#### **ElevatorRequest ElevatorStatus** - time: LocalTime - elevatorID: int - direction: Direction floorButton: Stroing - floorNumber: int - floor: int - carButton: int - stopRequestFloorsGoingUp: ArrayList<Integer> -stopRequestFloorsGoingDown: ArrayList<Integer> - status: RequestStatus + getStatus(): RequestStatus + getElevatorId(): int + setStatus(status: RequestStatus): void + getDirection(): Direction + getFloorNumber(): int + getTime(): LocalTime + getFloor(): int + getStopRequestFloorsInDirection(direction: Direction): ArrayList<Integer> + getCarButton(): int + serializeStatus(status: ElevatorStatus): byte[] + deserializeStatus(statusBytes: byte[]): ElevatorStatus + getFloorButton(): String + getCurrentTargetFloor(): int + getDirection(): Direction + toString(): String + serializeRequest(request: ElevatorRequest): byte[] + deserializeRequest(requestBytes: byte[]): ElevatorRequest **SystemRequest UDPSenderReceiver** - id: int - sendPacket: DatagramPacket - floorNumber: int - receivePacket: DatagramPacket - direction: Direction - sendReceiveSocket: DatagramSocket - state: boolean destinationPort: int - type: SystemRequestType - lastSenderPort: int - elevatorRequest: ElevatorRequest - elevatorRequests: ArrayList<ElevatorRequest> + receiveResponse(): byte[] + receiveSvstemRequest(): SvstemRequest + serializeRequest(request: SystemRequest): byte[] + sendSvstemRequest(svstemRequest: SvstemRequest): void + deserializeRequest(requestBytes: byte[]): SystemRequest + sendSystemRequest(systemRequest: SystemRequest, destinationPort: int): void + getId(): int + sendResponse(msg: byte[]): void + getFloorNumber(): int + sendResponse(msg: byte[], destinationPort: int): void + getDirection(): Direction + getLastSenderPort(): int + getState(): boolean + getType(): SystemRequestType + getElevatorRequest(): ElevatorRequest + toString(): String + getElevatorRequests(): ArrayList<ElevatorRequest>

# LogPrinter

- RESET: String - COLORS: int[][]
- + getColorString(rgbColor: int[]): String
- + print(index: int, text: String): void
- + printWarning(text: String): void
- + printError(text: String): void
- + getTimestamp(): void
- + getColours():int[][]

## **Constants**

- + NUMBER OF FLOORS: int
- + NUMBER OF ELEVATORS: int
- + MAX PASSENGER COUNT: int
- + SCHEDULER\_PORT: int
- + SCHEDULER PORT 2: int
- + FLOOR CONTROLLER PORT: int
- + BASE MOVE TIME: int
- + INCREMENTAL MOVE TIME: int
- + LOADING TIME: int
- + BOARDING TIME PER PASSENGER:int
- + TRANSIENT FAULT TIME:int

<<enumeration>> Direction

UP **DOWN STOPPED** 

> <<enumeration>> RequestStatus

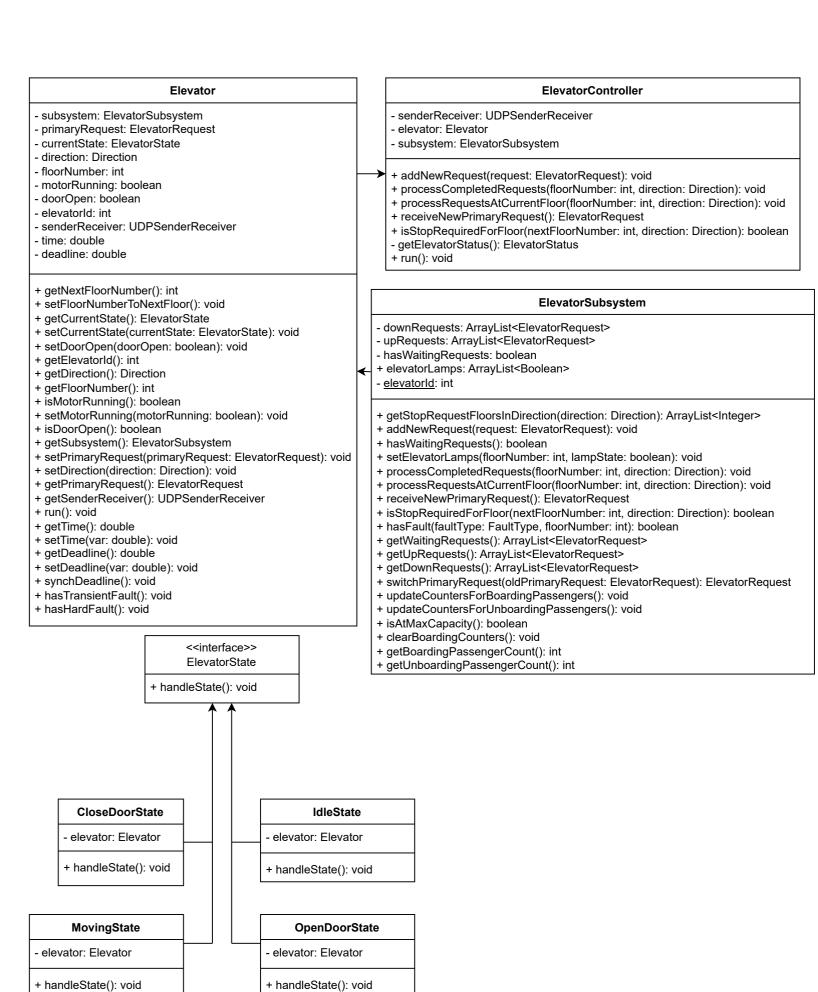
**PENDING** PASSENGER PICKED UP

> <<enumeration>> FaultType

NO FAULT DOOR FAULT FLOOR\_TIMER\_FAULT

<<enumeration>> SystemRequestType

REGISTER ELEVATOR CONTROLLER NEW PRIMARY REQUEST IS STOP REQUIRED PROCESS REQUESTS AT CURRENT FLOOR PROCESS COMPLETED REQUESTS SET FLOOR DIRECTION LAMPS SET FLOOR LAMPS ADD NEW REQUEST STATUS REQUEST ELEVATOR\_SHUTDOWN\_REQUEST



## Floor

- floorNumber: int

downRequests: ArrayList<ElevatorRequest>upRequests: ArrayList<ElevatorRequest>

- floorLampUp: boolean - floorLampDown: boolean - directionLamps: boolean[][] - isFirstFloor: boolean - isLastFloor: boolean

+ addRequest(event: ElevatorRequest): void

+ checkForRequests(): ElevatorRequest

+ setDirectionLamp(elevatorId: int, direction: Direction, state: boolean): void

+ setFloorLamp(direction: Direction, state: boolean): void

+ getUpRequests(): Collection<Object>
+ getDownRequests(): Collection<Object>
+ getDirectionLamps(): boolean[][]
+ getFloorLampUp(): boolean
+ getFloorLampDown(): boolean

+ getFloorNumber(): int + isFirstFloor(): boolean + isLastFloor(): boolean

### **FloorController**

- floorSubsystem: FloorSubsystem - receiver: UDPSenderReceiver

+ run(): void

## **FloorSubsystem**

sender: UDPSenderReceivernumberOfFloors: intfloors: ArrayList<Floor>

- readInputFile(filename: String): ArrayList<ElevatorRequest>

+ setDirectionLamp(elevatorId: int, floorNumber: int, direction: Direction, state: boolean): void

+ setFloorLamp(floorNumber: int, direction: Direction, state: boolean): void

+ getFloors(): ArrayList<Floor>

+ getNumberOfFloors(): int

+ run(): void

## Scheduler

- floorSubsystems: FloorSubsystem elevatorPorts: int[]
- senderReceiver1: UDPSenderReceiver senderReceiver2: UDPSenderReceiver
- + setFloorSubsystem(floorSubsystems: FloorSubsystem): void + addElevator(elevatorId: int, elevatorPort: int): void
- + run(): void
- + selectBestElevatorNumber(elevatorRequest: ElevatorRequest): int

## DisplayView

- REFRESH\_DELAY: int - elevators: ArrayList<Elevator> - center: JPanel - sp: JScrollPane

+displayElevators(): void + addElevator(elevator: Elevator): void - clearPanel(panel: JPanel): void + run(): void