Institution Management System

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\*\*\* Feature is in the development stage

# Vision

This is designed for the web application with a vision to share the service to our respective schools & make it as a product for different schools in our networks. Even if this web app is not successful as a product. We will carry the spirit for more complex projects to be on our portfolio & take it’s experience for future projects & products.

# System access

We give access to

1. **Admin**: The soul authority to do things.
2. **Teachers**: The authority of educational data and access to all data.
3. **Parents**: They can access all the data of all their dependents.

**\* Providing authentication for every stakeholder needed a proper cloud service. Firebase could be better choice for us.**

***“I prefer to use email link authentication as it will make it more secure and easy for verification every time.” -Pranay***

# System Levels & Development phase

**Level-1:** Admin authentication. (Both **online** & **offline** methods)

**Level-2:**  Teacher authentication.

**Level-3:**  Parents authentication.

# Security features

1. System Backup
2. Cloud Backup

# Features

## Activity logs

This records every action on the system. So that **no error occurs** & there will be a **transparency** in the system for all the stakeholders.

Are we going to have a single datasheet for all the activities?

Yes, we are doing. So, but with attaching the ID of the person from LOGIN sheet.

**Example**

Instances of a database

Transaction’s sheet

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ID | Amount | Mode | Sheet ID | Link ID | Activity ID (***FK)*** |
| 0001 | 5000 | SBI | STUD PAY | 005 | 0001 |
| 0002 | -2000 | CASH | VOCH PAY | 008 | 0002 |

Activity sheet

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | Comment | Prev ID | Time | User ID |
| 0001 | 5000 Paid by - to – for stud payment | - | 02:11:2021 ; 05:30:PM | 1 |
| 0002 | Given to – by – for voucher | - | 02:11:2021 ; 05:45:PM | 1 |

If any stakeholder modified the first transaction to 10000 with an input reason “an error in entry”.

**After Change**

Transaction’s sheet

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ID | Amount | Mode | Sheet ID | Link ID | Activity ID  ***(FK)*** |
| 0001 | 10000 | SBI | STUD PAY | 005 | 0003 |
| 0002 | -2000 | CASH | VOCH PAY | 008 | 0002 |

Activity sheet

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | Comment | Prev ID | Time | User ID |
| 0001 | 5000 Paid by - to – for stud payment | - | 02:11:2021 ; 05:30:PM | 1 |
| 0002 | Given to – by – for voucher | - | 02:11:2021 ; 05:45:PM | 1 |
| 0003 | 5000 modified to 10000 due to an error in entry | 0001 | 02:11:2021 ; 05:55:PM | 1 |

Here,

1. We have added a new activity log for the modification.
2. We have given the initial transaction’s activity log ID to new activity log as a pervious log ID.
3. We have updated the amount to 10,000 in both STUD Pay & transaction Sheet. We have updated the new log ID to the transaction.

**Logic:**

We can recursively get to know an activity logs of any transactions completely.

**Further expansion - Questions:**

How do we make the access levels for the user?

Answer: Designing a separate design for them.

## Login & Registrations.

Here we have **three sheets based on user level**.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Mail** | **Password** | **UserID** |
| 001 | [Rpranayreddy40@gmail.com](mailto:Rpranayreddy40@gmail.com) | 537537537 | 500 |
| 002 | [Rpranayreddy40@icloud.com](mailto:Rpranayreddy40@icloud.com) | 537537537 | 200 |

Here, **User ID is a foreign key to the stakeholder’s sheet.**

*Stakeholder’s sheet gives a unique ID to every user in the environment.*

**\*\*Password can be encrypted.**

## Notifications & reminders.

This sheet serves the purpose of both notification & reminder.

Where reminder is just a customized notification.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created Time** | **Trigger Time** | **Iterations** | **Duration** | **Level** | **Action** | **Text** | **User ID** | **Done** |
| 08:05:00 AM; 02/11/2020 | 10:00:00 AM  01/01/2021 | -1 | 1 year | 0 | 005 | Happy New year. We wish…. | @100 | Yes |
|  |  |  |  |  |  |  |  |  |

Here,

**Created time:** time of creation.

**Trigger Time:**  When to pop the notification.

**Iterations:**  no of time it should be triggered. (“-1” is a loop iteration)

**Duration:**  duration of the iteration.

**Level:** This depicts its importance.

*0: only in the notification bar*

*1: pop up and stay for x mins and then disappear.*

*2: Action needed. (No close button available)*

**Action:**  link of the action (a new table can be created or can be given a link here itself).

***But to have a simple action table. So that if needed to change a link address change be done in time.***

**Text:** Message.

**User Id:**  who should be getting the message.

@XYZ Depicts the user level. Where it searches in “notify level” table & send this to all of them.

***\*\*\*We can send a reminder to particular stakeholder at particular time. So that it works as a mail too. Then pop-up will not be action. But it will take us to notification. Then the entire message comes and the click will take to action***

***(or) Create a new similar table to reminders. \*\*\****

**Flow  
We need to create holidays table to have attendance in it. We have to not include holidays in the notification. Because it causes the problem when holiday is only for primary.   
So, we are just making holiday table also as notifications. Where notification system also checks holiday’s table.**

## Student’s details & documents

In order to join. We have to create them Tuples in these tables:

1. Stakeholder
2. Student details
3. Attendance
4. Student Balance

Basically, **Stakeholder table contains unique ID for each person.** *So, that when clubbing all person in case of attendances sheet or notification sheet. Then there won’t be same ID for different users.*

Here, we create a **student details** table containing just photo.

**Student details** parameters:

1. ID
2. Full Time of Admission (to produce **dynamic links** for*progress of student*)
3. Stake ID
4. Name
5. Class
6. Roll no
7. Photo Id or so.
8. Fee structure excluding concession.
9. Merit-based concession
10. Parent ID’s (Two or three)
11. Other basic parameters

## Teaching & non-teaching staff details & documents

In order to join. We have to create them Tuples in these tables:

1. Stakeholder
2. Teacher details
3. Attendance
4. Staff Balance

Here, we create a **teacher’s details** table containing just photo.

**Staff details** parameters:

1. ID
2. Stake ID
3. Name
4. Date of birth
5. Phone number
6. Photo Id or so.
7. Salary
8. Other basic parameters

*If we need data of only teaching staff then we are going to make a new table.*

## Admission process

This will have two methods: **1. Admin**

**2. Website**

Both will **just do entry of parent and student’s details**.

*In both methods, Process is done only on completion of some parameters like Admission Fee, Exam & some of the other parameters.*

Initially, we will have only **Single Complete table** (*one table per category “Students, Parents, Staff”*). It contains all parameters needed of a new entry at their end.

***Note: Login & Stakeholder Table is same for both admitted & on hold applications. Just data which should be cross-checked will be on hold in a different table.***

After Each step user has to **collect a copy of their details with office holder signature**. For further use.

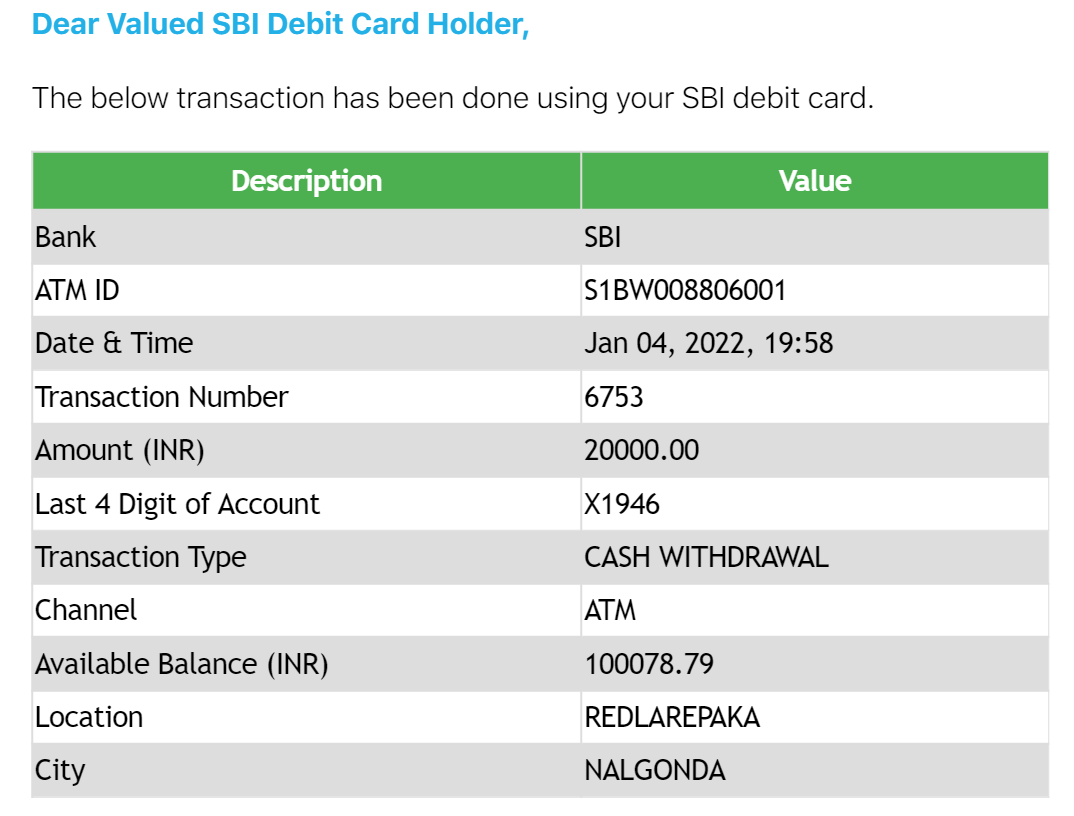
## Student’s payment data. (Fee categories, concession)

This helps in generating a *quick sheet of fee due* & also helps in *validation of records*.

This is common for all students

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Stake ID** | **Fee excluding merit concession** | **Concession** | **Fee paid till now** | **Sports** | **Tour-1** |
| 1 | 100 | 15,000 | 1,000 | 10,000 | 500 |  |
|  |  |  |  |  |  |  |

Sample of secure payments



**FLOW**

We have to make a Fee Structure table for class-wise. (That includes tours & etc.)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Title** | **Fee** | **Class-1** | **Class-2** | **Class-3** | **Class-4** | **Class-5** | **Class-6** | **Class-7** | ***Soon🡪*** |
| Sports | 500 | NO | NO | NO | Yes | Yes | Yes | Yes | Yes |
|  |  |  |  |  |  |  |  |  |  |

**(or)**

We can **go with Class ID or CODE Table** & then add fee structure for each.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Title** | **Fee** | **Class Code** |
| 1 | Sports | 200 | P1 |
| 2 | Sports | 300 | P2 |
| 3 | Sports | 400 | P3 |
| 4 | Sports | 500 | P4 |
| 5 | Sports | 500 | P5 |
| 6 | Sports | 500 | P6 |
| 7 | Sports | 500 | P7 |

## Institution’s transaction data (vouchers)

This includes: 1. Teaching staff

2. non-teaching staff

3. Vouchers

4. Payment’s

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Date with time** | **Name or Stake ID\*\*** | **Reason** | **Phone number** | **Amount** | **Mode** | **Admin ID** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**\*\* Drop down of stakeholder should be appeared for the payment of any bills with reasons as optional for all except vouchers (petrol & etc.).**

**FLOW**

We have to **make a staff balance sheet also which I have not mention.**

## Progress data of a student with link

These section needs:

1. Progress table
2. Syllabus
3. Exams

As per our discussion,

Every marking for every student will have a new tuple in it.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Stake ID** | **Syllabus ID** | **Marks** | **Given By** |
|  |  |  |  |  |
|  |  |  |  |  |

**Feature**

1. This should also have a feature where teacher can download a simple excel and enter there and upload.
2. Enter by roll no along with a option of downloading the roll list to write down and then enter manually

**This progress reports can be downloaded for meet use (or) produced to parents on activation.**

**On activation a dynamic link with the admission time should be given to parent as a progress report of the student. Similar to portfolio of a developer. Which contains entire data of a student.**

## Attendance

This will have five tables:

1. Attendance
2. working days
3. Special working day’s
4. Accepted leave

**Attendance Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Date : Time** | **Stake Id** | **Extra Pay** |
| 1 | Date() | 100 | Yes |
|  |  |  |  |
|  |  |  |  |

Extra pay for teachers on special classes.

**Working Days table**

|  |  |  |  |
| --- | --- | --- | --- |
| Date | 1(Category ID of class 10) | 1(Category ID) | 2(Category ID of Staff) |
| 01-01-2022 | Yes | No | Yes |
| 02-01-2022 | Yes\*\*\* | No | No |
|  |  |  |  |
|  |  |  |  |

\*\*\*Assign a teacher separately…

***special working days like if only for 10th class then we get names of 10th class and add them with date and time of attendance… as a new tuples…Along with special working day for teacher. Along with option of included in normal payroll or treat as separate payroll as extra fee***

## Examination Segment

I firmly agree with the Varun’s version of Examination segment

1. Syllabus.
2. Sitting Plan.
3. Admit Card.
4. Due list.

Prerequisites: Classes having exams & availability of benches & their types in each class.

Example

conducting exams for class 8th to 10th. It will calculate number of students who are appearing for exams, as we have the benches data with option of changing.

CLASS ROOMS

|  |  |  |  |
| --- | --- | --- | --- |
| Class Room ID | Class Room Code | No. of benches | Type of bench |
| 01 | A1 | 10 | 4 seat |
| 02 | B1 | 30 | 3 seat |
| 03 | C1 | 15 | 2 seat |
| 04 | D1 | 25 | 2 seat |

By calculating total number of seats = 40 + 90 + 30 + 50

= 210

We will give w, x, y, z as the codes referring to the side of the bench

First of all, we have to tell how many students are writing the exam

* If students are less than 80 , only one in a bench
* If students are between 80 & 110 , 2 in a 4 seat bench , one in Remaining
* If students are between 110 & 140 , 2 in a 3&4 seat bench, one in Remaining
* If students are more than 140 , seats in all seats

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ID | Student name | User ID | Room | bench no. | Side | Roll no. |
| 001 | Varun Reddy | 19 | B1 | 05 | w | B1-05-w |
| 002 | Pranay Reddy | 12 | A1 | 02 | w | A1-02-w |
| 003 | Nirvan Reddy | 09 | C1 | 03 | w | C1-03-w |
| 004 | Rohith | 04 | D1 | 04 | w | D1-04-w |

We have to first give which class should be there in which class and on which side

For example in above table, all the students are of same class and side was same ‘ w ‘ .

Roll Number will have prefix which is Class Room Code of seat they assigned and suffix will be the bench number in their respective class room allotted and last one is side of the bench of their respective bench.

If one class students are more than no. of seats, it will first assign in one room then from remaining students it will assign in the next room.

If we want to take the sitting arrangements room-wise. we can do this by sorting the room id in the data sheet.

Here we can add any additional information to the roll number like class studying, Year etc as per the individual school requirements.

After taking all the information, we will generate a sitting plan.

Next thing is to generate the admit cards it will be done by taking students name.

**\*There will be a function of excluding admit card issue for the due list students with payment percent.**

For example, if we want the students who paid 50% fee it will take the data of these students from the fee details data sheet and generate the admit cards.

## Time table generation \*\*\*

Main task in designing the time table arises if any teacher gets absent or takes leave in particular time of a day.

1. Main Time table considering all the teachers are available

We have to somehow design a time table with logics by coding ( we have to think about it ) after time table is designed it will stored in TIME TABLE Datasheet as shown below

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ID | Staff name | 1st period | 2nd | 3rd | 4th | 5th |
| 001 | Karna | 9th | 10th |  | 8th |  |
| 002 | Arjuna |  |  | 9th | 10th | 8th |
| 003 | Krishna | 8th |  | 6th | 7th |  |
| 004 | Nakula |  | 8th |  | 6th | 7th |
| 005 | Sahadeva |  | 5th | 7th |  | 6th |

For example data sheet looks like above

If , Arjuna is not available for the last period that is 5th period we will take out all the staff list who are free in that specific period in our case it was Krishna who is free in the 5th period he will be assigned to the class 9th instead of Arjuna.

In our case only one teacher is free in that specific period

1. If any teacher takes full day leave

For suppose, if Karna takes the full day leave

First thing is to assign the 1st period that is 9th class so, it will take out the teachers who are free in the first period and then from them it will take out who teaches for 9th in our case Arjuna, Nakula , Sahadeva all three are free in the first period but only Arjuna teaches for 9th . So, he will be Assigned to that class.

If more than one person teaches for that particular class they will be randomly assigned.

But what if leaser periods are more than the teachers available who teaches for a particular class then we have to give the input of for which classes you are giving less priority and then it will neglect this classes and assign same as before.

And what if any teacher wants specific class?

I think we better not to touch this aspect if that person they will request the actually who that class has been assigned and it was totally external matter.

We can even do that here but, that teacher as to ask admin that I want this particular. why all this? she can ask directly the person to whom that class was assigned.

And here we will not maintain any datasheet for this because it is unnecessary to maintain and it has no further use. it was only generated and taken out print.

# Tables Overview