the file, so you'll never end up in a situation where your code is unformatted. The remove all opinions from the style of the code and allow you to focus on just the functionality. This also reduces the learning curve for these programming languages. Just imagine never needing to commit a single brain cell to this question: "*Should the space come before or after the colon in the function signature?*". The answer is: "*I don't know, the formatter will fix it*".

## GDScript

Godot does not have an official formatter, but luckily [GDQuest built a formatter](#) that they've been using in production for a few years, and my short experience with it so far has been great.

TODO put in setup instructions and features you have to turn on

## Python

Similarly, Python has turned to the community to create their formatting tools. Many tools have come and gone, but the modern standard is a suite of tools from [Astral](#) in particular the [Ruff formatter](#). Their other tools are phenomenal too.

TODO put in setup instructions and features you have to turn on

# Bad Diff vs Good Diff

## Bad Diff

Here's an example of a diff that contains style changes at the same time as a functional change. Can you find the needle in the haystack:

spawn\_points/spawn\_point\_manager.gd

```
@@ -1,46 +1,44 @@
1 1 class_name SpawnPointManager
2 - extends RefCounted
3 -
4 - const CHARACTER_CONTROLLER: PackedScene = preload("uid://dt23di0pc42kv")
5 + extends RefCounted
6 +
7 + const CHARACTER_CONTROLLER: PackedScene = preload("uid://dt23di0pc42kv")
8 +
9 +
10 var _scene_root: Node
11 var _spawn_points: Array[SpawnPoint] = []
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16 ## Hide or show the spawn points.
17
18 func set_spawn_points_visible(visible: bool) -> void:
19     for spawn_point in _spawn_points:
20         spawn_point.visible = visible
21
22     spawn_point.visible = visible
23
24
25 ## Find all [SpawnPoint] objects in the given scene, and store them in an array.
26 func update_spawn_points_array(scene_root: Node) -> void:
27     _spawn_points.clear()
28     _spawn_points.clear()
29     _scene_root = scene_root
30     if _scene_root:
31         _collect_spawn_points(_scene_root)
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38 ## Spawn a character at the given spawn point.
39 func spawn_character(spawn_point_index: int = 0) -> CharacterController:
40     if (
41         not _spawn_points
42         or spawn_point_index < 0
43         or spawn_point_index > len(_spawn_points) - 1
44     ):
45         return
46
47     return
48
49 func spawn_character(spawn_point_index: int = 1) -> CharacterController:
50     if (not _spawn_points or spawn_point_index < 0 or spawn_point_index > len(_spawn_points) - 1)
51     return
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Good luck finding what changed. Could you approve that code review saying you understand what happened with a straight face?

And that's a simple example, it gets much worse.

## Good Diff

Here's the exact same functional change without the style changes:

```
spawn_points/spawn_point_manager.gd
@@ -1,46 +1,46 @@
1 1 class_name SpawnPointManager
2 2 extends RefCounted
3 3
4 4 const CHARACTER_CONTROLLER: PackedScene = preload("uid://dt23di0pc42kv")
5 5
6 6 var _scene_root: Node
7 7 var _spawn_points: Array[SpawnPoint] = []
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9 9
10 10 ## Hide or show the spawn points.
11 11 func set_spawn_points_visible(visible: bool) -> void:
12 12     for spawn_point in _spawn_points:
13 13         spawn_point.visible = visible
14 14
15 15
16 16 ## Find all [SpawnPoint] objects in the given scene, and store them in an array.
17 17 func update_spawn_points_array(scene_root: Node) -> void:
18 18     _spawn_points.clear()
19 19     _scene_root = scene_root
20 20     if _scene_root:
21 21         _collect_spawn_points(_scene_root)
22 22
23 23
24 24 ## Spawn a character at the given spawn point.
25 25 - func spawn_character(spawn_point_index: int = 0) -> CharacterController:
26 26 + func spawn_character(spawn_point_index: int = 1) -> CharacterController:
27 27     if (
28 28         not _spawn_points
29 29         or spawn_point_index < 0
30 30         or spawn_point_index > len(_spawn_points) - 1
31 31     ):
32 32         return
33 33     var character: CharacterController = CHARACTER_CONTROLLER.instantiate()
34 34     _scene_root.add_child.call_deferred(character)
35 35     character.global_transform = _spawn_points[0].global_transform
36 36     return character
37 37
38 38
39 39 func _collect_spawn_points(node: Node) -> void:
40 40     # If this node is a SpawnPoint, add it to the array.
41 41     if node is SpawnPoint:
42 42         _spawn_points.append(node)
43 43
44 44     # Recursively check children.
45 45     for child in node.get_children():
46 46         _collect_spawn_points(child)
```

Not only does this make way more sense to look at, but it also ensures that there will be far fewer merge conflicts because your changes only touch one area of the code.