**Subscription Management System**

**1. User Accounts Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **user\_id** | **SERIAL** | **PRIMARY KEY** |
| **name** | **VARCHAR(100)** | **NOT NULL** |
| **email** | **VARCHAR(100)** | **NOT NULL, UNIQUE** |
| **password\_hash** | **VARCHAR(255)** | **NOT NULL** |
| **role\_id** | **INT** | **FOREIGN KEY REFERENCES User\_Roles(role\_id)** |
| **status** | **ENUM** | **DEFAULT 'active' (values: 'active', 'inactive')** |
| **created\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP** |
| **updated\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP** |
| **phone\_number** | **VARCHAR(15)** | **NULLABLE** |
| **address** | **TEXT** | **NULLABLE** |
| **profile\_picture\_url** | **VARCHAR(255)** | **NULLABLE** |
| **date\_of\_birth** | **DATE** | **NULLABLE** |

**2. User\_Roles Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **role\_id** | **INT** | **AUTO\_INCREMENT, PRIMARY KEY** |
| **role\_name** | **VARCHAR(50)** | **UNIQUE (e.g., 'admin', 'user')** |

**3. Vendor Profiles Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **vendor\_id** | **SERIAL** | **PRIMARY KEY** |
| **user\_id** | **INT** | **FOREIGN KEY REFERENCES UserAccounts(user\_id)** |
| **business\_name** | **VARCHAR(255)** | **NOT NULL** |
| **business\_description** | **TEXT** | **NULLABLE** |
| **business\_address** | **TEXT** | **NULLABLE** |
| **phone\_number** | **VARCHAR(15)** | **NULLABLE** |
| **tax\_id** | **VARCHAR(50)** | **NULLABLE** |
| **website\_url** | **VARCHAR(255)** | **NULLABLE** |
| **social\_media\_links** | **JSON** | **NULLABLE** |
| **logo\_url** | **VARCHAR(255)** | **NULLABLE** |
| **created\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP** |
| **updated\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP** |

**4. SubscriptionPlans Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **plan\_id** | **SERIAL** | **PRIMARY KEY** |
| **vendor\_id** | **INT** | **FOREIGN KEY REFERENCES VendorProfiles(vendor\_id)** |
| **plan\_name** | **VARCHAR(255)** | **NOT NULL** |
| **description** | **TEXT** | **NULLABLE** |
| **price** | **DECIMAL(10, 2)** | **NOT NULL, CHECK (price > 0)** |
| **duration\_in\_days** | **INT** | **NOT NULL, CHECK (duration\_in\_days > 0)** |
| **features** | **JSON** | **NULLABLE** |
| **is\_active** | **BOOLEAN** | **DEFAULT TRUE** |
| **created\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP** |
| **updated\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP** |

**5. CustomerSubscriptions Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **subscription\_id** | **SERIAL** | **PRIMARY KEY** |
| **user\_id** | **INT** | **FOREIGN KEY REFERENCES UserAccounts(user\_id)** |
| **plan\_id** | **INT** | **FOREIGN KEY REFERENCES SubscriptionPlans(plan\_id)** |
| **start\_date** | **DATE** | **NOT NULL** |
| **end\_date** | **DATE** | **NOT NULL** |
| **status** | **ENUM** | **DEFAULT 'active' (values: 'active', 'canceled')** |
| **payment\_status** | **ENUM** | **DEFAULT 'pending' (values: 'pending', 'completed')** |
| **created\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP** |
| **updated\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP** |
| **payment\_method** | **ENUM** | **NOT NULL (values: 'credit\_card', 'paypal', 'bank\_transfer')** |
| **discount\_applied** | **DECIMAL(10, 2)** | **NULLABLE** |

**6. Notification Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **notification\_id** | **SERIAL** | **PRIMARY KEY** |
| **user\_id** | **INT** | **FOREIGN KEY REFERENCES UserAccounts(user\_id)** |
| **notification\_type** | **ENUM** | **NOT NULL (values: 'email', 'sms', 'in\_app')** |
| **message** | **TEXT** | **NOT NULL** |
| **status** | **ENUM** | **DEFAULT 'unread' (values: 'unread', 'read', 'archived')** |
| **created\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP** |
| **sent\_at** | **TIMESTAMP** | **NULLABLE** |
| **subject** | **VARCHAR(255)** | **NOT NULL** |
| **is\_email** | **BOOLEAN** | **DEFAULT FALSE** |

**7. Payments Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **payment\_id** | **INT** | **AUTO\_INCREMENT, PRIMARY KEY** |
| **user\_id** | **INT** | **FOREIGN KEY REFERENCES UserAccounts(user\_id)** |
| **plan\_id** | **INT** | **FOREIGN KEY REFERENCES SubscriptionPlans(plan\_id)** |
| **amount** | **DECIMAL(10, 2)** | **NOT NULL** |
| **payment\_date** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP** |
| **payment\_method** | **ENUM** | **NOT NULL (values: 'credit\_card', 'paypal')** |
| **transaction\_id** | **VARCHAR(255)** | **NULLABLE** |
| **payment\_status** | **ENUM** | **NOT NULL (values: 'success', 'failed', 'pending')** |

**8. Invoices Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **invoice\_id** | **INT** | **AUTO\_INCREMENT, PRIMARY KEY** |
| **payment\_id** | **INT** | **FOREIGN KEY REFERENCES Payments(payment\_id)** |
| **invoice\_number** | **VARCHAR(50)** | **UNIQUE** |
| **issue\_date** | **DATE** | **NOT NULL** |
| **due\_date** | **DATE** | **NOT NULL** |
| **total\_amount** | **DECIMAL(10, 2)** | **NOT NULL** |

**9. Promotions Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **promotion\_id** | **INT** | **AUTO\_INCREMENT, PRIMARY KEY** |
| **promotion\_code** | **VARCHAR(50)** | **UNIQUE** |
| **discount\_percentage** | **DECIMAL(5, 2)** | **CHECK (discount\_percentage > 0 AND discount\_percentage <= 100)** |
| **start\_date** | **DATE** | **NOT NULL** |
| **end\_date** | **DATE** | **NOT NULL** |
| **usage\_limit** | **INT** | **NOT NULL** |
| **plan\_id** | **INT** | **FOREIGN KEY REFERENCES SubscriptionPlans(plan\_id)** |

**10. Feedback Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **feedback\_id** | **INT** | **AUTO\_INCREMENT, PRIMARY KEY** |
| **user\_id** | **INT** | **FOREIGN KEY REFERENCES UserAccounts(user\_id)** |
| **plan\_id** | **INT** | **FOREIGN KEY REFERENCES SubscriptionPlans(plan\_id)** |
| **feedback\_text** | **TEXT** | **NULLABLE** |
| **rating** | **INT** | **CHECK (rating >= 1 AND rating <= 5)** |
| **submitted\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP** |

**11. Subscription\_History Table**

| **Column Name** | **Data Type** | **Constraints** |
| --- | --- | --- |
| **history\_id** | **INT** | **AUTO\_INCREMENT, PRIMARY KEY** |
| **plan\_id** | **INT** | **FOREIGN KEY REFERENCES SubscriptionPlans(plan\_id)** |
| **change\_type** | **ENUM** | **NOT NULL (values: 'upgraded', 'canceled')** |
| **old\_value** | **TEXT** | **NULLABLE** |
| **new\_value** | **TEXT** | **NULLABLE** |
| **changed\_at** | **TIMESTAMP** | **DEFAULT CURRENT\_TIMESTAMP** |