University Library Management System

This project is a university system designed to manage students, books, users, and notifications efficiently. The system provides a structured way to handle user roles, categorize books, store file attachments, and send notifications. It aims to streamline administrative processes and improve the user experience within the academic environment.

Entity: UniversityEntity :

Field Name	Data Type	Validation Annotation(s)	Notes
id	Long	@NotNull *(optional if auto-generated)*	Primary key
name	String	@NotEmpty, @Size(min = 5, max = 100)	University name
email	String	@NotEmpty, @Email	Must be unique and valid email format
domain	String	@NotEmpty, @Pattern(regexp = "^[a-zA-Z0-9.-]+\\.[a-z]{2,}$")	Must be unique domain like example.edu.sa
location	String	*(Optional)*	University location
libraryName	String	@NotEmpty, @Size(min = 2, max = 100)	Name of the university's library

Entity: UserEntity :

Field Name	Data Type	Validation Annotation(s)	Notes
id	Long	@NotNull *(optional if auto-generated)*	Primary key
username	String	@NotEmpty, @Size(min = 3, max = 30)	Must be unique and not empty
fullName	String	@NotEmpty, @Size(min = 5, max = 100)	Full name of the user
email	String	@NotEmpty, @Email	Must be unique and valid email format
userRole	Enum (EUserRole)	@NotNull	Enum value such as ADMIN, STUDENT, REPRESENTATIVE, etc.

Entity: BookEntity :

Field Name	Data Type	Validation Annotation(s)	Notes
`id`	Long	`@NotNull` *(optional if auto-generated)*	Primary key
`title`	String	`@NotEmpty`, `@Size(min = 2, max = 150)`	Book title must not be empty
`description`	String	*(Optional)*	Book description, can be null
`author`	String	`@Size(max = 100)`	Author name
`publishDate`	LocalDate	`@PastOrPresent`	Must not be a future date
`version`	String	`@Pattern(regexp = "^[0-9]+(\\.[0-9]+)*$")`	Example: "1.0" or "2.1.3"

Entity: AttachmentEntity :

Field Name	Data Type	Validation Annotation(s)	Notes
`id`	Long	`@NotNull` *(optional if auto-generated)*	Primary key
`fileName`	String	`@NotEmpty`, `@Size(min = 3, max = 255)`	File name must not be empty
`filePath`	String	`@Size(max = 500)`	Full path to the file
`fileType`	Enum (`EFileType`)	`@NotNull`	Should be a valid enum like `PDF`, `DOC`, `IMAGE`, etc.
`fileSize`	Long	`@NotNull`, `@Min(1)`	Must be greater than 0 (in bytes)

Entity: CategoryEntity :

Field Name	Data Type	Validation Annotation(s)	Notes
id	Long	@NotNull *(optional if auto-generated)*	Primary key
title	String	@NotEmpty, @Size(min = 3, max = 100)	Category title must not be empty
description	String	@Size(max = 300)	Description of the category

Entity: NotificationEntity :

Field Name	Data Type	Validation Annotation(s)	Notes
id	Long	@NotNull *(optional if auto-generated)*	Primary key
user	UserEntity	@NotNull	The user to whom the notification belongs
type	Enum (ENotificationType)	@NotNull	Enum values like INFO, WARNING, ALERT...
title	String	@NotEmpty, @Size(min = 3, max = 150)	Notification title
message	String (TEXT)	@NotEmpty, @Size(min = 5)	Detailed notification content
read	boolean	*(No validation needed)*	Defaults to false
book	BookEntity	*(Optional)*	If the notification is related to a specific book