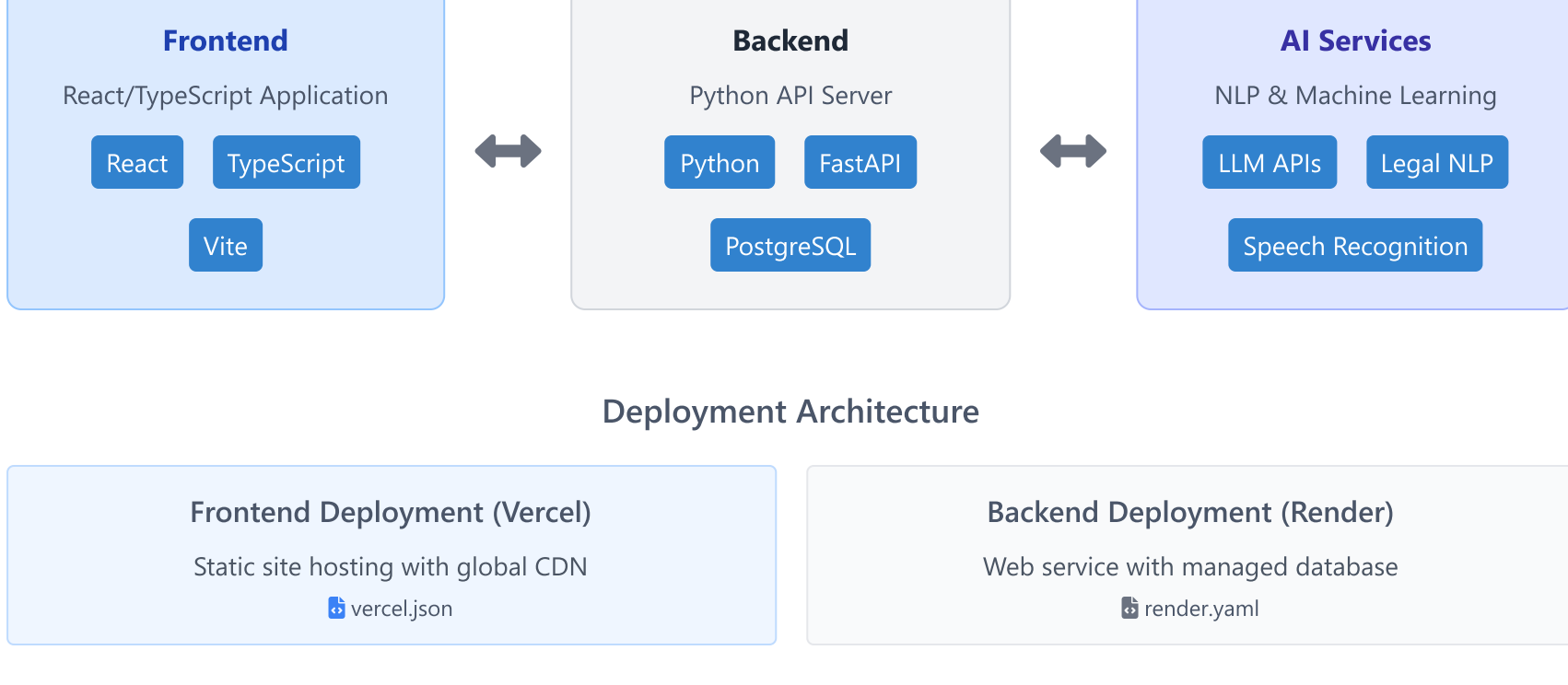


LexAssist

AI-Powered Legal Assistant Application
Technical Overview & Architecture

1. Architecture Overview

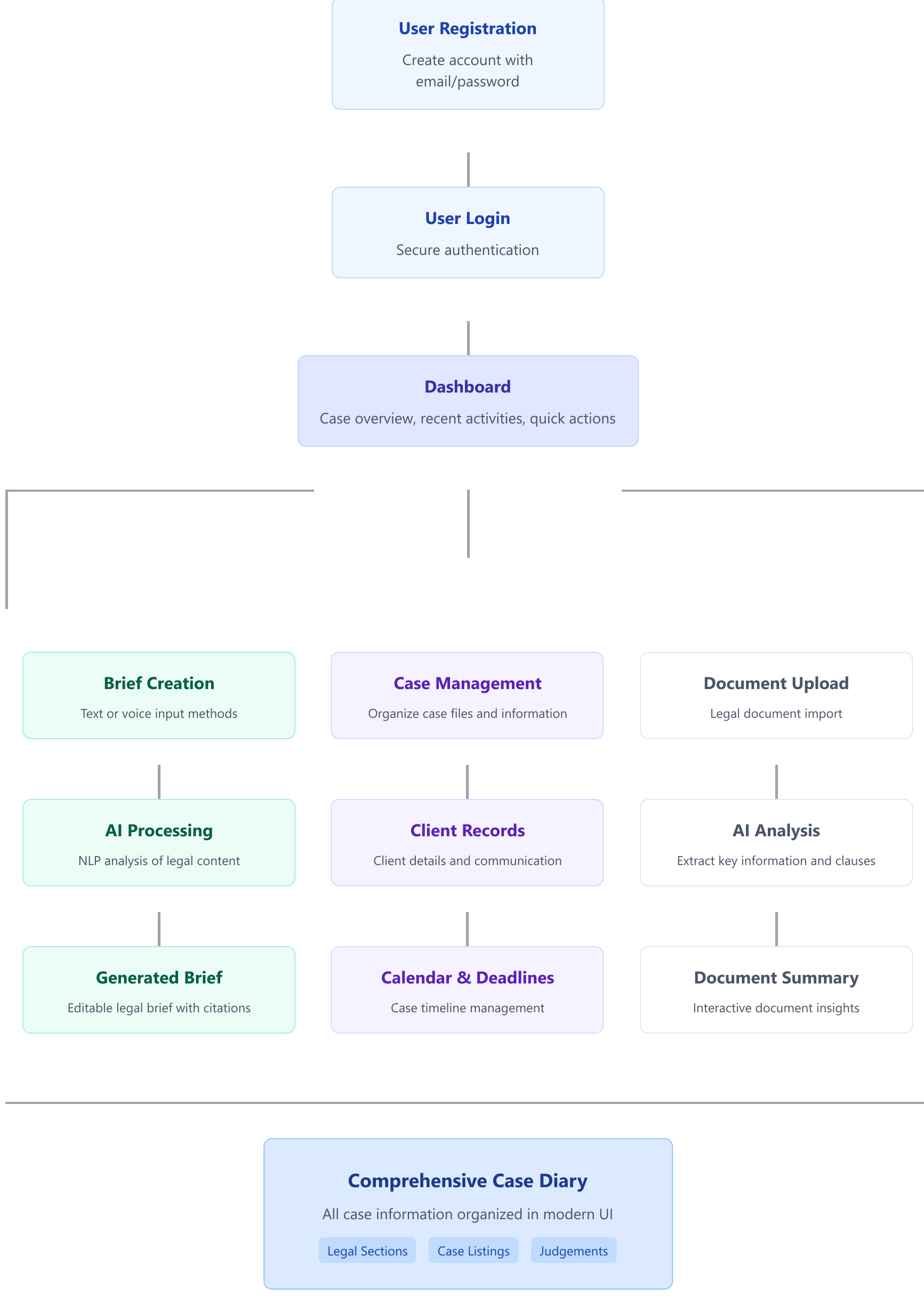
LexAssist implements a modern three-tier architecture with a clear separation between frontend, backend, and AI services:



Key Architecture Features

- Clear Separation of Concerns:** Frontend, backend, and AI services are decoupled for maintainability and scalability
- API-First Design:** RESTful API endpoints for all functionality
- Stateless Architecture:** No server state maintained between requests
- Secure Authentication:** JWT-based authentication with refresh tokens
- Scalable Infrastructure:** Cloud-native deployment with horizontal scaling

2. User Flow



3. Feature Highlights



Advanced Voice Input

Natural language processing optimized for legal terminology with real-time feedback and correction system.

- ✓ Legal terminology recognition
- ✓ Multi-language support
- ✓ Voice commands for navigation



AI Brief Generation

Turn natural language descriptions into structured legal briefs with relevant citations and precedents.

- ✓ Case type identification
- ✓ Automatic citation generation
- ✓ Jurisdiction-specific formatting



Document Analysis

Upload and analyze legal documents to extract key information, clauses, and obligations.

- ✓ Clause extraction
- ✓ Risk identification
- ✓ Plain language summaries



Case Management

Organize all case information, documents, and deadlines in one centralized location.

- ✓ Calendar integration
- ✓ Document versioning
- ✓ Client communication tracking



Modern UI Components

Intuitive user interface with modern components for efficient information navigation.

- ✓ Tabbed interfaces
- ✓ Accordion sections
- ✓ Card-based displays



Secure Data Handling

End-to-end encryption with strict data privacy controls and compliance features.

- ✓ End-to-end encryption
- ✓ Role-based access control
- ✓ Compliance reporting

4. Subscription Tiers

Free	Pro	Enterprise
\$0/month	\$49/month	\$199/month
<ul style="list-style-type: none">✓ Basic brief generation (500 words/month)✓ 5 document analysis/month✓ Single user account✓ Basic voice input✗ Advanced legal research✗ Custom templates✗ Integration capabilities	<ul style="list-style-type: none">✓ Unlimited brief generation✓ 50 document analysis/month✓ Up to 3 user accounts✓ Advanced voice input with legal terminology✓ Advanced legal research✓ Basic templates library✗ API access	<ul style="list-style-type: none">✓ Unlimited everything✓ Unlimited document analysis✓ Unlimited team members✓ Premium voice & language features✓ Comprehensive legal database✓ Custom template builder✓ Full API access & custom integrations
Start Free	Go Pro	Contact Sales



5. Technical Components

Frontend React Components

Component Structure

```
LexAssist/  
├── App.tsx           # Main application component  
├── main.tsx          # Entry point  
├── components/  
│   ├── ChatInterface.tsx # AI chat interface  
│   ├── DocumentAnalysis.tsx # Document processing  
│   ├── VoiceInput.tsx    # Voice recognition  
│   ├── LegalResearch.tsx # Case research interface  
│   └── UI/  
│       ├── Accordion.tsx # Expandable sections  
│       ├── Tabs.tsx      # Tabbed interface  
│       └── Cards.tsx     # Content cards  
├── pages/  
│   ├── HomePage.tsx      # Landing page  
│   ├── DocumentUpload.tsx # Document handling  
│   ├── CaseManagement.tsx # Case organization  
│   └── UserProfile.tsx   # Account settings  
└── assets/               # Static resources
```

Key Technology Implementations

State Management

React Context API with custom hooks for global state

```
useAppContext, useCaseData, useAuth
```

API Integration

Axios-based custom hooks with request/response interceptors

```
useFetch, useApiMutation, useQueryCache
```

Form Handling

React Hook Form with yup validation schemas

```
useForm, yupResolver, fieldValidation
```

Authentication

JWT token handling with secure storage and refresh logic

```
useAuth, ProtectedRoute, AuthContext
```

Backend API Structure

API Endpoints

```
POST /api/auth/register
```

Create a new user account

```
POST /api/auth/login
```

Authenticate user credentials

```
POST /api/briefs/generate
```

AI-powered brief creation

```
POST /api/documents/analyze
```

Document upload and analysis

```
GET /api/cases/{id}
```

Retrieve case information

```
PUT /api/cases/{id}
```

Update case details

```
GET /api/legal/search
```

Search legal database

Backend Services

Authentication Service

JWT generation, validation, and refresh tokens

AI Processing Service

Natural language processing for legal documents

Document Service

PDF parsing, text extraction, and document analysis

Legal Database Service

Case law lookup and citation handling

User Management Service

Account management and permissions

Subscription Service

Billing integration and feature access control

AI Integration

AI Processing Pipeline

- Input Processing**
Text normalization, speech-to-text conversion
- Legal Entity Recognition**
Identifies legal concepts, citations, parties
- Document Classification**
Categorizes document/request type
- Content Generation**
Creates structured legal content with citations
- Verification**
Validates generated content against legal standards
- Formatting & Output**
Jurisdiction-specific document formatting

AI Technologies

Large Language Models

Fine-tuned on legal corpus for domain-specific understanding

Natural Language Understanding

Specialized for legal terminology and document structure

Speech Recognition

Enhanced with legal vocabulary and dictation patterns

Document Analysis

OCR and structure recognition for complex legal documents