Inventory Management

Creating a Word document format for the documentation of your MERN stack inventory management application involves structuring the information into sections and providing clear explanations of schemas and business rules. Below is a template that you can use to create such a document:

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# Inventory Management Application Documentation

## Schemas

### User Schema

```plaintext

Field Name | Type | Constraints

-----------------|-----------------------------|------------------------------------------

username | String | Unique, Required

password | String | Required

userType | String | Enum: ['low', 'mid', 'top'], Required

departments | [ObjectId] (ref: Department) | Array of department references

```

### Storage Location Schema

```plaintext

Field Name | Type | Constraints

-----------------|-----------------------------|------------------------------------------

name | String | Unique, Required

type | String | Enum: ['Facility', 'Warehouse', 'StoreFront'], Required

capacity | Number | Required

currentStock | [{ product: ObjectId (ref: Product), quantity: Number }] | Array of current stock with product reference and quantity

```

### Department Schema

```plaintext

Field Name | Type | Constraints

-----------------|-----------------------------|------------------------------------------

name | String | Unique, Required

users | [ObjectId] (ref: User) | Array of user references

```

### Category Schema

```plaintext

Field Name | Type | Constraints

-----------------|-----------------------------|------------------------------------------

name | String | Unique, Required

parent | ObjectId (ref: Category) | Reference to parent category

children | [ObjectId] (ref: Category) | Array of child category references

```

### Product Schema

```plaintext

Field Name | Type | Constraints

-----------------|-----------------------------|------------------------------------------

name | String | Required

sku | String | Unique, Required

description | String |

categories | [ObjectId] (ref: Category) | Array of category references

price | Number | Required

```

## Business Rules

### Product Management

1. \*\*Unique Identifier\*\*: Products must have a unique SKU.

2. \*\*Attributes\*\*: Products should have attributes like name, description, category, price.

3. \*\*Category\*\*: Products can belong to multiple categories.

### Stock Management

1. \*\*Real-time Updates\*\*: Stock levels are updated in real-time when products are added or removed.

2. \*\*Minimum Stock\*\*: Stock levels cannot drop below zero.

3. \*\*Notifications\*\*: Mid-level and top-level users receive notifications when stock falls below a threshold.

### User Management

1. \*\*Unique Credentials\*\*: Each user has a unique username and password.

2. \*\*Logging\*\*: User actions (add, remove, update) are logged for audit purposes.

3. \*\*Departments\*\*: Users can belong to multiple departments.

### Location Management

1. \*\*Unique Identifier\*\*: Each storage location has a unique name.

2. \*\*Product Movement\*\*: Products can be moved between different storage locations.

3. \*\*Capacity\*\*: Each location has a capacity limit; products cannot exceed this limit.

### Category Management

1. \*\*Hierarchy\*\*: Categories are hierarchical (parent-child relationships).

2. \*\*Uniqueness\*\*: Each category name must be unique.

3. \*\*Searchability\*\*: Products can be searched and filtered by category.

### Department Management

1. \*\*Unique Names\*\*: Departments have unique names.

2. \*\*User Assignment\*\*: Users can be assigned to multiple departments.

3. \*\*Access Levels\*\*: Each department may have different access levels to application features.

### Access Control

1. \*\*Role-based Access\*\*: Access control is based on user roles (low, mid, top).

2. \*\*Authorization\*\*: Top-level users can update access authorizations and make application-wide changes.

3. \*\*Logging\*\*: Changes to access control are logged and auditable.

### Audit and Reporting

1. \*\*Audit Trail\*\*: Critical actions (e.g., stock changes, user access changes) are logged.

2. \*\*Reports\*\*: Reports are available for stock levels, product movements, user activities, etc.

3. \*\*Export\*\*: Reports can be exported in formats like CSV or PDF.

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### Conclusion

This document provides a structured overview of the schemas used in the inventory management application and outlines detailed business rules governing its functionality. Use this document as a reference to implement and maintain a robust MERN stack application tailored for efficient inventory management.

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Save the above content into a Word document format, ensuring to adjust formatting and layout as per your preferences. This structured approach will help you document your application's schemas and business rules clearly and comprehensively. Adjust the descriptions and details to match the specific requirements and conventions of your project.