**Data Models and API Specification**

* **Data Models**

The following are the core data models used in the HR Assistant System. Each model represents a key entity in the system and captures the relevant attributes.

**1. User**

* userId (Primary Key)
* name
* email
* password
* role (e.g., HR, Candidate, Employee)

**2. JobPost**

* jobPostId (PK)
* title
* department
* description
* experience
* skills
* deadline
* status

**3. Application**

* applicationId (PK)
* candidateId (FK)
* jobPostId (FK)
* status (e.g., pending, shortlisted)
* resumeFile

**4. Interview**

* interviewId (PK)
* applicationId (FK)
* mode (e.g., Online, In-Person)
* date
* time
* status

**5. Attendance**

* attendanceId (PK)
* userId (FK)
* checkIn
* checkOut
* date

**6. Leave**

* leaveId (PK)
* userId (FK)
* leaveType
* startDate
* endDate
* status
* reason

**7. Payroll**

* payrollId (PK)
* userId (FK)
* month
* basicSalary
* bonus
* deductions
* netSalary

**8. KPI / Performance Report**

* reportId (PK)
* userId (FK)
* evaluationPeriod
* rating
* remarks

**9. Resignation**

* resignationId (PK)
* userId (FK)
* resignationDate
* exitReason
* feedback
* status

**10. Clearance**

* clearanceId (PK)
* userId (FK)
* department (e.g., HR, Finance)
* status
* approvalFeedback
* **API Specification (OpenAPI Style)**

The HR Assistant System exposes RESTful APIs to interact with each core module. Some of the main endpoints are as follows:

| **Endpoint** | **Description** | **Method** | **Request Body / Params** |
| --- | --- | --- | --- |
| /job-posts | Fetch all active job posts | GET | - |
| /job-posts | Create a new job post | POST | title, department, skills, deadline |
| /apply | Apply for a job | POST | candidateId, jobPostId, resumeFile |
| /applications/{id} | Get application status | GET | applicationId |
| /interviews | Schedule interview | POST | applicationId, date, time, mode |
| /leave/apply | Apply for leave | POST | userId, leaveType, startDate, endDate |
| /payroll/{userId} | View payroll for a user | GET | userId |
| /kpi/{userId} | Fetch KPI performance report | GET | userId |
| /resignation | Submit resignation | POST | userId, reason, date, feedback |
| /clearance | Submit clearance request (exit process) | POST | userId, department |

### Optional API Specification Formats:

In modern software systems, different formats are used for defining API specifications, such as:

* **OpenAPI (Swagger)** — Commonly used for REST APIs.
* **Protocol Buffers (Protobuf)** — Used for gRPC and high-performance binary communication.
* **GraphQL SDL** — Used in GraphQL-based APIs.

For this HR Assistant Software, the backend follows a **RESTful architecture**, and therefore, the **OpenAPI specification was used** for API documentation and communication.  
Other formats like Protobuf and GraphQL SDL were not required for this system.