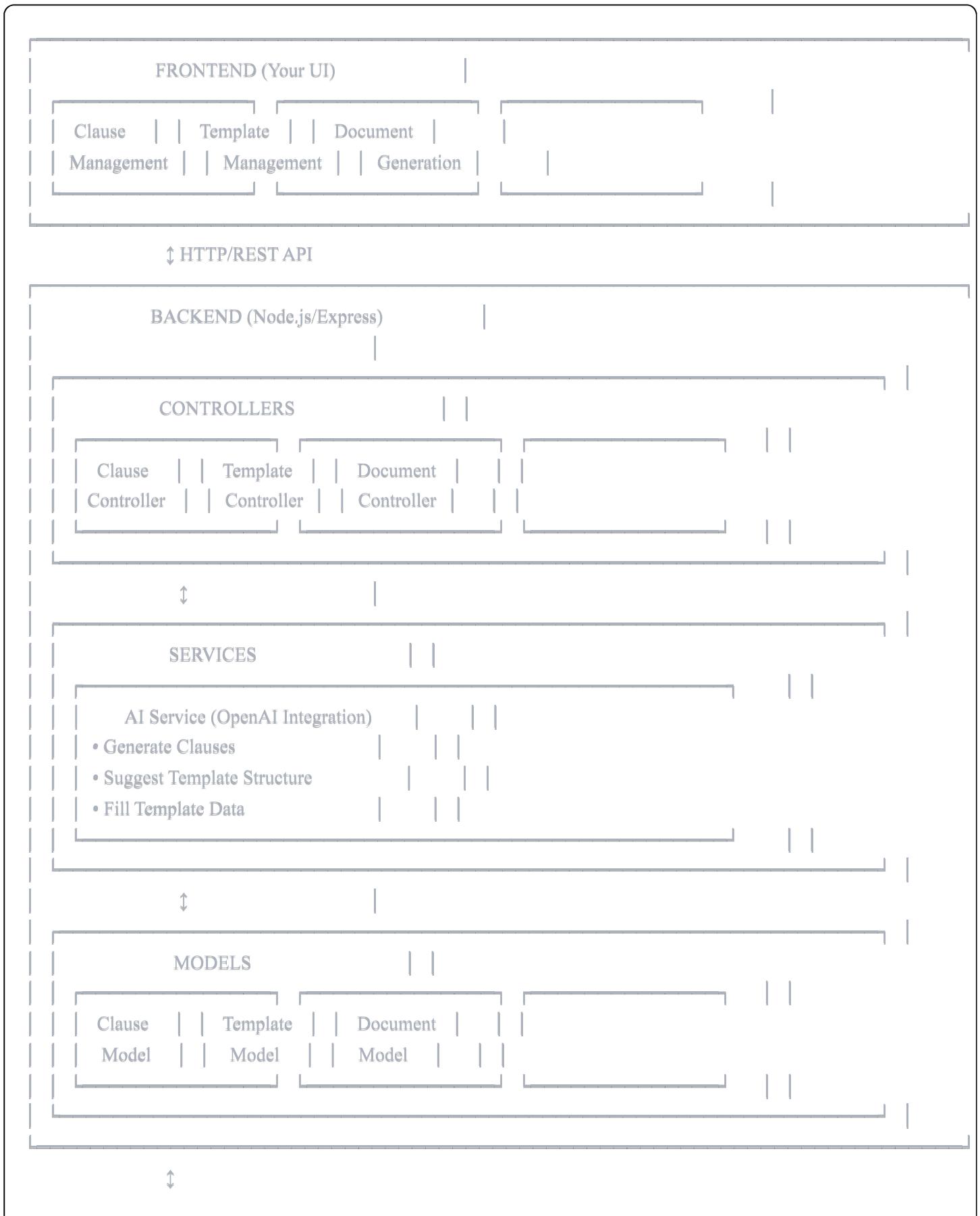
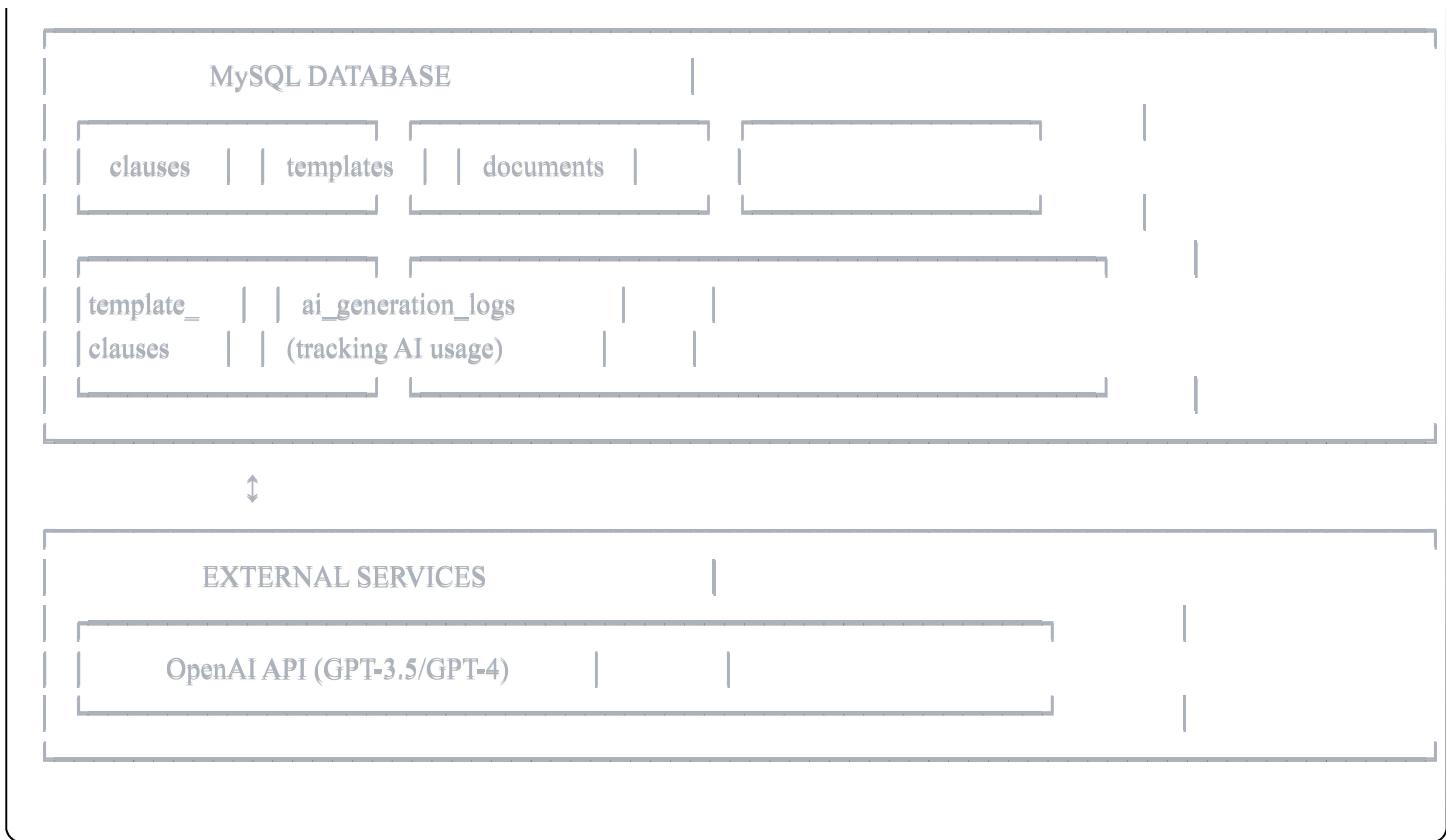


# BDM System Architecture - Complete Overview

## System Architecture Diagram





## 🎯 User Journey Flow

### Journey 1: Manual Creation (Full Control)

User  
↓  
1. Create Clauses Manually

↓ (saves to database)  
└─ Header Clause  
└─ Greeting Clause  
└─ Body Clauses  
└─ Signature Clause

↓  
2. View All Available Clauses

↓  
3. Select Clauses for Template  
↓ (drag & drop or checkboxes)  
└─ Clause 1 (position 1)  
└─ Clause 3 (position 2)  
└─ Clause 5 (position 3)  
└─ Clause 8 (position 4)

↓  
4. Save as Template

- ↓
- 5. Use Template to Generate Documents
- ↓
- 6. Fill in Variables (names, dates, etc.)
- ↓
- 7. Download PDF ✓

## Journey 2: AI-Assisted (Smart & Fast)

- User
- ↓
- 1. Click "Use AI" Button
- ↓
- 2. Provide Context
  - |— Document Type: "offer\_letter"
  - |— Company: "Tech Corp"
  - |— Additional Info: "remote position"
- ↓
- 3. AI Generates Clauses (Preview)
- ↓
- 4. User Reviews & Edits
- ↓
- 5. Save Clauses to Database
- ↓
- 6. AI Suggests Template Structure
- ↓
- 7. User Reviews & Approves
- ↓
- 8. Save Template
- ↓
- 9. Use Template for Documents
- ↓
- 10. Download PDF ✓

## Journey 3: Fully Automated (Fastest)

- User
- ↓
- 1. Click "Generate Complete Template with AI"
- ↓
- 2. Provide:
  - |— Template Name

- └ Document Type
  - └ Context/Description
- ↓
3. AI Creates Everything
- └ Generates all clauses
  - └ Arranges in optimal order
  - └ Creates template
- ↓
4. User Reviews Complete Template
- ↓
5. Use Template Immediately
- ↓
6. Generate Document
- ↓
7. Download PDF ✓

## Data Flow Diagram

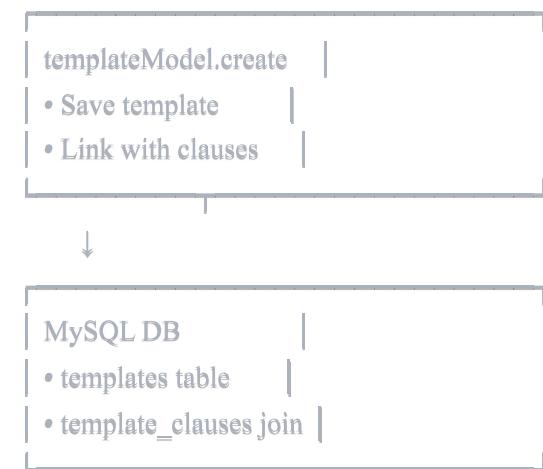
### Clause Creation Flow



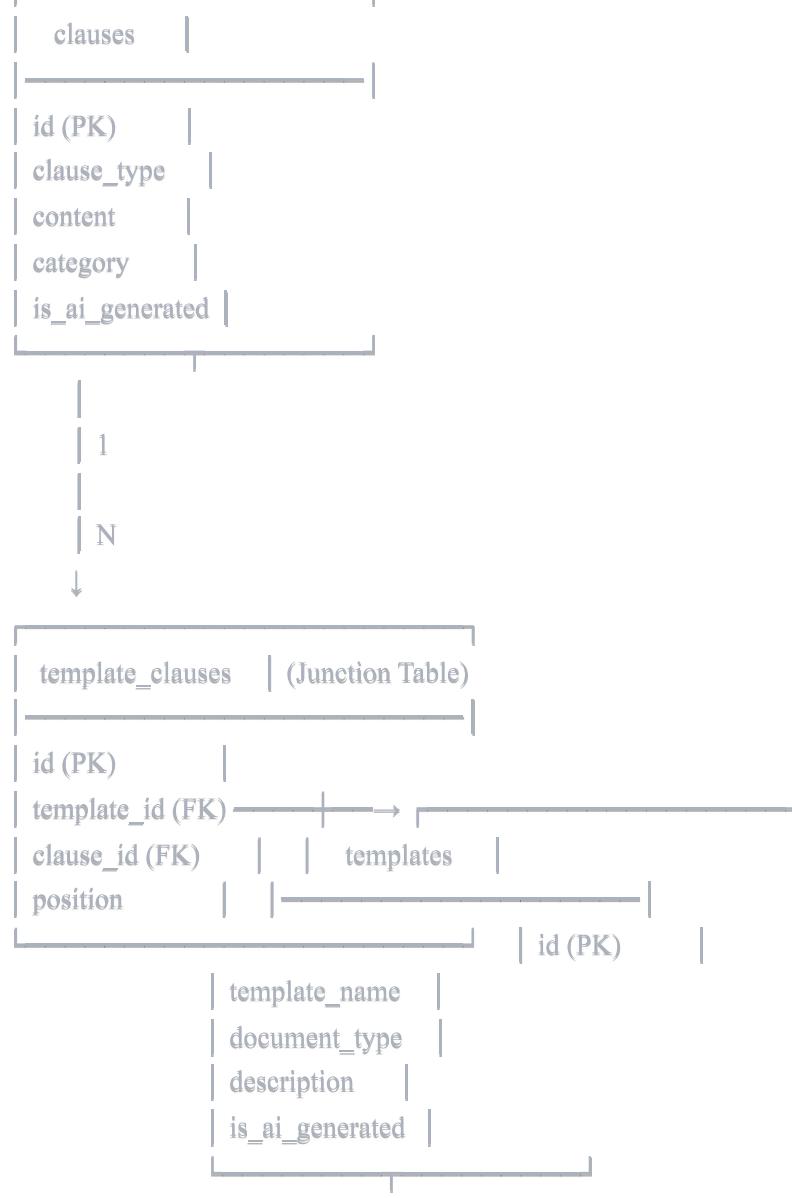


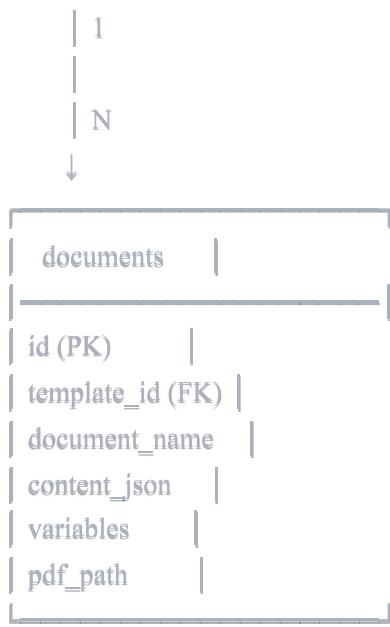
## Template Creation Flow





## Database Relationships





## 🔌 API Endpoint Structure

```

/api
  └── /clauses
      ├── GET  /           → Get all clauses
      ├── GET  /:id        → Get clause by ID
      ├── GET  /category/:category → Get clauses by category
      ├── POST /manual     → Create clause manually
      ├── POST /generate-ai   → Generate with AI (preview)
      ├── POST /save-ai-generated → Save AI clauses
      ├── PUT   /:id        → Update clause
      └── DELETE /:id       → Delete clause

  └── /templates
      ├── GET  /           → Get all templates
      ├── GET  /:id        → Get template with clauses
      ├── GET  /document-type/:type → Get by document type
      ├── POST /manual     → Create manually
      ├── POST /generate-ai-structure → AI suggest structure
      ├── POST /generate-ai-complete  → AI create everything
      ├── POST /save-ai-generated   → Save AI template
      ├── POST /:id/add-clause    → Add clause to template
      ├── DELETE /:id/remove-clause/:cid → Remove clause
      ├── PUT   /:id        → Update template
      └── DELETE /:id       → Delete template
  
```

```
└── /documents
    ├── GET  /          → Get all documents
    ├── GET  /:id       → Get document by ID
    ├── POST /generate-document → Create from template
    ├── PUT   /:id      → Update document
    └── DELETE /:id    → Delete document
```

---

## 🎨 Frontend Component Structure (Suggested)

```
src/
  └── pages/
      ├── ClausesPage.jsx
      |   ├── ClauseList.jsx
      |   ├── ClauseForm.jsx (Manual)
      |   └── AIClauseGenerator.jsx
      ├── TemplatesPage.jsx
      |   ├── TemplateList.jsx
      |   ├── TemplateBuilder.jsx (Drag & Drop)
      |   └── AITemplateGenerator.jsx
      ├── DocumentsPage.jsx
      |   ├── DocumentList.jsx
      |   ├── DocumentGenerator.jsx
      |   └── PDFPreview.jsx
      └── components/
          ├── ClauseCard.jsx
          ├── TemplatePreview.jsx
          ├── AIButton.jsx ("Use AI" button)
          └── LoadingSpinner.jsx
  └── services/
      ├── clauseService.js (API calls)
      ├── templateService.js
      └── documentService.js
```

---

## Cost Estimation Per Operation

Operation	Model	Tokens	Cost (Approx)
Generate 8 clauses	GPT-3.5	~800	\$0.001
Generate 8 clauses	GPT-4	~800	\$0.024
Suggest template structure	GPT-3.5	~500	\$0.0007
Suggest template structure	GPT-4	~500	\$0.015
Complete template generation	GPT-3.5	~1200	\$0.002
Complete template generation	GPT-4	~1200	\$0.036

### Monthly estimates (100 documents):

- Using GPT-3.5: ~\$0.20/month
  - Using GPT-4: ~\$6/month
- 

## Implementation Checklist

### Phase 1: Backend (Current)

- Database schema
- Manual clause CRUD
- AI clause generation
- Manual template creation
- AI template suggestions
- AI complete template generation
- Document generation
- PDF generation (Next)

### Phase 2: PDF Generation (Next Step)

- Add PDFKit or Puppeteer
- Create PDF templates
- Download endpoint
- Email integration (optional)

### Phase 3: Frontend (Future)

- React/Vue/Angular UI
- Clause management interface

- Template builder (drag & drop)
  - "Use AI" buttons
  - Document preview
  - PDF download button
- 

**System Status:**  Backend Complete |  PDF Generation Next |  Frontend Pending