Shiksha

An Information Management Platform for Indian Schools

19.07.2020

Overview

Shiksha is an Education Information Management platform for the Indian Education System. It has the following details.

Goals

1. One-stop solution for Students, Schools, Boards, Teacher, Parent, Management, Administration, Government stakeholders
2. Cater to as much as use cases and bring out efficiencies and effectiveness
3. Lead to more innovative ways for e-learning and information systems.

Specifications

This is being built from scratch based on the real-time world understanding based on our expert knowledge. Community is most welcome to fine-tune it.

Sprint # 1: Identify Objects and Relationships among them.

Sprint Duration : 0.5 days

Status : WIP

Platform Actors

1. Students
   a. FirstName
   b. LastName
   c. Tag lists - Interests
   d. Tag lists - Skills
   e. Tag lists - Hobbies
   f. Section:references
   g. Course:references
   h. Subject:references
   i. Parent:references

      j. has_many:Addresses

      k. has_one:PrimaryAddress < Address

      l. has_many:emailAddresses

      m. has_one:PrimaryPhoneNumber < PhoneNumber

      n. has_many:PhoneNumbers

      o. has_many:Exams

      p. has_many:Events

      q. has_many:Courses

      r. Has_many:subjects

      s. Has_many ProfilePictures < Pictures < Infolet < richtext

      t. Has_one:ActiveProfilePicture < ProfilePicture < Picture < Infolet < richtext

      u. Has_many:Pictures < Picture < Infolet < richtext

2. Picture

      a. Image < Infolet < RichText

3. ProfilePicture

4. SchoolProfilePicture

5. SchoolPicture

6. NonTeachingImages < Picture

      a. Picture : image < Infolet < Richtext

7. TeachingResource < Infolet

      a. image

      b. **belongs_to:AcademicYear**

      c. belongs_to:subject

      d. Belongs_to:course

      e. Url:String

      f. Description : rich_text

      g. Uploaded_by:

      h. Reviewed_by:

      i. Approved_by:

      j. Contains a Feed < StudentActivity < Feed

8. Addresses

      a. Street1:String

      b. Street2:String

      c. Location:String

      d. City:String

      e. Pincode:String

9. Phones

      a. CountryCode:String

      b. Phone:String

10. EmailAddresses

       a. emailText:String

11. Feed < Infolets
       a. contains Infolets
       b. **belongs_to:AcademicYear**

12. Schools
       a. Brief < Infolet < RichText
       b. has_many:classes
       c. has_many:teachers
       d. has_many:Staff
       e. has_one : ProfilePicture
       f. Has_many:pictures
       g. has_many:ContentPages < Infolet < RichText
       h. has_many:Feeds < Feed
           i. All Feed
           ii. TeacherActivityFeed < Feed
           iii. StudentActivityFeed < Feed,
           iv. ClassActivityFeed < Feed
           v. SectionActivityFeed < Feed
       i. **belongs_to:AcademicYear**

13. Teachers
       a. Brief < Infolet < RichText
       b. Has_many:sections
       c. has_one:ProfilePicture
       d. has_many:Pictures
       e. has_many:ContentPages
       f. has_many:Feeds
           i. SectionActivityFeed < Feed
           ii. SubjectActivityFeed < Feed
           iii. CourseActivityFeed < Feed
       g. **belongs_to:AcademicYear**
       h. belongs_to :School

14. NonTeachingStaff
       a.

15. SchoolClasses
       a. Brief < Infolet < RichText
       b. Name
       c. has_many ClassTeacher < Teacher
       d. Has_many Feeds
           i. ClassActivityFeed < Feed
           ii. SectionActivityFeed < Feed
           iii. CourseActivityFeed < Feed

  e. **belongs_to:AcademicYear**
  f. belongs_to:School
  g. has_many:Sections
  h. has_many:Exams
  i. has_many:Events
  j. has_many:

16. SchoolSections
  a. Brief
  b. Name
  c. has_many:SectionTeacher < Teacher
  d. has_many:Students
17. Boards
18. Governments
19. Administrations
20. Managements
21. EduGroups
22. TimeTables
23. ExamTimeTables
24. HomeWorks
25. Assignments
26. Parents
27. Family
28. Associations
29. Inspections
30. Exams
31. ExamRegistrations
32. ExamAdmissions
33. ExamSchedules
34. ExamHallTickets
35. ExamInvigilatorRegistrations
36. ExamInvigilatorAdmissions
37. ExamCenters
38. ExamOrganizers
39. ExamResults
40. Event
41. EventOrganizers
42. EventRegistrations
43. EventAdmissions
44. EventSchedules
45. EventHallTickets
46. EventInvigilatorRegistrations

47. EventInvigilatorAdmissions
48. EventCenters
49. Evaluations
50. EvaluationRegistrations
51. EvaluationAdmissions
52. EvaluationSchedules
53. EvaluationHallTickets
54. EvaluationInvigilatorRegistrations
55. EvaluationAdmissionRegistrations
56. EvaluationCenters
57. Alumni
58. Publishers
59. Distributors
60. Shops
61. Forums
62. Certificates
63. Affiliations
64. AcademicYears
65. Subject
66. ClassTeacher
67. AcademicPeriod
68. AcademicDay

Platform Actor Attributes:

Actor Relationships:

1. Student belongs to a Section i.e a Section has_many students
2. Student belongs_to a Subject i,e A Subject has_many Students
3. Section belongs to a Class i.e a Class has_many sections
4. Section belongs_to a ClassTeacher ie. ClassTeacher has_many Sections (It's a Junction Object between Section and Teacher)
5. A subject can have a teacher and multiple students.(i.e a section-A rigid structure or course - A Flexible optional structure)
6. Subject belongs_to a Section i.e A Section has_many subjects
7. Class belongs to a School i.e a School has_many classes
8. Teacher belongs_to School i.e a School has_many Teachers
9. Teacher belongs_to Section i.e a Section has many Teachers
10. Student belongs_to a Teacher through Subject (Subject is a Junction object having Student,Teacher and a Subject name)

11. School belongs_to to affiliations i.e an Affiliation has_many schools(VB , DAV having many schools)
12. School belongs_to to a Management i.e an Management has_many schools(Velammal)
13. School belongs_to a Board i.e a Board has_many_schools.
14. Management may belongs_to an affiliation i.e an Affiliations has_many Management Groups.
15. AcademicPeriod has a Start_time and End Time and a Duration in minutes.
16. AcademicPeriod belongs_to Subject i.e a Subject has many AcademicPeriods
17. TimeTable has_many Teachers i.e Teacher has_many TimeTables
18. AcademicPeriod belongs_to to a AcademicDay i.e AcademicDay has_many AcademicPeriods
19. Exam may be of different types - Intra section,IntraClass,IntraSchool,InterSchool,InterGroup,InterBoard,OpenCompetitive
    a. IntraSection - It is within a Section and doesn't require much preparation and usually conducted by Subject Teachers like Unit Test.Spanned within a School.
    b. IntraSchool - It is within sections i.e Class and requires minimal preparation and conducted by Schools.Spanned within Schools/City.
    c. InterSchool - To inculcate more knowledge shaping,InterSchools can arrange for Exams and this needs coordination,planning among Schools.Spanned within a City.
    d. IntraGroup - Within Groups like DAV,Velammal etc.Needs coordination and preparation at the Group Level.Spanned within a City.
    e. InterBoard - Within Class/Board,Conducted,Coordinated,Planned at larger level across,Multiple Schools,Cities,Student groups and Centers.
    f.
20. ExamRegistration belongs_to a Exam i.e An Exam has_many ExamRegistrations
21. ExamAdmission belongs_to an Exam. i.e An Exam has_many ExamAdmissions
22. ExamSchedule belongs_to an Exam. i.e An ExamSchedule has_one attributes like Exam,Subject,Date,Duration,StartTime
23. ExamHallTicket belongs_to an Exam i.e An Exam has_many ExamHallTickets
24. ExamInvigilatorRegistration belongs_to an Exam. i.e Exam has_many ExamInvigilatorRegistrations.
25. ExamInvigilatorAdmissions belongs_to an Exam.i.e Exam has_many ExamInvigilatorAdmissions.

26. ExamCenters belongs_to an Exam. Based on Exam Type - InterCity or IntraCity,ExamCenter Distribution to Students to happen.
27. ExamInvigilatorAdmissions - InterCity or IntraCity,ExamCenter Distribution to Invigilators to happen.
28. ExamRoom belongs_to ExamCenter . i.e ExamCenter has_many ExamRooms
29. ExamStudents may opt ExamCenter.
30. ExamOrganizer may allot opted ExamCenter or an alternative ExamCenter,within City(IntraCity) or across closest City(Intracity)
31. Alumni - Any past AcademicYear Student is Alumni and can be migrated to the Alumnus Database.
32. Student belongs_to a Parent.Parent has_many Students.
33. ACL : A student can see basic information about any teacher of his school.
34. ACL : Phone access of the teacher is based on PHONE_VISIBILE=true
35. ACL : Email access of the teacher is based on EMAIL_VISIBLE=true
36. ACL : A student can send a request to see the teacher details of another school.
37. ACL : A teacher can see the student details of the section for which they are the teaching a subject
38. ACL : A School can see the details of all users belonging to its class/section of the school where he teaches.
39. ACL : A Student can see the details of his own section,excluding mobile #,emailaddresses.
40. ACL : A student can request to access Personal details of his section/course/subject.
41. ACL : A student can send the request to view the classmate details on approval from both class teachers,he can see the details.It should be based on a school level config CLASS_ACCESS=true

Sprint # 2

Sprint Goal : Implement the OR identified in Sprint # 1 and build a MVP with basic/core features.Database Migrations to be achieved.

Estimated Duration : 0.5 days

Actual Duration : ?

Status : WIP.

Build Activities :

➔ rails new Shiksha
➔ Added following Gems
  ◆ gem 'acts-as-taggable-on', '~> 6.0'

- ◆ gem 'devise'
- ◆ gem 'omniauth'
- ◆ gem 'omniauth-digitalocean'
- ◆ gem 'omniauth-facebook'
- ◆ gem 'omniauth-google-oauth2'
- ◆ gem 'omniauth-github'
- ◆ gem 'rails_admin'
- ◆ gem 'image_processing'
- ◆ gem 'words_counted'
- ◆ gem 'omnicontacts'
- ◆ gem 'google-api-client'
- ◆ #gem "passenger", ">= 5.3.2", require: "phusion_passenger/rack_handler"
- ◆ gem 'cancancan'

→ bundle install

→ rails g model content title:string:index

→ `rails active_storage:install`

→ `rails action_text:install`

→ `rails g model Person FirstName:string LastName:string DoB:date roles:string --force`

→ `rails g model Leave start:date end:date`

→ `rails g model Holiday start:date end:date`

→ `rails g model AcademicYear start:date end:date`

→ `rails g model Phone country_code:string phone_no:string --force`

→ `rails g model EmailAddress email:string`

→ `rails g model EduGroup name:string start:date end:date`

→ `rails g model Person FirstName:string LastName:string DoB:date roles:string --force`

→ `rails g model School name:string start:date end:date EduGroup:references`

→

Application Model Records:

```
-rw-r--r--  1 sundar  staff   78 Jul 20 19:38 application_record.rb
drwxr-xr-x  3 sundar  staff   96 Jul 20 19:38 concerns
-rw-r--r--  1 sundar  staff  157 Jul 20 21:36 content.rb
-rw-r--r--  1 sundar  staff   28 Jul 20 21:47 infolet.rb
-rw-r--r--  1 sundar  staff   30 Jul 20 22:08 picture.rb
-rw-r--r--  1 sundar  staff   36 Jul 20 22:09 profile_picture.rb
-rw-r--r--  1 sundar  staff   68 Jul 20 22:10 school_profile_picture.rb
-rw-r--r--  1 sundar  staff   54 Jul 20 22:11 school_picture.rb
-rw-r--r--  1 sundar  staff   80 Jul 20 22:17 active_school_profile_picture.rb
-rw-r--r--  1 sundar  staff   70 Jul 20 22:19 student_profile_picture.rb
-rw-r--r--  1 sundar  staff   84 Jul 20 22:20 active_student_profile_picture.rb
```
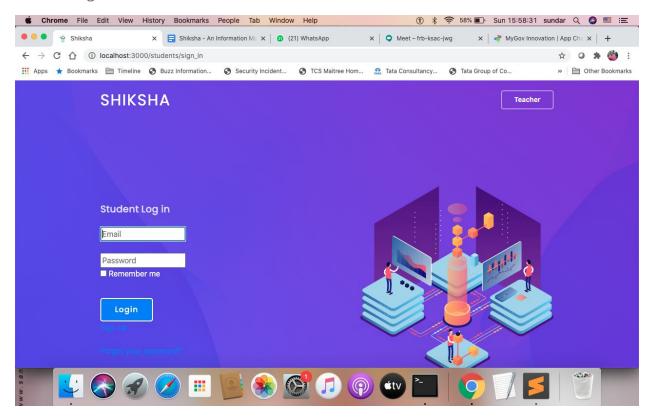
```
-rw-r--r--  1 sundar  staff   54 Jul 20 22:24 school_address.rb
-rw-r--r--  1 sundar  staff   56 Jul 20 22:25 student_address.rb
-rw-r--r--  1 sundar  staff   56 Jul 20 22:25 teacher_address.rb
-rw-r--r--  1 sundar  staff   52 Jul 20 22:27 staff_address.rb
-rw-r--r--  1 sundar  staff   43 Jul 20 22:30 email_address.rb
-rw-r--r--  1 sundar  staff   36 Jul 20 22:33 phone.rb
-rw-r--r--  1 sundar  staff   83 Jul 20 22:35 address.rb
-rw-r--r--  1 sundar  staff   43 Jul 20 22:43 academic_year.rb
-rw-r--r--  1 sundar  staff   38 Jul 20 22:45 holiday.rb
-rw-r--r--  1 sundar  staff   36 Jul 20 22:46 leave.rb
-rw-r--r--  1 sundar  staff   54 Jul 20 22:48 school_holiday.rb
-rw-r--r--  1 sundar  staff   52 Jul 20 22:50 student_leave.rb
-rw-r--r--  1 sundar  staff   51 Jul 20 22:50 teacher_leave.rb
-rw-r--r--  1 sundar  staff   48 Jul 20 22:51 staff_leave.rb
-rw-r--r--  1 sundar  staff   37 Jul 20 23:02 person.rb
```

Milestones

I.   School and Sub-School level object-mapping done. 20-07-2020 17:15

II. Proceeding with building/implementing core building blocks.
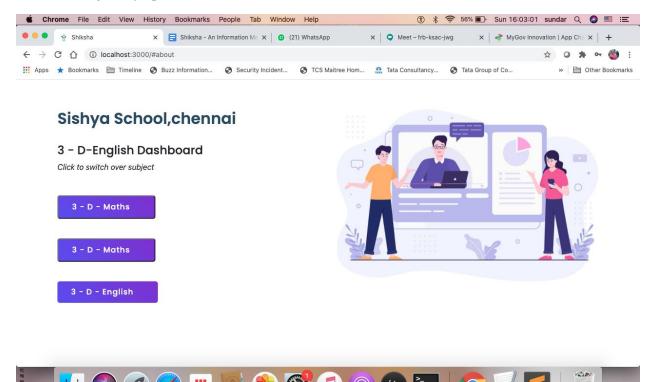
Screenshots :

Student Login screen

Student Home.

Profile - Page

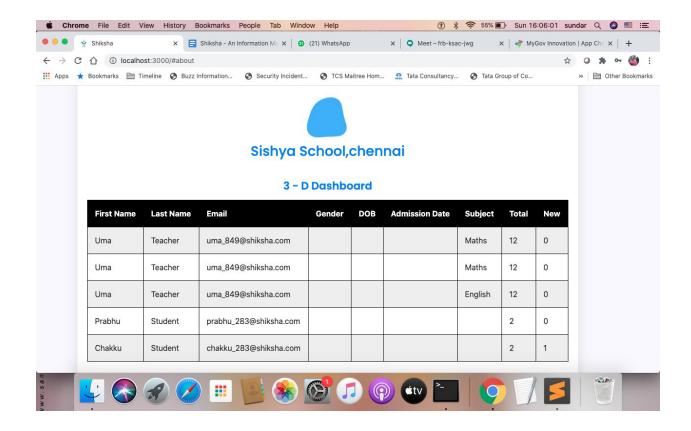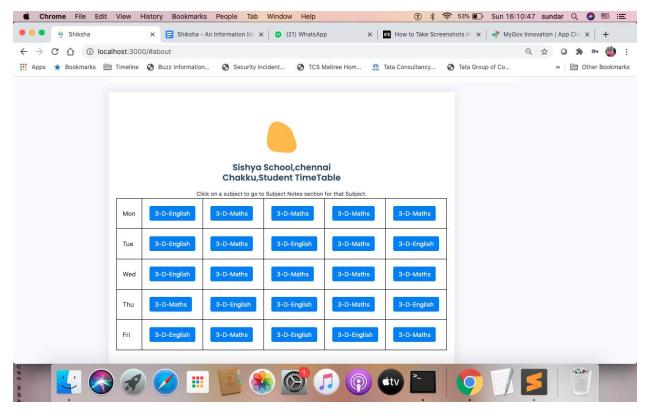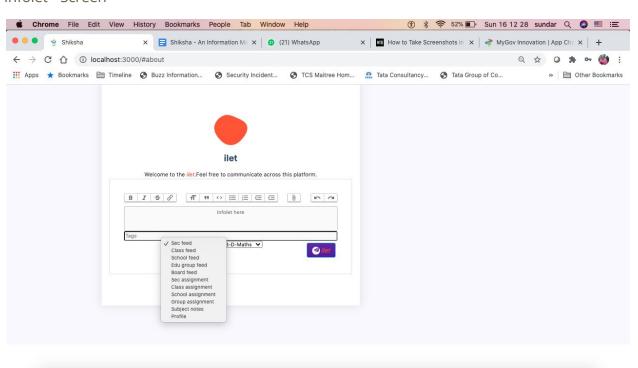Student-Subjects page
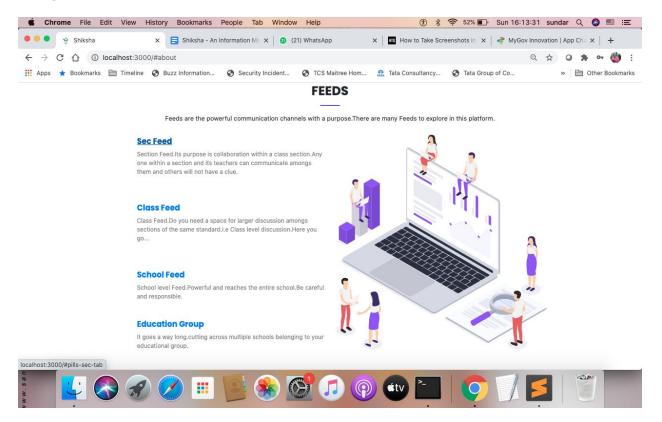

Section Dashboard

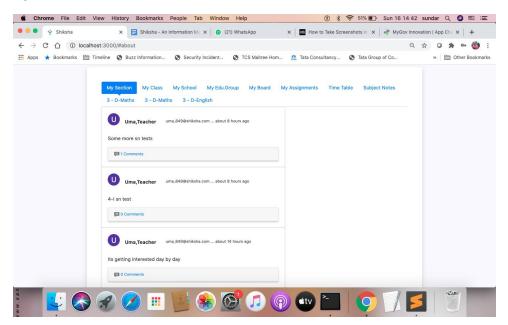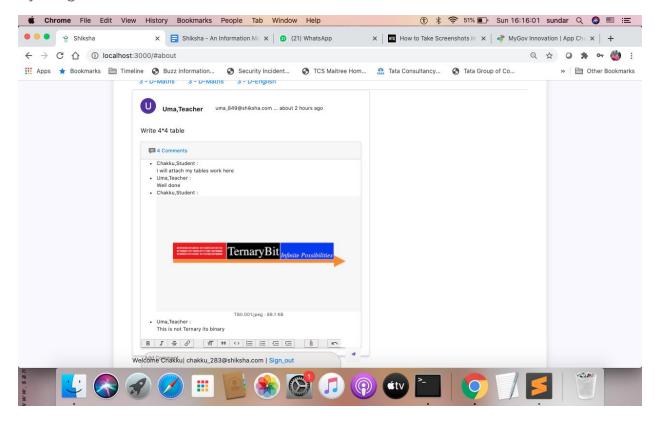Student TimeTable

Infolet - Screen

FEEDS

My Section

My Assignment - Student view

Subject Notes - Student View