

PROBLEM STATEMENT FOR THE DBMS MINOR PROJECT

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Need for Project Management System:

- 1.) A Database Management System for keeping track of all research projects in IIT Indore. (Currently, the RnD Department is manually maintaining all records in excel sheets.)
- 2.) All the PIs should be able to view the details of their research projects(all of them) especially financial information.
- 3.) The PIs can only view the information, not edit it.
- 4.) No particular PI shall be able to view the information regarding projects of others.
- 5.) The officials of RnD department should be able to add new data and edit the existing ones whenever required.
- 6.) Once the project is over, the information about the project would still exist in database for future references though no one can be able to edit it.
- 7.) All the PIs can keep the track of expenditure on their projects out of total budget allocated on a regular basis.
- 8.) This refrains them from unknowingly exceeding the budget allocated and also keep them informed about financial updates.

Users Of The System:

- 1.) There are two types of users: PIs and RnD Officials.
- 2.) The RnD officials will be able to edit the Database whereas PIs shall only view the certain portion of database.

Creating An Account:

- 1.) Any faculty can create his/her account by signing up.
- 2.) This includes filling details : username, email Id, Password for his/her login.

- 3.) The person can now sign in using his/her account username and password and can directly view their project data.

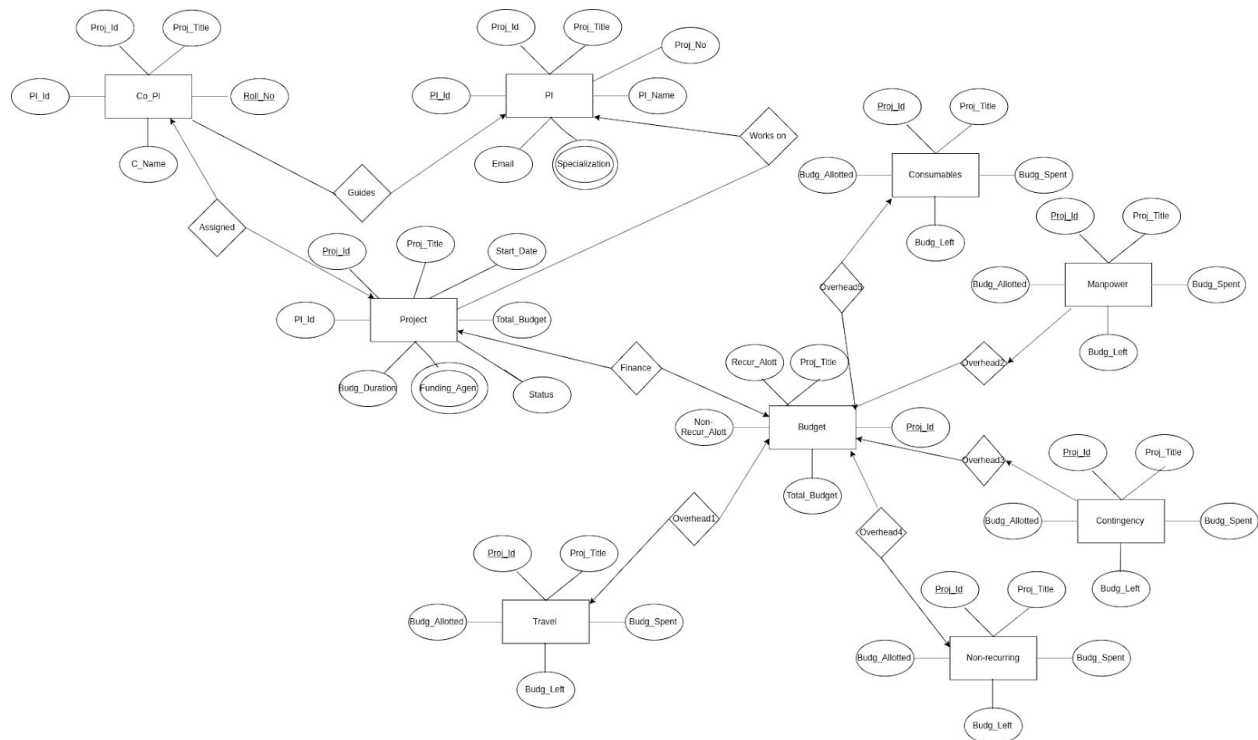
View Information:

- 1.) The PI can view his/her ongoing as well as completed project details on the website.
- 2.) The financial expenses can also be viewed. It will include the total budget allotted to the project and the budget left on recurring as well as non-recurring expenses.
- 3.) The R and D department officials have view and edit access for all the projects ongoing and completed.

Edit Information:

- 1.) There are two types of expenses which have already been allotted by the funding agency : Recurring and Non-Recurring expenses.
- 2.) Recurring expenses are further categorized into : contingency , consumables , manpower, travel expenses.
- 3.) The RnD department will edit the budget in the contingency , consumables , manpower, travel and non-recurring columns as per the expenditure.
- 4.) The budget left will be updated in the columns and thus be displayed accordingly.
- 5.) Also, the officials of RnD department will be able to add new projects under any faculty.
- 6.) They can also edit the status of project and once changed from ongoing to complete, the project will no longer be editable.

ER DIAGRAM :



ENTITY SETS :

- PI (Principal Investigator : Faculty)
- Co-PI(PhD Students)
- Budget
- Non-recurring expenses
- Contingency Expense (Type of Recurring expense)
- Consumable Expense (Type of Recurring expense)
- Manpower Expense (Type of Recurring expense)
- Travel Expense (Type of Recurring expense)
- Project

ENTITY RELATIONSHIPS:

- Guides (PI - Co-PI)
- Works on (Project - PI)
- Assigned (Project - CoPI)
- Finance(Project - Budget)
- Overhead1(Travel - Budget)
- Overhead2(Manpower - Budget)
- Overhead3(Contingency - Budget)
- Overhead4(Non-Recurring - Budget)

- Overhead5(Consumables - Budget)

MAPPING CARDINALITIES:

- Guides (PI - Co-PI) (One to Many)
- Works on (Project - PI) (Many to One)
- Assigned (Project - CoPI) (One to One)
- Finance(Project - Budget) (One to One)
- Overhead1(Travel - Budget) (One to One)
- Overhead2(Manpower - Budget) (One to One)
- Overhead3(Contingency - Budget) (One to One)
- Overhead4(Non-Recurring - Budget) (One to One)
- Overhead5(Consumables - Budget) (One to One)

FUNCTIONAL DEPENDENCIES / CONSTRAINTS:

- 1.) PI: (PI_Id) --> (PI_Name,Email, Proj_No.,Specialization, Proj_Title)
- 2.) Co_PI: (Roll_No.) --> (PI_Id, C_Name)
- 3.) Projects: (Proj_Id) --> (Proj_Title, Total_Budget, Start_Date, Funding_Agency)
- 4.) Budget: (Proj_Id) --> (Proj_Title, Total_Budget, Recur_Alott, Non-Recur_Alott)
- 5.) Manpower: (Proj_Id) --> (Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)
- 6.) Non-Recurring: (Proj_Id) --> (Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)
- 7.) Contingency: (Proj_Id) --> (Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)
- 8.) Consumables (Proj_Id) --> (Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)
- 9.) Travel: (Proj_Id) --> (Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)

TABLES:

- 1) PI(PI_Id, Proj_Id, Proj_title, PI_Name, Specialization, Email)

- 2) Co-PI(Roll_No, C_Name, PI_Id, Proj_title, Proj_Id)
- 3) Projects(Proj_Id, Proj_title, PI_Id, Start_date, Total_budget, funding_agency, status, Budg_duration)
- 4) Budget(Proj_Id, Proj_title, Total_budget, Recurr_allot, Non_Recurr_allot)
- 5) Travel(Proj_Id, Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)
- 6) ManPower(Proj_Id, Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)
- 7) Contingency(Proj_Id, Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)
- 8) Consumables(Proj_Id, Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)
- 9) Non-Recurring(Proj_Id, Proj_Title, Budg_Allotted, Budg_Spent, Budg_Left)

SOFTWARE TOOL SPECIFICATION:

XAMPP XAMPP is an easy to install Apache distribution containing MySQL, PHP, and Perl. XAMPP is really very easy to install and to use - just download, extract and start. XAMPP for Windows The distribution for Windows 2000, 2003, XP, Vista, 7 and 8. This version contains: Apache, MySQL, PHP + PEAR, Perl, mod_php, mod_perl, mod_ssl, OpenSSL phpMyAdmin,

TECHNOLOGY STACK:

- Apache 2.4.4
- MySQL 5.5.32
- PHP 5.4.16
- phpMyAdmin 4.0.4

SOFTWARE REQUIREMENT:

Operating System: No particular OS required because PHP is platform-independent.
Software: XAMPP, MySQL

PROGRAMMING LANGUAGES:

1. HTML
2. CSS
3. PHP
4. MySQL
5. Bootstrap

TRANSFORMATION OF E-R DIAGRAMS INTO SET OF TABLES:

```
CREATE TABLE PI(  
PI_Id int PRIMARY KEY;  
Proj_Id int NOT NULL;  
Proj_Title varchar[255] NOT NULL;  
Proj_No. Int NOT NULL;  
PI_Name varchar[255] NOT NULL;  
Email varchar[255] NOT NULL;  
Specialization varchar[255] NOT NULL;  
);
```

```
CREATE TABLE Co-PI(  
PI_Id int NOT NULL;  
Proj_Id int NOT NULL;  
Proj_Title varchar[255] NOT NULL;  
Roll_No. Int PRIMARY KEY;  
C_Name varchar[255] NOT NULL;  
);
```

```
CREATE TABLE Project(  
PI_Id int NOT NULL;  
Proj_Id int PRIMARY KEY;  
Proj_Title varchar[255] NOT NULL;  
Start_Date date;  
Budg_Duration varchar[255];  
Total_Budget int NOT NULL;  
Funding_Agency varchar[255] NOT NULL;  
Status varchar[255] NOT NULL;  
);
```

```
CREATE TABLE Budget(  
Proj_Id int PRIMARY KEY;  
Proj_Title varchar[255] NOT NULL;  
Recur_Alott int;  
Non-Recur_Alott int;  
Total_Budget int NOT NULL;  
);
```

```
CREATE TABLE Travel(  

```

```
Proj_Id int PRIMARY KEY;  
Proj_Title varchar[255] NOT NULL;  
Budg_Allotted int NOT NULL;  
Budg_Spent int NOT NULL;  
Budg_Left int NOT NULL;  
);
```

```
CREATE TABLE Contingency(  
Proj_Id int PRIMARY KEY;  
Proj_Title varchar[255] NOT NULL;  
Budg_Allotted int NOT NULL;  
Budg_Spent int NOT NULL;  
Budg_Left int NOT NULL;  
);
```

```
CREATE TABLE Manpower(  
Proj_Id int PRIMARY KEY;  
Proj_Title varchar[255] NOT NULL;  
Budg_Allotted int NOT NULL;  
Budg_Spent int NOT NULL;  
Budg_Left int NOT NULL;  
);
```

```
CREATE TABLE Consumables(  
Proj_Id int PRIMARY KEY;  
Proj_Title varchar[255] NOT NULL;  
Budg_Allotted int NOT NULL;  
Budg_Spent int NOT NULL;  
Budg_Left int NOT NULL;  
);
```

```
CREATE TABLE Non-recurring(  
Proj_Id int PRIMARY KEY;  
Proj_Title varchar[255] NOT NULL;  
Budg_Allotted int NOT NULL;  
Budg_Spent int NOT NULL;  
Budg_Left int NOT NULL;  
);
```

MySQL Trigger Implementation:

```
CREATE TRIGGER consumables AFTER UPDATE ON Consumables FOR EACH
ROW SET new.Budg_Left=new.Budg_Allotted-new.Budg_Spent;
CREATE TRIGGER contingency AFTER UPDATE ON Contingency FOR EACH ROW
SET new.Budg_Left=new.Budg_Allotted-new.Budg_Spent;
CREATE TRIGGER travel AFTER UPDATE ON Travel FOR EACH ROW SET
new.Budg_Left=new.Budg_Allotted-new.Budg_Spent;
CREATE TRIGGER manpower AFTER UPDATE ON Manpower FOR EACH ROW SET
new.Budg_Left=new.Budg_Allotted-new.Budg_Spent;
CREATE TRIGGER nonrecur AFTER UPDATE ON NonRecurring FOR EACH ROW
SET new.Budg_Left=new.Budg_Allotted-new.Budg_Spent;
```


Home page



Other pages :



IIT INDORE RESEARCH PROJECTS
Welcome aditi1178@gmail.com
Ongong Projects

Save

Project ID

Status Change to

Add a new Project

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RECURRING BUDGET DETAILS

Edit

Back

Proj Title CSE	Proj_Id 1	Contingency Budg_Alloted 2000000	Budg_Spent 1000	Budg_Left 1999000
Proj Title CSE	Proj_Id 1	Consumables Budg_Alloted 1000000	Budg_Spent 10001	Budg_Left 999999
Proj Title CSE	Proj_Id 1	Manpower Budg_Alloted 2000000	Budg_Spent 1000	Budg_Left 1999000
Proj Title CSE	Proj_Id 1	Travel Budg_Alloted 1000000	Budg_Spent 1000	Budg_Left 999000

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RECURRING BUDGET DETAILS

Save

Contingency

Project ID

Budget Spent

Consumables

Project ID

Budget Spent

Manpower

Project ID

Budget Spent

Travel

Project ID

Budget Spent

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NON-RECURRING BUDGET DETAILS

Edit

Back

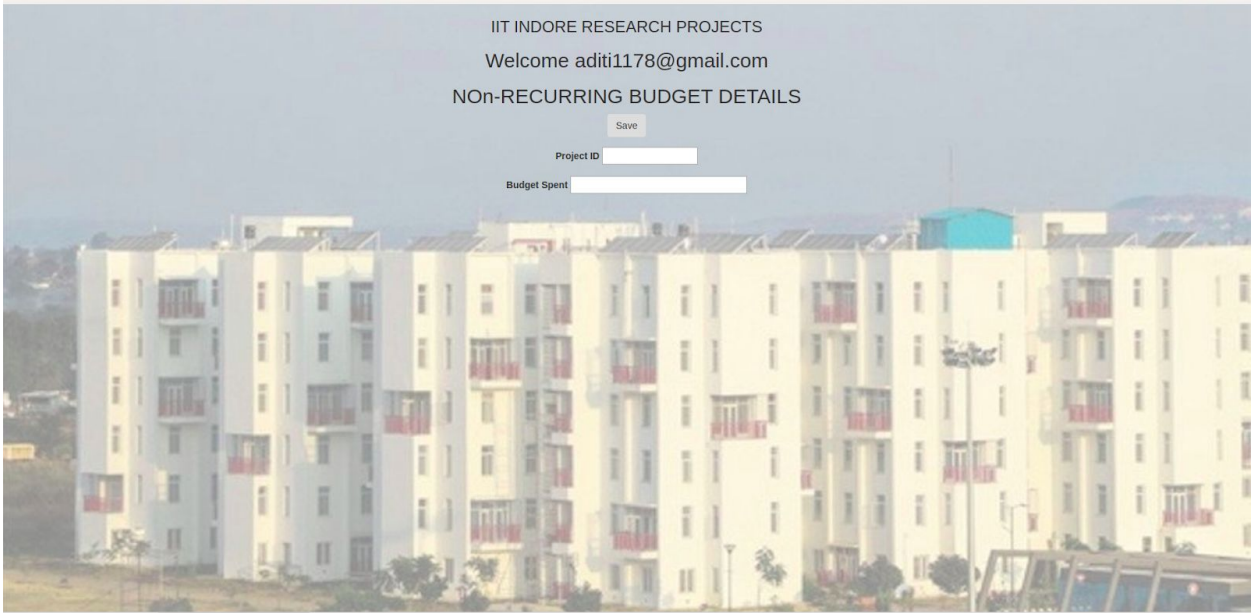
Proj_Title	Proj_Id	Budg_Alloted	Budg_Spent	Budg_Left
CSE	1	4000000	2000000	2000000

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Non-RECURRING BUDGET DETAILS

Save

Project ID

Budget Spent



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TOTAL BUDGET DETAILS

Back

Proj_Title	Proj_Id	Total_Budg	Recur_Allott	Non-Recur_Allott
Biometric Research and Fingerprint recognition	1	10000000	6000000	4000000



ADD A NEW PROJECT

Project Title Project ID Start date Total Budget Funding agency

Budget Duration Status(Ongoing or Completed) PI ID

Total Budget

Project Title Project ID Total Budget Recurring Allotted Non-Recurring Allotted

Consumables

Project Title Project ID Budget Allotted

Budget Spent/label> Budget Left

Contingency

Project Title Project ID Budget Allotted

Budget Spent/label> Budget Left

Manpower

Project Title Project ID Budget Allotted

Budget Spent/label> Budget Left

Travel

Project Title Project ID Budget Allotted Budget Spent Budget Left

Thank You