**Student Page Database and workflow**

**Technologies used :**

Node JS

MySQL

Express JS

Postman

**List Of Tables :**

**Students Table :**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| student\_id | VARCHAR / INT (PK) | Unique identifier for the student |
| name | VARCHAR | Student's full name |
| register\_number | VARCHAR | Registration number |
| dob | DATE | Date of birth |
| gender | VARCHAR | Gender |
| department | VARCHAR | Department (e.g., CSE) |
| course | VARCHAR | Course (e.g., B.E) |
| batch | VARCHAR | Academic batch (e.g., 2020–2024) |
| year | VARCHAR | Current academic year (e.g., Third) |
| semester | VARCHAR | Current semester (e.g., 06) |
| email | VARCHAR | Student's email address |
| mobile | VARCHAR | Mobile number |
| accommodation | VARCHAR | Accommodation status (e.g., Day scholar) |
| cgpa | DECIMAL | Cumulative GPA |
| attendance\_percentage | DECIMAL | Attendance percentage |
| arrears | INT | Number of arrears |

**Subjects Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| subject\_code | VARCHAR (PK) | Unique subject code (e.g., CS3452) |
| subject\_name | VARCHAR | Full subject name |
| regulation | VARCHAR | Regulation year (e.g., 2021–2025) |
| semester | INT | Offered semester |

**Assignments Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| assignment\_id | INT (PK) | Unique assignment ID |
| subject\_code | VARCHAR (FK) | References Subjects.subject\_code |
| assignment\_name | VARCHAR | Name (e.g., First Assignment) |
| status | VARCHAR | Status (✓, X, من) |
| mark | VARCHAR | Marks obtained (e.g., 9/10) |

**📘 Internal\_Marks Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| internal\_mark\_id | INT (PK) | Unique internal mark ID |
| student\_id | VARCHAR / INT (FK) | References Students.student\_id |
| subject\_code | VARCHAR (FK) | References Subjects.subject\_code |
| exam\_type | VARCHAR | Type (e.g., First Internal) |
| mark\_obtained | VARCHAR | Marks obtained (e.g., 75/100) |

**📘 Semester\_Results Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| result\_id | INT (PK) | Unique result ID |
| student\_id | VARCHAR / INT (FK) | References Students.student\_id |
| subject\_code | VARCHAR (FK) | References Subjects.subject\_code |
| semester\_number | INT | Semester number (e.g., 1, 2) |
| grade | VARCHAR | Grade obtained (e.g., A+, B-) |

**📘 Circulars Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| circular\_id | INT (PK) | Unique circular ID |
| name | VARCHAR | Title of circular |
| year\_applicable | VARCHAR | Year(s) for which it is applicable (e.g., All) |
| date | DATE | Circular date |
| download\_link | VARCHAR | Link or path to download |

**📘 Notes Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| note\_id | INT (PK) | Unique note ID |
| subject\_code | VARCHAR (FK) | References Subjects.subject\_code |
| note\_name | VARCHAR | Name of the note |
| download\_link | VARCHAR | Download link |

**📘 Dues Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| due\_id | INT (PK) | Unique due ID |
| student\_id | VARCHAR / INT (FK) | References Students.student\_id |
| category | VARCHAR | Due category (e.g., Tuition Fee) |
| monthly\_pay | DECIMAL | Monthly payment amount |
| total\_amount | DECIMAL | Total due amount |
| paid\_amount | DECIMAL | Already paid amount |
| pending\_amount | DECIMAL | Remaining amount |

**📘 Approvals Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| approval\_id | INT (PK) | Unique approval ID |
| student\_id | VARCHAR / INT (FK) | References Students.student\_id |
| faculty | VARCHAR | Faculty/Department (e.g., Librarian) |
| approved\_status | BOOLEAN | Approval status (True / False) |

**📘 Transactions Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| transaction\_id | VARCHAR (PK) | Unique transaction ID |
| student\_id | VARCHAR / INT (FK) | References Students.student\_id |
| transaction\_date | DATE | Date of transaction |
| category | VARCHAR | Payment category (e.g., Tuition Fee) |
| amount | DECIMAL | Amount paid |
| method | VARCHAR | Payment method (e.g., UPI, Card) |
| receipt\_link | VARCHAR | Downloadable receipt link |

**📘 Events Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| event\_id | INT (PK) | Unique event ID |
| event\_name | VARCHAR | Name of the event |
| date\_day | INT | Day (e.g., 14) |
| date\_month\_abbr | VARCHAR | Month abbreviation (e.g., Jul) |
| date\_full | VARCHAR | Full date (e.g., 14-Jul-2025) |
| time | VARCHAR | Time of the event (e.g., 3:00PM) |
| location\_or\_description | VARCHAR | Location or short description |
| registration\_url | VARCHAR | Registration link |
| speakers | VARCHAR | List of speakers |

**📘 Time\_Table\_Entries Table**

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| timetable\_entry\_id | INT (PK) | Unique timetable entry ID |
| student\_id | VARCHAR / INT (FK) | References Students.student\_id |
| day\_of\_week | VARCHAR | Day (e.g., Monday) |
| time\_slot | VARCHAR | Time (e.g., 09:00–10:00) |
| subject\_code | VARCHAR (FK) | References Subjects.subject\_code |
| faculty\_name | VARCHAR | Faculty teaching the subject |

**📘 Students API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /students | Get all students | — |
| GET | /students/{id} | Get a specific student | Primary entity |
| POST | /students | Add a new student | — |
| PUT | /students/{id} | Update student data | — |
| DELETE | /students/{id} | Delete a student | Cascades to dues, marks, approvals, results etc. |

**📘 Subjects API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /subjects | Get all subjects | — |
| GET | /subjects/{code} | Get a subject by code | — |
| POST | /subjects | Create a subject | — |
| PUT | /subjects/{code} | Update subject | — |
| DELETE | /subjects/{code} | Delete subject | Removes references from marks, notes etc. |

**📘 Assignments API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /assignments | Get all assignments | — |
| GET | /assignments/subject/{subjectCode} | Get assignments by subject | Foreign key: subject\_code → Subjects |
| POST | /assignments | Add new assignment | Requires subject\_code |
| PUT | /assignments/{id} | Update an assignment | — |
| DELETE | /assignments/{id} | Delete assignment | — |

**📘 Internal Marks API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /internal-marks | Get all internal marks | — |
| GET | /internal-marks/student/{id} | Internal marks by student | FK: student\_id, subject\_code |
| POST | /internal-marks | Add internal mark | Requires student and subject reference |
| PUT | /internal-marks/{id} | Update internal mark | — |
| DELETE | /internal-marks/{id} | Delete internal mark | — |

**📘 Semester Results API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /results | Get all results | — |
| GET | /results/student/{id} | Results for a student | FK: student\_id, subject\_code |
| POST | /results | Add semester result | — |
| PUT | /results/{id} | Update result | — |
| DELETE | /results/{id} | Delete result | — |

**📘 Circulars API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Notes |
| GET | /circulars | Get all circulars | — |
| GET | /circulars/{id} | Get one circular | — |
| POST | /circulars | Add circular | — |
| PUT | /circulars/{id} | Update circular | — |
| DELETE | /circulars/{id} | Delete circular | — |

**📘 Notes API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /notes | Get all notes | — |
| GET | /notes/subject/{code} | Notes for a subject | FK: subject\_code |
| POST | /notes | Add new note | Requires subject\_code |
| PUT | /notes/{id} | Update a note | — |
| DELETE | /notes/{id} | Delete a note | — |

**📘 Dues API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /dues | Get all dues | — |
| GET | /dues/student/{id} | Get dues for a student | FK: student\_id |
| POST | /dues | Create new due | — |
| PUT | /dues/{id} | Update due | — |
| DELETE | /dues/{id} | Delete due | — |

**📘 Approvals API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /approvals | Get all approvals | — |
| GET | /approvals/student/{id} | Get approvals for student | FK: student\_id |
| POST | /approvals | Create approval record | — |
| PUT | /approvals/{id} | Update approval | — |
| DELETE | /approvals/{id} | Delete approval | — |

**📘 Transactions API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /transactions | Get all transactions | — |
| GET | /transactions/student/{id} | Transactions for a student | FK: student\_id |
| POST | /transactions | Add transaction | — |
| DELETE | /transactions/{id} | Delete transaction | — |

**📘 Events API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Notes |
| GET | /events | Get all events | — |
| GET | /events/{id} | Get event by ID | — |
| POST | /events | Add event | — |
| PUT | /events/{id} | Update event | — |
| DELETE | /events/{id} | Delete event | — |

**📘 Time Table API**

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Description | Mapping/Notes |
| GET | /timetable | Get all timetable entries | — |
| GET | /timetable/student/{id} | Get student's timetable | FK: student\_id |
| POST | /timetable | Add timetable entry | — |
| PUT | /timetable/{id} | Update timetable entry | — |
| DELETE | /timetable/{id} | Delete timetable entry | — |

**🧩 Entity Relationships Overview (Mappings)**

|  |  |
| --- | --- |
| Entity | Relationships |
| Students | ↔ Dues, Approvals, Internal\_Marks, Semester\_Results, Transactions, Timetable |
| Subjects | ↔ Assignments, Notes, Internal\_Marks, Semester\_Results, Timetable |
| Assignments | → Subjects.subject\_code (FK) |
| Internal Marks | → Students.student\_id, Subjects.subject\_code (FKs) |
| Results | → Students.student\_id, Subjects.subject\_code (FKs) |
| Notes | → Subjects.subject\_code (FK) |
| Dues | → Students.student\_id (FK) |
| Transactions | → Students.student\_id (FK) |
| Timetable | → Students.student\_id, Subjects.subject\_code (FKs) |