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```

classDiagram
    class Main {
        -PApplet app
        -control: ControllerMain
        + settings(): void
        + setup(): void
        + draw(): void
        + keyPressed(): void
    }
    class ControllerMain {
        -logic: Logic
        -app: PApplet
        + ControllerMain(): void
        + counterSon(): void
        + "gets" & "sets": void
    }
    class Logic {
        + PApplet app
        + populationInfo: String[]
        + AnalysisOfPerson* populationList
        + List<List<Counter>> counterList
        + ByName name
        + ByColor color
        + Logic(PApplet): void
        + counterSon(): void
        + createPopulation(): void
        + contagion(): void
        + "gets" & "sets": void
    }
    class Person {
        # posX: int
        # posY: int
        # speed: int
        # color: int
        # r: int
        # g: int
        # b: int
        # dx: int
        # dy: int
        + Person(): void
        + drawPerson(): void
        + move(): void
        + num(): void
        + "gets" & "sets": void
    }
    class Counter {
        - PApplet app
        - color: int
        - quantity: int
        - r: int
        - b: int
        - g: int
        + Counter(): void
        + compareTo(): void
        + "gets" & "sets": void
    }
    class HealthyPerson {
        + HealthyPerson(): void
    }
    class InfectedPerson {
        + InfectedPerson(): void
    }
    class RecoveredPerson {
        + RecoveredPerson(): void
    }
    class Runnable {
        <<Interface>>
    }
    class Comparable {
        <<Interface>>
    }
    class Comparator {
        <<Interface>>
    }
    class ByColor {
        + compare(): void
    }
    class ByName {
        + compare(): void
    }
    Main "1" --> ControllerMain "1"
    ControllerMain "1" --> Logic "1"
    Logic "1" --> Person "1"
    Logic "1" --> Counter "1"
    Logic "1" --> ByColor "1"
    Logic "1" --> ByName "1"
    Person <|-- HealthyPerson
    Person <|-- InfectedPerson
    Person <|-- RecoveredPerson
    Runnable ..> Person
    Comparable ..> Counter
    Comparator ..> ByColor
    Comparator ..> ByName
  
```

The diagram illustrates the architecture of a COVID-19 simulation application, organized into three main layers: Model, View, and Controller.

- Model Layer:**
 - Person:** A class representing individuals, with attributes for position, speed, color, radius, and movement. It includes methods for drawing, moving, and counting. It is a concrete implementation of the `Runnable` interface.
 - Counter:** A class representing the count of individuals, with attributes for color, quantity, and radius. It includes methods for counting and comparing. It is a concrete implementation of the `Comparable` interface.
 - Person Subtypes:** `HealthyPerson`, `InfectedPerson`, and `RecoveredPerson` are subclasses of `Person`, each with its own constructor.
- View Layer:**
 - Main:** The main class of the application, which initializes the `ControllerMain` and manages the overall flow. It includes methods for settings, setup, drawing, and handling key presses.
- Controller Layer:**
 - ControllerMain:** The central controller class, which manages the `Logic` and the `Person` objects. It includes methods for creating the population, handling contagion, and managing the counter.
 - Logic:** The core logic class, which handles the simulation's state and logic. It includes methods for creating the population, handling contagion, and managing the counter. It is a concrete implementation of the `Comparator` interface.
 - Comparator Subtypes:** `ByColor` and `ByName` are subclasses of `Comparator`, each with its own `compare` method.

The diagram shows the following relationships:

- ControllerMain** (1) is associated with **Main** (1).
- ControllerMain** (1) is associated with **Logic** (1).
- Logic** (1) is associated with **Person** (1).
- Logic** (1) is associated with **Counter** (1).
- Logic** (1) is associated with **ByColor** (1).
- Logic** (1) is associated with **ByName** (1).
- Person** is a base class for **HealthyPerson**, **InfectedPerson**, and **RecoveredPerson**.
- Runnable** is an interface implemented by **Person**.
- Comparable** is an interface implemented by **Counter**.
- Comparator** is an interface implemented by **ByColor** and **ByName**.

```
classDiagram
    Program --> Person
    Program --> Counter
    Person --> HealthyPerson
    Person --> InfectedPerson
    Person --> RecoveredPerson
    Counter --> Infected
    Counter --> Healthy
    Counter --> Recover
```