Functional Document for EEC

Technologies:

- Python
- Java
- JavaScript
- Dart
- Django
- Rest Framework
- PostgreSQL
- JWT
- Channels
- Radis
- React
- HTML
- SCSS
- CSS
- Axios
- Redux
- Web socket
- React strap
- Cloudinary
- Leaflet
- Flutter
- Ubuntu
- AWS
- GUnicorn
- Daphne
- Nginx

Total tables in database: 347

Number of files with codes: 459

Project start date: 1st May 2021
Project completion date: 17th March 2023

Note : This document only includes main feature/modules.

Modules of EEC:

- Core
    - User Management - Use profile creation, password reset and account status is management by this module. Mobile is username and unique identifier. Only one user can be created with one mobile number. Also there is unique email validation. User password is securely stored using 256-bit encryption, which cannot be seen.
    - User group needs to be created at the time of installation.
    - Every login activity of users being recorded by system
    - User profile management - User profile is managed using this module
    - School profile management - School data is stored in this module which is later used to create report card, invoices, send email etc.
    - Course - To manage course list. This needs to be unique
    - Batch - To manage course batch list. It is mapped with course. Same course can have multiple batches with unique names
    - Subject - To manage subjects in course. It is mapped with course. Course and subject together needs to be unique.
    - Syllabus - Syllabus of subject which with mapped with subject
    - Notice management - To create notice
    - Complaint and feedback management - To manage complaints and feedback received from users.
    - Holiday management- From here holidays can be created or deleted.
- Student
    - Student database - This is to store all the data related to student
    - Every student will have a user account in the system, for which mobile number is username
    - Unique student code is automatically created by system
    - While adding student, course/class, section, parent and previous school data can be filled, Course and parent and personal data are mandatory
    - Student's mapping flows. Student<Section<Course Batch<Course
    - If parent already exists in the system, you still need to enter the registered mobile number of the parent in parent and the system will find that parent and add it as student's parent.
    - One student can be enrolled in multiple courses /classes at same time
    - Automated fee invoice will be created by system according to fee structure selected while adding student

- **Teacher**
    - Teacher database - This is to store all the data related to student
    - Every teacher will have a user account in the system, for which teacher code is username
    - Unique teacher code needs to be entered for registration
    - Teacher education, documents, previous experience can also be stored in database
    - An employee account is created by system for every new teacher
    - Employee account can be used for attendance marking and other HR related things
    - Teacher can be assigned set of subjects
    - All the resources of assigned subjects will be available to teacher

- **Parent**
    - Parent database - This is to store all the data related to parent
    - Parent account can be created while adding student or using admin panel
    - One parent can have multiple students.
    - All the accessible resources of mapped students will be available to parents

- **Course/Class**
    - This is to store the data related to course/class
    - Course can be added by admin/management
    - Course and course code should be unique
    - Course fee is required to create fee schedule and invoice

- **Course batch**
    - All the course batch data is stored here
    - Course batch should be unique
    - Course batch is mapped with course
    - Once course can have multiple course batches

- **Section**
    - All the section related data is stored in this module.
    - Section works as room number
    - Every student should be mapped with section
    - Mapping is student<section<course batch< course

- **Subject**
    - This module to manage all the things related to subject
    - Mapping for subject is Subject<Course
    - One subject should have all the chapters and its study materials

- **Syllabus**
    - This module to manage all the syllabus related things
    - Syllabus can be created by admin/management
    - Mapping for syllabus is Syllabus<Subject<Batch<Course

- **Attendance**
    - Student attendance - Attendance for all the active students is created in database at 2 AM (This can be changed from super admin panel) using background task with status of absent, holiday or Sunday status. Attendance status is changed once it's marked by teacher
    - Employee - Attendance for all the active employees is created in database at 2 AM using background task with status of absent, holiday or Sunday status. Attendance status is changed once it's marked by teacher
    - A system is developed to analyze attendance timings and mark status accordingly.
    - This module is used while generating monthly salary of the employees

- **Examination**
    - Examination database - This is to store examination data. New examinations can be created, existing can be updated using this module. Examination is mapped with subject > batch> course.
    - Every examination will have a set of subjects. Every subject will have a set of questions, duration and examination due date time.
    - Every subject will have a set of examiners(teachers).
    - Questions need to be added to every subject before making examination live
    - There are several types of question which can be selected while adding
    - Question will appear differently according to its type
    - Once examination is published by management or admin, it will start reflecting to students (Course of examination) and teachers(Examiners) account

- No changes can be made to the examination once it is published
    - Students can attempt subject wise examination, which is open only on due date time
    - Examination can only be attempted once.
    - Once student start the examination they can't go back and in the end (when duration is completed) its marked attempted.
    - Post submission, all the submission will start reflecting to the examiner's account, from there they can check the answers and give marks
    - Once all the submissions are checked and marking done. Report card for the examination can be published by admin/management
    - Questions can be created by uploading file (Development in phase 3)
    - Some actions are prevented while attempting examination
    - AI can be integrated for anti-cheating activity

- **Lesson Plan**
    - Lesson plan database- This module stores all the data related to lesson plan
    - Lesson plan is mapped with course>batch>subject
    - Lesson plan can have one chapter from subject, homework, tryout, quiz, assessment and retrieval. Chapter and teacher is mandatory.
    - Lesson plan will only reflect to mapped teacher's account
    - Teacher can start lesson on it's due date
    - Once teacher marks lesson plans complete, it's homework, tryout and other items will start reflecting in account of section of student.
    - Post lesson plan completion all the student will received feedback/survey form (Development phase 3)
    - Student can start submission to assigned items
    - Teachers can access all the submissions done by students and give feedback.

- **Tryout**
    - Tryout database- This is to store all the data related to tryout.
    - There are several types of questions (MCQ, FIB, MTF, TF, LAQ, SAQ) which can be added to tryout
    - One tryout can only be attempted by students

    - If correct answer to question exists in the system, software will automatically mark the answer as correct or incorrect.
    - Teacher can always change answer status
    - Tryout can be created by uploading file (Development in phase 3)

- Teacher Timetable
    - Teacher's routine/timetable is stored and managed in this module
    - Every teacher will have their separate timetable accessible only to assigned timetable
    - Teacher can request to change their timetable, which will go to admin/management for final changes (Development phase 3)

- Routine
    - This module to manage student's daily routine
    - Mapping of routine is Routine<Section<Course batch< Course
    - Routine is available to students according to course joined

- Progress
    - This module holds all the algorithms to calculate student, subject, batch, course progress
    - Once calculation is performed results are saved in database for instant access
    - Whenever data is changed by respective, this module starts calculation in background
    - There should be enough resource available at server to perform tasks in this module

- Report Card
    - This module stores all the exam result data
    - Using this module report card can be created in PDF and downloaded
    - HTML Design file needs to be there for PDF creation

- PTM
    - This module is used to manage parent and teacher meetings and all the related things
    - PTM Can be created by teacher
    - Once created, one notification will go to mapped student’s parent

  - Parent can accept request or ask to reschedule
  - All the MOM can be stored for reference

- Event
  - This module is used to manage any event created by School
  - User type specific event can be created
  - User can register to participate in event
  - Once participated, user can upload images/videos which can be reviewed by admin/management
- Library
  - School/College can use this module to manage their offline/online library
  - Users can order, make payment for their orders
  - System will keep tracking of all the books taken by users and notify librarian if any book is not returned on due date.

- Handbook
  - This module is used manage handbooks and things related
  - Its available to admin and employees only

- Employee/HRMS
  - This module is used manage employee related items
  - Employee can be added
  - Multiple type of employees can be manage using this system
  - Employee can be assigned to department and designation
  - Attendance module will be used to manage employee's attendance
  - Payroll system is available in this module
  - Automated salary creation is available in this module
  - User can access salary pay slip using this module
  - Employee resignation is available in this module

- Chat
  - User can chat with each other in real time
  - User has to be friends with each other to chat
  - Abusive language filtration is there. System will mask abusive words
  - Chat cannot be deleted by users
  - Encryption can also be done (Development required)

- Transport
    - This module is used to manage all the vehicles, drivers
    - For every driver added using this module, system will create one user and employee account
    - All the routes of vehicle can be managed from here
    - Set of students can be added to route
    - Admin/Management can track vehicle on-route in real time
    - Set of stops can be added to route
    - Every stop can have set of student, system will notify driver, where to drop whom

- TODO
    - Using this module user can manage their daily task
    - This module is available to all the users

Note: Any further changes in system will require update of this document