

SAR (Saudi Arabia Railways)

Brief Intro

Saudi Arabia Railways (SAR) has a lot of Systems and Models that manage various functionalities that represent Business and Operational parts that are key to success like:

- Passenger model.
- Ticket model.
- Train Model.
- Station Model.
- Employee Model.
- Payment Model.

And a lot more.....

Model Validation Checklist

I Choose three models to be validated and Analyzed from SAR System which are:

- Passenger model.
- Ticket model.
- Train Model.

Passenger model Validation CheckList:

Attribute	Validation Rules	Failure Result
passengerID	<ul style="list-style-type: none">- Must not be empty- should be at least 3 characters long.	Login and booking mismatches.
name	<ul style="list-style-type: none">- Must contain only letters and spaces.	Incorrect Information
email	<ul style="list-style-type: none">- Must be in a valid format	Incorrect contact information
phoneNumber	<ul style="list-style-type: none">- Must be a number- Must start with "05"- exactly 10 digits.	Incorrect contact information
age	<ul style="list-style-type: none">- Must be a number- Must be at least 5 years old	Ineligible passengers are registered

Ticket model Validation CheckList:

Attribute	Validation Rules	Failure Result
ticketID	<ul style="list-style-type: none">- Must not be empty- Must be unique- should be at least 3 characters long.	Overbooking or fraud
price	<ul style="list-style-type: none">- Must not be empty- Must be a positive number	Financial inconsistencies
bookingDate	<ul style="list-style-type: none">- Must not be empty- Must be Present or Future date	Wrong Booking times
seatNumber	<ul style="list-style-type: none">- Must start with a letter- Must contain 2 digits exactly- Must be unique	Duplicate or Incorrect Seat number

Train model Validation CheckList:

Attribute	Validation Rules	Failure Result
trainID	<ul style="list-style-type: none">- Must not be empty- Must be unique- should be at least 3 characters long.	Wrong scheduling
trainName	<ul style="list-style-type: none">- Must not be empty- Must contain only letters	Confusion in train listing
capacity	<ul style="list-style-type: none">- Must not be empty- Must be a positive number- Must have a max of 100	Wrong Booking times
status	<ul style="list-style-type: none">- Must not be empty- Must be (active / inactive / maintenance)	Scheduling inactive trains

Spring Boot Models

Passenger Model

```
@Data
@AllArgsConstructor
public class Passenger {

    @NotBlank(message = "passengerID must not be empty")
    @Size(min = 3, message = "passengerID should be at least 3 characters long")
    private String passengerID;

    @Pattern(regexp = "[a-zA-Z\\s]+$", message = "name must contain only letters and spaces")
    private String name;

    @Email(message = "email must be in a valid format")
    private String email;

    @Pattern(regexp = "^05\\d{8}$", message = "phoneNumber must start with 05 and be exactly 10 digits")
    private String phoneNumber;

    @NotNull(message = "age must not be empty")
    @Min(value = 5, message = "age must be at least 5 years old")
    private Integer age;
}
```

Ticket Model

```
@Data
@AllArgsConstructor
public class Ticket {

    @NotBlank(message = "ticketID must not be empty")
    @Size(min = 3, message = "ticketID should be at least 3 characters long")
    private String ticketID;

    @NotNull(message = "price must not be empty")
    @Positive(message = "price must be a positive number")
    private Double price;

    @NotNull(message = "bookingDate must not be empty")
    @FutureOrPresent(message = "bookingDate must be present or future date")
    private LocalDateTime bookingDate;

    @Pattern(regexp = "[A-Za-z]\\d{2}$", message = "seatNumber must start with a letter and contain exactly 2 digits")
    private String seatNumber;
}
```

Train Model

```
@Data
@AllArgsConstructor
public class Train {

    @NotBlank(message = "trainID must not be empty")
    @Size(min = 3, message = "trainID should be at least 3 characters long")
    private String trainID;

    @NotBlank(message = "trainName must not be empty")
    @Pattern(regexp = "[a-zA-Z\\s]+$", message = "trainName must contain only letters")
    private String trainName;

    @NotNull(message = "capacity must not be empty")
    @Positive(message = "capacity must be a positive number")
    @Max(value = 100, message = "capacity must have a max of 100")
    private Integer capacity;

    @NotBlank(message = "status must not be empty")
    @Pattern(regexp = "^(active|inactive|maintenance)$", message = "status must be (active / inactive / maintenance)")
    private String status;
}
```
