Gravity Blue - Interview Project Documentation

- ## Development

    During the development process I've focused on bringing a less costly approach, as I kept in mind that the target project may require, if developed further, lots of processing due to its many and expensive systems. So I used Events and Singletons to avoid using too many expensive methods to obtain references throughout the project.

- ## Architecture

    I tried to keep the code following the SOLID concepts, focusing on better readability expecting my code to be reviewed by peer programmers. I separated the code into Managers and Controllers, like some layer architecture, to avoid too much code referencing each other. On that architecture, Controllers can call Managers, but never another Controller, so programmers can have more control on how the code flows through these layers.

- ## Systems
    - ### MovementController

        A simple movement system where the velocity is applied from both Horizontal and Vertical axis into the RigidBody2D. I also checked the X component from the movement Vector to flip the Sprite, so I could have a simple animation and still have a good looking movement with little coding effort.

    - ### InteractionController

        The system responsible for detecting interactable objects colliding with the Player and interacting with them at the player's command. The interactable objects scripts inherit from the class "Interactable", that have a Canvas, where any necessary info is shown, and a virtual Use() method.

    - ### Game Manager

        The project's main system. In there are all the main variables used to control the state of the game, such as PlayerMoney and PlayerPurchasedClothes, as well as the main game methods, such as AddMoney(), SetGameState() and ChangePlayerClothes().

○ Cloth Changing System

> To code the Cloth Changing system I used three different spritesheets with different color schemes for the player's clothes. This way I could give the customization feeling for the player while not having an expensive and heavy changing system. The player goes to the drawer to switch between the clothes they purchased.

○ Selling Fruits System/Collecting System

> For the player to be able to purchase the two options of clothes, they must sell some fruits they collect while outside of the clothes store. Those collected fruit amounts are saved into a variable into the GameManager and later are used if the player interacts with the Shopkeeper and sells them.
> Those fruits have the Collectable script that also inherits from the Interactable class.

○ UI System

> All the shared UI issues are concentrated into the UIManager. This manager deals with the HUD info and the PopUp screen and is mainly accessed via Events to avoid updating HUD and PopUp info every frame.

○ Use of Scriptable Objects

> To translate data into the code, I've used Scriptable Objects to store Item Info and PopUp info for, later on, be translated into the code and be shown to the player.