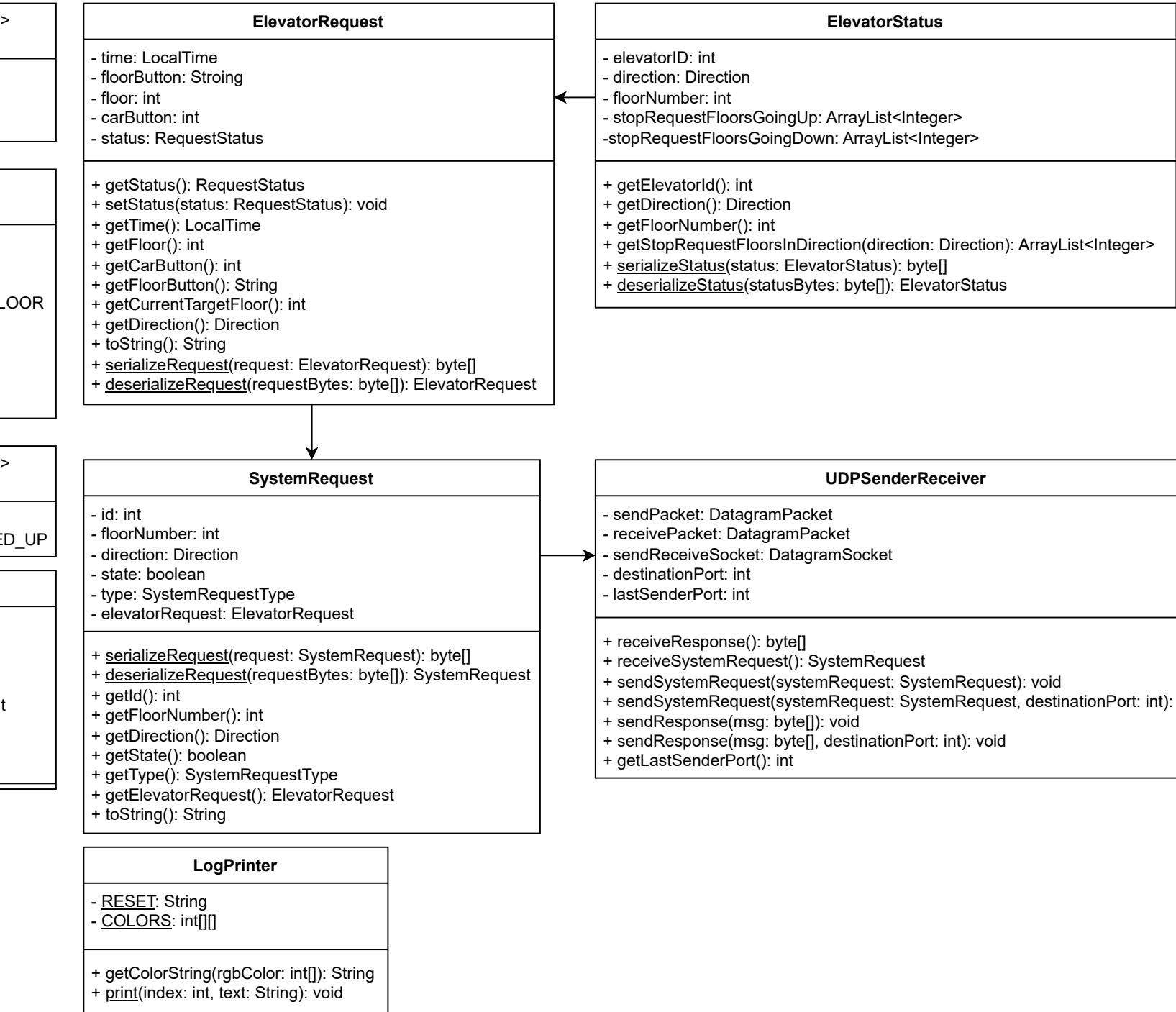<<enumeration>>
Direction

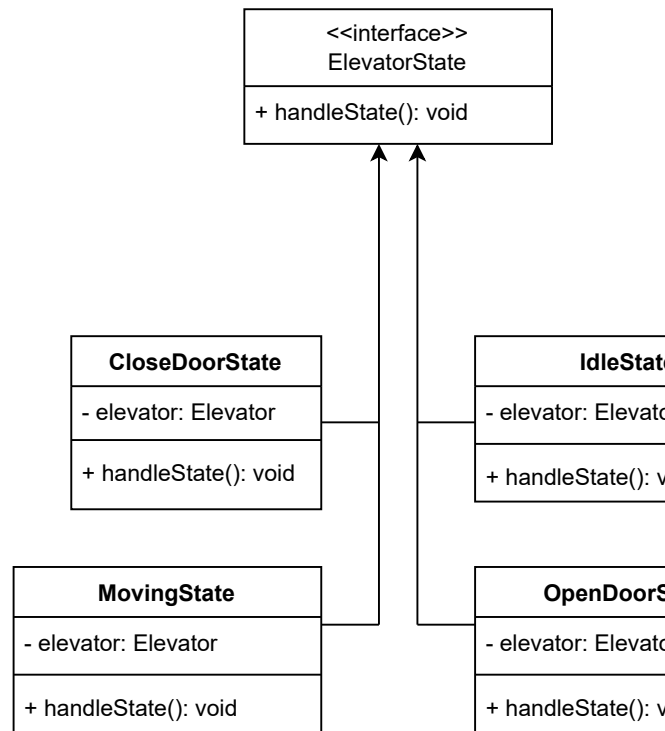UP
DOWN
STOPPED

<<enumeration>>
SystemRequestType

REGISTER_ELEVATOR_CONTROLLER
NEW_PRIMARY_REQUEST
IS_STOP_REQUIRED
PROCESS_REQUESTS_AT_CURRENT_FI
PROCESS_COMPLETED_REQUESTS
SET_FLOOR_DIRECTION_LAMPS
SET_FLOOR_LAMPS
ADD_NEW_REQUEST
STATUS_REQUEST

<<enumeration>
RequestStatus

PENDING
PASSENGER_PICKE

Constants

+ <u>NUMBER_OF_FLOORS</u>: int
+ <u>NUMBER_OF_ELEVATORS</u>: int
+ <u>SCHEDULER_PORT</u>: int
+ <u>SCHEDULER_PORT_2</u>: int
+ <u>FLOOR_CONTROLLER_PORT</u>: in
+ <u>BASE_MOVE_TIME</u>: int
+ <u>INCREMENTAL_MOVE_TIME</u>: int
+ <u>LOADING_TIME</u>: int

ElevatorRequest

- time: LocalTime
- floorButton: Stroing
- floor: int
- carButton: int
- status: RequestStatus

+ getStatus(): RequestStatus
+ setStatus(status: RequestStatus): void
+ getTime(): LocalTime
+ getFloor(): int
+ getCarButton(): int
+ getFloorButton(): String
+ getCurrentTargetFloor(): int
+ getDirection(): Direction
+ toString(): String
+ serializeRequest(request: ElevatorRequest): byte[]
+ deserializeRequest(requestBytes: byte[]): ElevatorRequest

ElevatorStatus

- elevatorID: int
- direction: Direction
- floorNumber: int
- stopRequestFloorsGoingUp: ArrayList<Integer>
- stopRequestFloorsGoingDown: ArrayList<Integer>

+ getElevatorId(): int
+ getDirection(): Direction
+ getFloorNumber(): int
+ getStopRequestFloorsInDirection(direction: Direction): ArrayList<Integer>
+ serializeStatus(status: ElevatorStatus): byte[]
+ deserializeStatus(statusBytes: byte[]): ElevatorStatus

SystemRequest

- id: int
- floorNumber: int
- direction: Direction
- state: boolean
- type: SystemRequestType
- elevatorRequest: ElevatorRequest

+ serializeRequest(request: SystemRequest): byte[]
+ deserializeRequest(requestBytes: byte[]): SystemRequest
+ getId(): int
+ getFloorNumber(): int
+ getDirection(): Direction
+ getState(): boolean
+ getType(): SystemRequestType
+ getElevatorRequest(): ElevatorRequest
+ toString(): String

UDPSenderReceiver

- sendPacket: DatagramPacket
- receivePacket: DatagramPacket
- sendReceiveSocket: DatagramSocket
- destinationPort: int
- lastSenderPort: int

+ receiveResponse(): byte[]
+ receiveSystemRequest(): SystemRequest
+ sendSystemRequest(systemRequest: SystemRequest): void
+ sendSystemRequest(systemRequest: SystemRequest, destinationPort: int):
+ sendResponse(msg: byte[]): void
+ sendResponse(msg: byte[], destinationPort: int): void
+ getLastSenderPort(): int

LogPrinter

- RESET: String
- COLORS: int[][]

+ getColorString(rgbColor: int[]): String
+ print(index: int, text: String): void

void

```
                              ┌─────────────────────┐
                              │    <<interface>>    │
                              │    ElevatorState    │
                              ├─────────────────────┤
                              │ + handleState(): void│
                              └─────────────────────┘
                                     ▲       ▲
                                     │       │
                                     │       │
┌─────────────────────┐             │       │      ┌─────────────────────┐
│    CloseDoorState   │             │       │      │      IdleState       │
├─────────────────────┤             │       │      ├─────────────────────┤
│ - elevator: Elevator│─────────────┘       └──────│ - elevator: Elevato │
├─────────────────────┤                            ├─────────────────────┤
│ + handleState(): void│                           │ + handleState(): v  │
└─────────────────────┘                            └─────────────────────┘

┌─────────────────────┐                            ┌─────────────────────┐
│     MovingState     │                            │     OpenDoorS       │
├─────────────────────┤                            ├─────────────────────┤
│ - elevator: Elevator│────────────────────────────│ - elevator: Elevato │
├─────────────────────┤                            ├─────────────────────┤
│ + handleState(): void│                           │ + handleState(): v  │
└─────────────────────┘                            └─────────────────────┘
```

Elevator

- subsystem: ElevatorSubsystem
- primaryRequest: ElevatorRequest
- currentState: ElevatorState
- direction: Direction
- floorNumber: int
- motorRunning: boolean
- doorOpen: boolean
- elevatorId: int
- senderReceiver: UDPSenderReceiver

+ getNextFloorNumber(): int
+ setFloorNumberToNextFloor(): void
+ getCurrentState(): ElevatorState
+ setCurrentState(currentState: ElevatorState): void
+ setDoorOpen(doorOpen: boolean): void
+ getElevatorId(): int
+ getDirection(): Direction
+ getFloorNumber(): int
+ isMotorRunning(): boolean
+ setMotorRunning(motorRunning: boolean): void
+ isDoorOpen(): boolean
+ getSubsystem(): ElevatorSubsystem
+ setPrimaryRequest(primaryRequest: ElevatorRequest): void
+ setDirection(direction: Direction): void
+ getPrimaryRequest(): ElevatorRequest
+ getSenderReceiver(): UDPSenderReceiver
+ run(): void

ElevatorController

- senderReceiver: UDPSenderReceiver
- elevator: Elevator
- subsystem: ElevatorSubsystem

+ addNewRequest(request: ElevatorRequest): void
+ processCompletedRequests(floorNumber: int, direction: Direction): void
+ processRequestsAtCurrentFloor(floorNumber: int, direction: Direction): v
+ receiveNewPrimaryRequest(): ElevatorRequest
+ isStopRequiredForFloor(nextFloorNumber: int, direction: Direction): bool
- getElevatorStatus(): ElevatorStatus
+ run(): void

ElevatorSubsystem

- downRequests: ArrayList<ElevatorRequest>
- upRequests: ArrayList<ElevatorRequest>
- hasWaitingRequests: boolean
+ elevatorLamps: ArrayList<Boolean>
- <u>elevatorId</u>: int

+ getStopRequestFloorsInDirection(direction: Direction): ArrayList<Integer>
+ addNewRequest(request: ElevatorRequest): void
+ hasWaitingRequests(): boolean
+ setElevatorLamps(floorNumber: int, lampState: boolean): void
+ processCompletedRequests(floorNumber: int, direction: Direction): void
+ processRequestsAtCurrentFloor(floorNumber: int, direction: Direction): v
+ receiveNewPrimaryRequest(): ElevatorRequest
+ isStopRequiredForFloor(nextFloorNumber: int, direction: Direction): bool

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