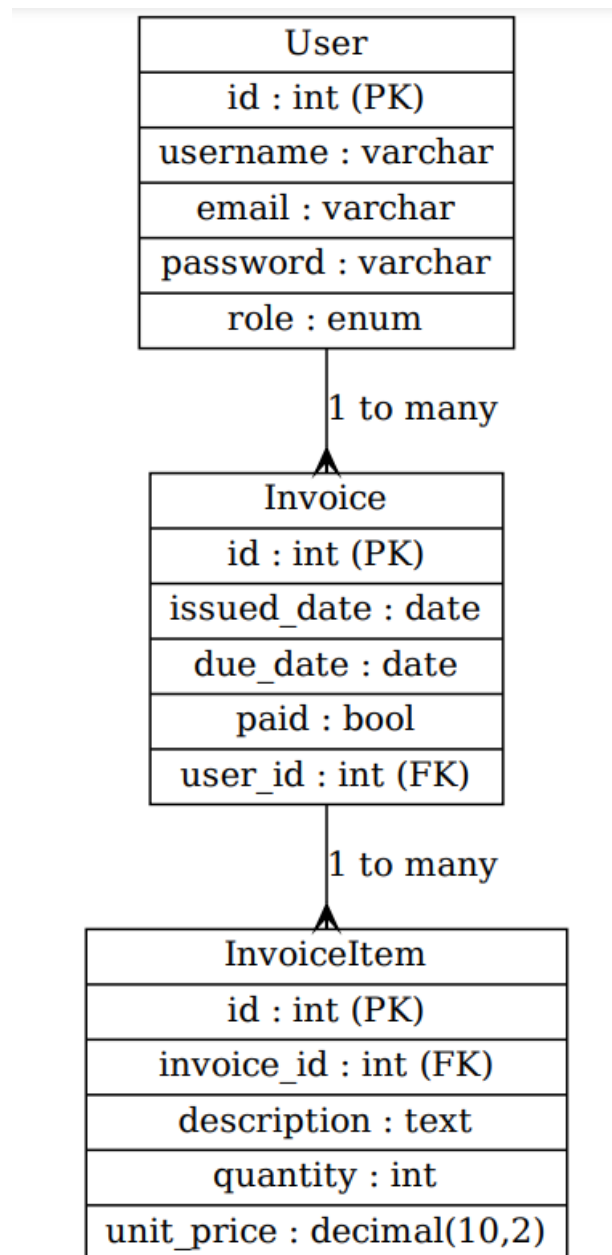


## Design 2 – ERD



### Overview:

The database architecture is designed to support all use cases of the Sports Invoice System project, including user authentication, role-based access, invoice creation, itemization, and tracking of payment status. The schema ensures data integrity and scalability, while aligning directly with the system's business logic.

## **Entities:**

### **1. User**

The User table stores information for all system users including admins, members, coaches, and accountants.

Fields:

- id: Primary key, unique identifier for each user.
- username: Used for system login and display.
- email: Email address used for contact and reset.
- password: Securely stored password hash.
- role: Enum representing the user type: ADMIN, COACH, MEMBER, ACCOUNTANT.

Each user may be linked to multiple invoices. The role determines permissions throughout the system.

### **2. Invoice**

The Invoice table contains details about each invoice issued to a member.

Fields:

- id: Primary key.
- user\_id: Foreign key to the User table, indicating the member receiving the invoice.
- issued\_date: Date the invoice was created.
- due\_date: Date payment is due.
- paid: Boolean indicating whether the invoice has been marked as paid.

Each invoice belongs to one user (a member) and may contain many line items.

### **3. InvoiceItem**

The InvoiceItem table stores each chargeable line item added to an invoice.

Fields:

- id: Primary key.
- invoice\_id: Foreign key to the Invoice table.
- description: Text description of the service or item.
- quantity: Number of units for the item.

- unit\_price: Price per unit of the item.

An invoice must contain one or more-line items, which are used to calculate totals.

### **Relationships:**

#### 1. User to Invoice (1 to many)

- One user (a member) may have multiple invoices.
- Enforces user ownership of invoice data.

#### 2. Invoice to InvoiceItem (1 to many)

- Each invoice contains multiple items.
- Enables granular cost breakdowns.

### **Support for Use Cases:**

- Login/Logout: Managed through User credentials and roles.
- Create Invoice: Admins insert new rows into the Invoice table.
- Add Invoice Items: Admins append related items to the InvoiceItem table.
- Assign Invoice: Admin links the invoice to a member using user\_id.
- View All Invoices: Admins, Coaches, and Accountants query all invoices.
- View My Invoices: Members query invoices where user\_id matches their ID.
- Download PDF: Invoice and its items can be rendered into a PDF format.
- Mark as Paid: Accountants update the 'paid' field of the Invoice record.