

# TIME TABLE SCHEDULER (DBMS PROJECT)

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# Introduction

- Our DBMS project is a time table scheduler that can be used by educational institutions to schedule the working hours of their faculty.
- We allow faculty members to enter the subjects they teach and their respective workloads(number of hours per day), and using the workload as a constraint, schedule the time table accordingly.
- Our scheduler also makes use of certain basic constraints while creating the timetable as well, such as:-
  - No 2 periods of the same subject in a day.
  - No 2 sections can have lab classes at the same time.
  - All sections must have their elective subject scheduled at the same slot.

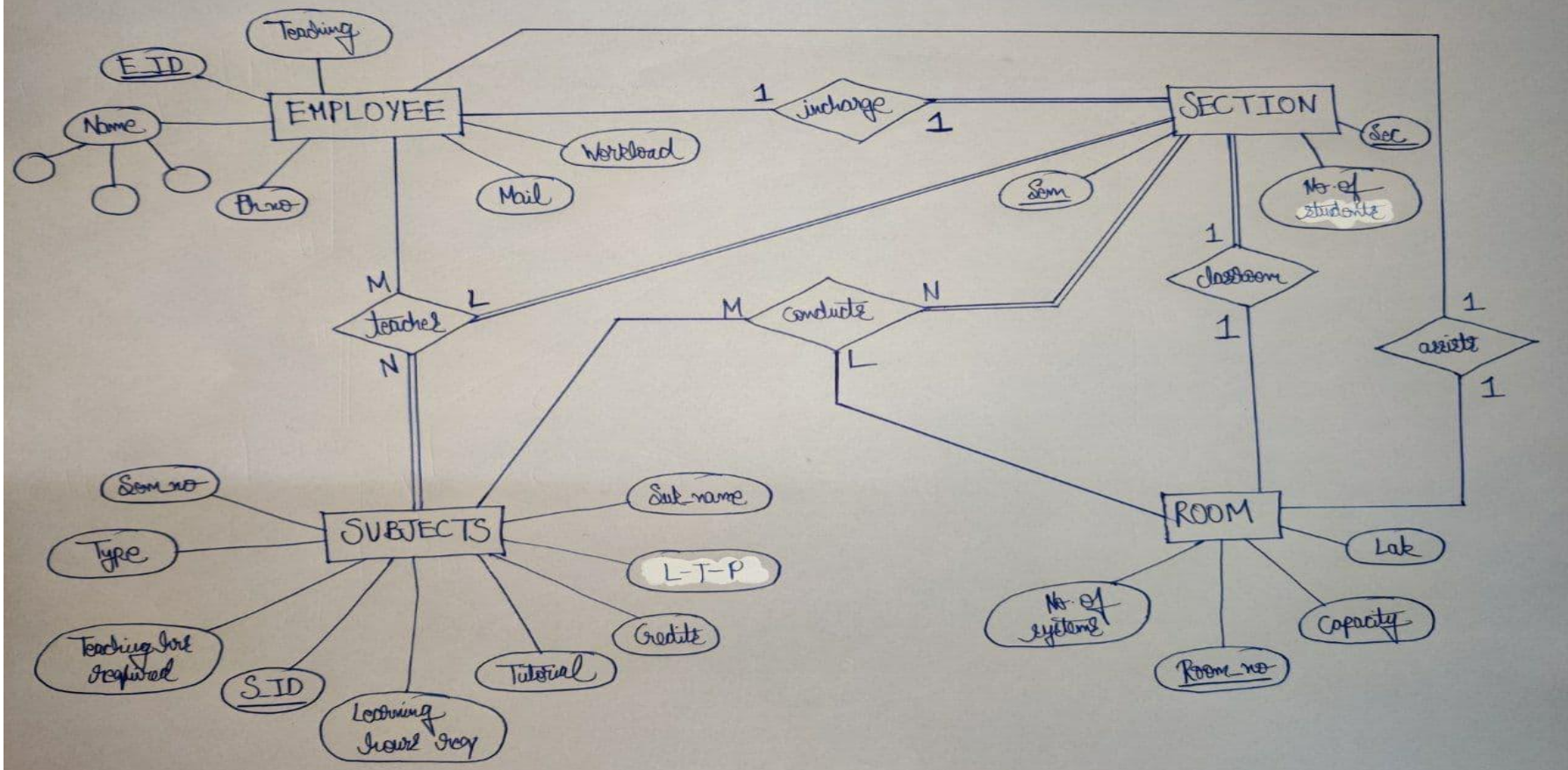
# Motivation

- Having the task of scheduling a time table handled by an application instead of having it done manually saves a lot of time and energy, and can allow the college to devote their time to more productive activities.
- It is also more effective with regards to the maintenance of consistency in the timetable(making sure electives and lab subjects are scheduled properly), as having the scheduling process automated reduces the likelihood of errors.

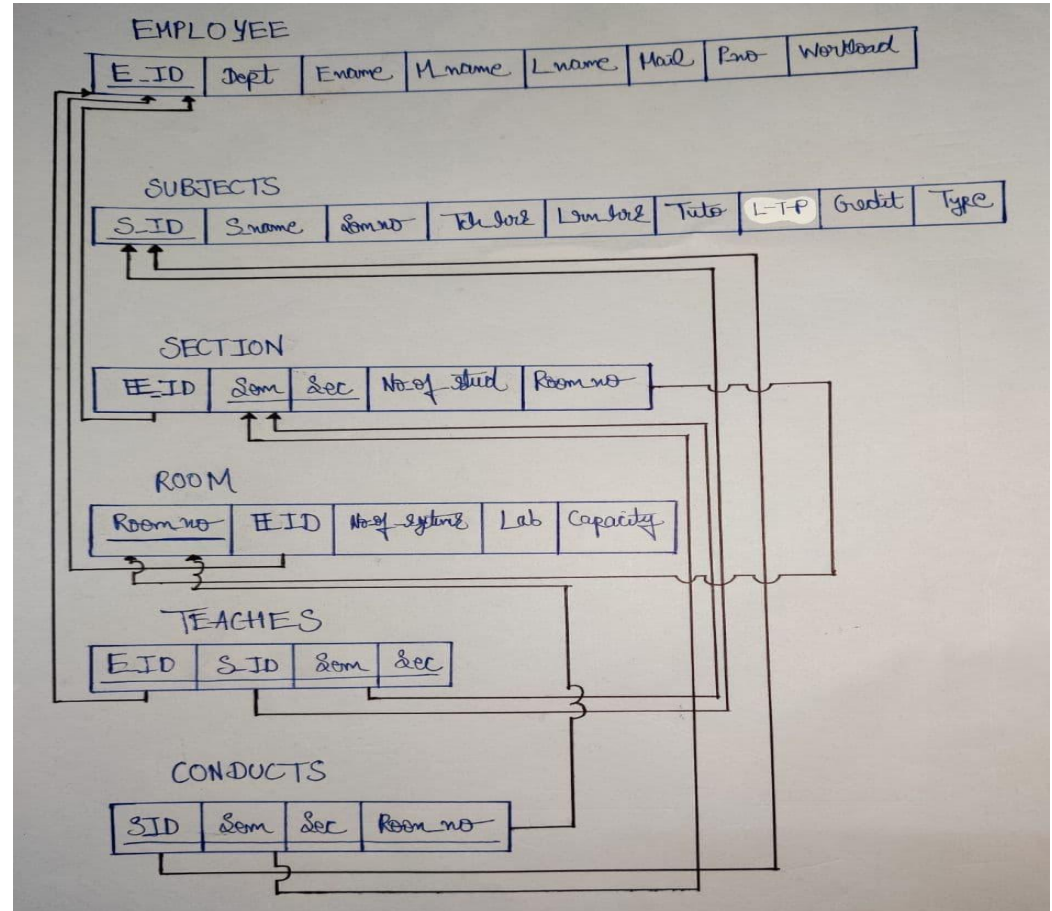
# Phases of the project

- Determining the problem requirements/ER Diagram and Schema
- Normalization
- Implementation:-
  - We used Flask to incorporate the backend of our code and for implementing our database
  - The code for our time table generation was written in python.

# ER Diagram



# Schema



# Normalization

- Functional dependencies:-
  - $EID \rightarrow \{Dept, ename, Mname, Lname, Mail, P\_no, Workload\}$
  - $S\_ID \rightarrow \{S\_ID, S\_Name, Sem\_no, Tch\_hrs, Tuts, L-T-P, Credit, Type\}$
  - $\{Sem, Sec\} \rightarrow \{EE\_ID, No\_of\_stud, Room\_no\}$
  - $\{Room\_no\} \rightarrow \{EE\_ID, No\_of\_sys, Lab, Capacity\}$
- All attributes are single valued and atomic, so the tables are in 1NF.
- There are no partial Functional dependencies in any of the tables. This is because each table has only one Functional dependency in which the primary key acts as the deciding set. Therefore, the tables are in 2NF.
- There are no transitive dependencies in any of the tables. This is because none of the non key attributes act as deciding sets in the Functional dependencies. Therefore the tables are in 3NF.
- There are no overlapping candidate keys. Therefore the tables are in BCNF.

# Demo

- Our application supports 2 kinds of accounts - one for admins and one for users.
- Both users and admins have to sign up and create accounts before they can make use of the time table scheduling application.
- After signing up, they'll have the ability to login.

**Welcome back !**

Email address

Password

☐ Remember Me

**LOGIN**

[Forgot password?](#)

Dont Have An Account? [Register](#)



## The user can signs up and will be able to edit their profile

### Join Today

Username

Email

Password

Confirm Password

**SIGN UP**

Already Have An Account? [Sign In](#)

Hi, kabir

[Log Out](#)

### Edit Profile

Username

Email

First Name

Middle Name

Last Name

Job Type

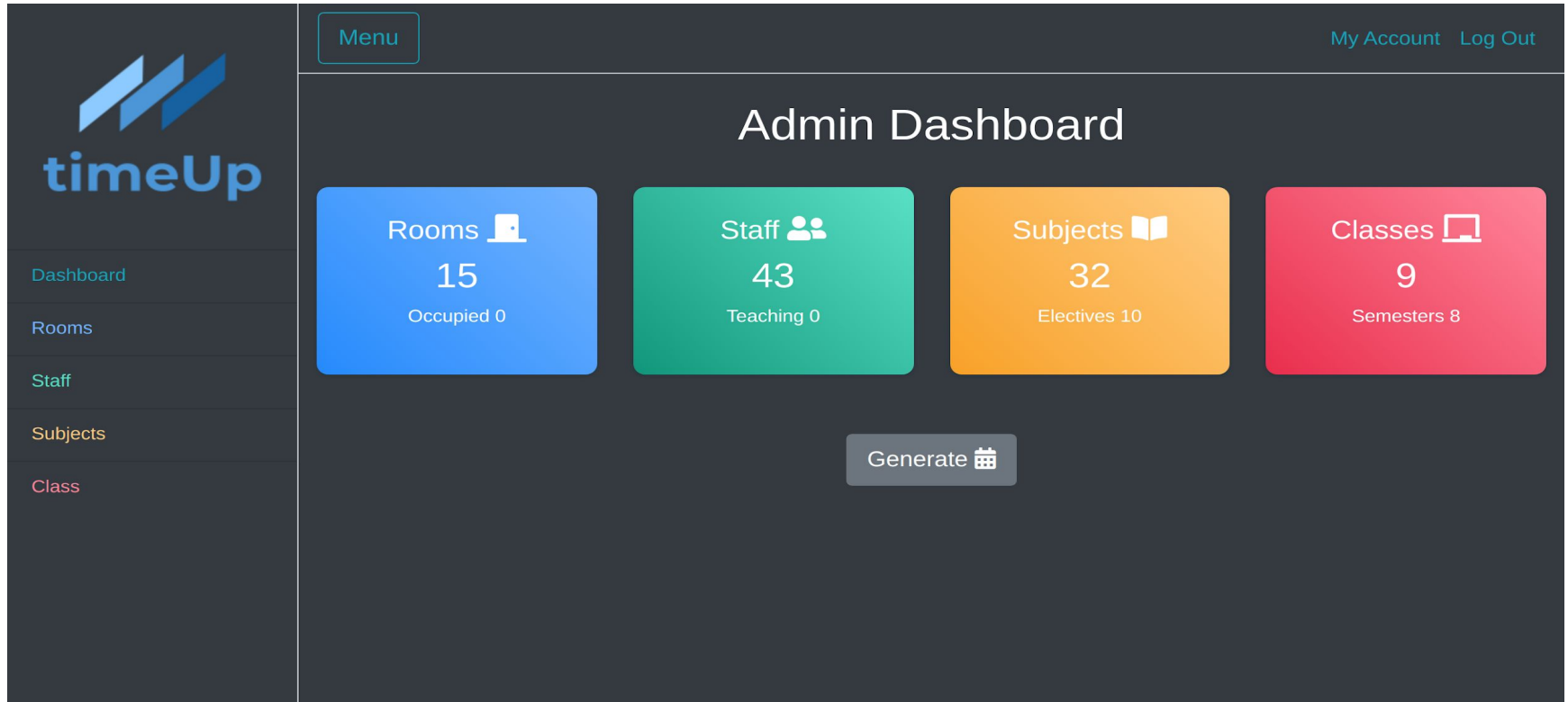


Workload (hrs)

Ph.No

**SAVE**

This is what the application's admin dashboard looks like after login




On click of the generate button, a timetable is generated as a HTML document which could be later printed as a PDF

## TIMETABLE


### TIMETABLE FOR 3A

Day/Period	I 8:45-9:45	II 9:55-10:55	III 10:55-11:55	IV 11:55-12:55	V 1:30-2:30	VI 2:30-3:30	VII 3:30-4:15
Mon	M3	DD	M3	DS	DD	CO	None
Tue	CO	DD	M3	Elec	DD	DMS	None
Wed	Lab	Lab	Lab	Lab	CO	DS	None
Thu	Elec	M3	DMS	DS	DMS	CO	None
Fri	CO	DS	DMS	Elec	Lab	Lab	None
Sat	DS	DMS	M3	DD	None	None	None

Below is the Staff page, which lists the admin a set of all users/employees signed up to the application

 <div>timeUp</div> <div>Dashboard</div> <div>Rooms</div> <div>Staff</div> <div>Subjects</div> <div>Class</div>	<div>Menu</div> <div>My Account Log Out</div>					
	Staff					
	Name	Email	Phone No.	Type	Workload (Hrs)	Subjects (Class) Assign
	None None	ranjan@mail.com	None	None	None	+
	None None	kabir@office.com	None	None	None	+
	Aditya Shastry	adityashastry@nmit.ac.in	9845803629	Teaching	20	ML (7A) +
	Administrative Manager	admin@admin.com	6363027319	Non-teaching	20	N/A N/A
	Akhil Ghosh	akhil@dada.com	1862916212	Teaching	7	+
	Akshath Nayak	akshathanayak@nmit.ac.in	8310539331	Teaching	20	Hybrid Java Lab (5A) SPM (7C) +
	Akshatha C	akshathagc@nmit.ac.in	-	Teaching	20	DS Lab (3B) OS (5A) +

## Admin gets to assign users(teachers) subjects and classes



Menu

My Account Log Out

Dashboard

Rooms

Staff

Subjects

Class

Subjects & Class

Select a subject and class to assign to None None


Subject

DS

Class

3A

ASSIGN



[Dashboard](#)
[Rooms](#)
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[Class](#)

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[My Account](#)
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## Rooms

Room	Capacity	Incharge	Lab	Systems	Edit	Delete
265	80	+	No	N/A		
266	80	+	No	N/A		
267	80	+	No	N/A		
268	80	+	No	N/A		
269	80	+	No	N/A		
271	80	+	No	N/A		
277	80	+	No	N/A		
278	80	+	No	N/A		
279	80	+	No	N/A		
263	30	+	Yes	30		
264	30	+	Yes	30		
273	40	+	Yes	40		
274	40	+	Yes	40		
315	30	+	Yes	30		
375	40	+	Yes	40		

+ Add Room

Entering Room details

[Menu](#)
[My Account](#)
[Log Out](#)

## Edit Room

Room No.

Capacity


Lab ?
☐

No. of systems

SUBMIT

Editing room details

## Admin assigns some each room an incharge from all the faculties



Menu

My Account Log Out

Dashboard

Rooms

Staff

Subjects


Class

Incharge

Staff

Akhil

















ASSIGN



Menu

My Account Log Out

## Subjects

Name	Type	Teaching Hours	Learning Hours	Credits	Edit	Delete
DS	C	45	45	4		
DMS	C	45	45	4		
M3	C	60	70	4		
CO	C	50	65	4		
DD	C	65	75	4		
DS Lab	C	20	20	1		
DD Lab	C	20	20	1		
UNIX Lab	C	20	20	1		

Dashboard

Rooms

Staff

Subjects

Class

Entering subject details

Menu

My Account Log Out

## Edit Subject

Name

Type

Core

Teaching hours


Learning hours

Credits

SUBMIT

Editing subject details









[Dashboard](#)
[Rooms](#)
[Staff](#)
[Subjects](#)
[Class](#)

Menu

My Account Log Out

Classes

Class	Strength	Subjects	Room	Edit	Delete
3A	75	M3	265		
		DMS			
		DS			
		CO			
		DD			
		UNIX Lab			
		DS Lab			
		DD Lab			
		+			
3B	70	M3	266		
		DMS			
		DS			

Entering class details

Menu

My Account Log Out

Edit Class

Class

Class strength

SUBMIT

Editing class details

## Admin is also given options to edit their profile

Menu

### My Account

Username	<input type="text" value="Admin"/>
Email	<input type="text" value="admin@admin.com"/>
First Name	<input type="text" value="Administr"/>
Middle Name	<input type="text" value="-"/>
Last Name	<input type="text" value="Manager"/>
Job Type	<input type="text" value="Non-teaching"/>
Workload (hrs)	<input type="text" value="20"/>
Ph.No	<input type="text" value="6363027319"/>

SAVE

**Thank You**