

Project List

Instructions:

- 1. This is a group assignment*
- 2. Implement the project assigned to your group*
- 3. The system should be web based. Implement it using PHP, MySQL and web server stack like XAMP, WAMP, etc.*
- 4. Copying is strictly prohibited. Any case of copying will automatically result in F for the whole course, irrespective of your performance in the other parts of the lab.*
- 5. Each project carries equal weightage (Marks: 100)*
- 6. Deadline of Submission: 1st May 2019*

The following study material may help you to understand the basics of PHP and MySQL

Books:

- Luke Welling & Laura Thomson, PHP and MySQL Web Development, Addison-Wesley Professional, (Pearson Education, Inc.).
- W. Jason Gilmore, Beginning PHP and MySQL From Novice to Professional, Apress

Web material:

https://www.tutorialspoint.com/php/php_and_mysql.htm

- 1. Web services for M Tech in Data Science at IITG:** IIT Guwahati is going to offer M Tech in Data Science. The course is interdisciplinary and initiated jointly by CSE, EEE, and Math departments. For running the course independently, it has been decided that the course management and its admission procedure will be controlled separately from the central system of IITG. Design a system for this, keeping the following aspects in mind.
 - a. There are two sections: Admission, and Course management. The admission section is for taking care of admission procedure whereas the course management section is for various supportive activities for running the course smoothly.
 - b. There will be 4 types of users: Faculty, Staff, Existing Student, and Applicant.
 - c. Activities of admission section:
 - i. Publishing advertisement for admission.
 - ii. Online application (criteria: applicants should have graduation degree either from the CSE, ECE, EE or Math department, having a valid GATE score). Candidate should get a unique application number after filling up an online application form.
 - iii. Scrutinizing the candidates based on the above mentioned criteria, shortlisting the candidates based on the GATE score, publishing the name with the application number of the candidates. Note that these should be done automatically by the system without any human-intervention.
 - iv. Registration of the selected students.
 - d. Activities of course management section:
 - i. Uploading assignments,
 - ii. Uploading notices, and
 - iii. Publishing examination results and sending it to the academic section of the institute.
 - e. Faculty members are allowed to perform the following

- i. Publishing advertisement for admission,
 - ii. Design, edit and deploy the application form,
 - iii. Uploading assignments, and
 - iv. Uploading notices,
- f. Staff members are allowed to perform the following
 - i. Publishing advertisement for admission,
 - ii. Uploading notices,
 - iii. Registration, and
 - iv. Sending results to the academic section for grade card.
- g. Existing students are allowed to perform the following
 - i. View notices,
 - ii. View assignments, and
 - iii. Download grade cards.
- h. Candidates interested to take admission are allowed to perform the following
 - i. View advertisement for admission,
 - ii. Apply online, and
 - iii. View the selected candidates for taking admission.
- i. Secure 'sign-in' is required for all the categories of users except the applicants.
- j. Other assumptions
 - i. There are currently 20 seats for the course,
 - ii. Fixed courses are there for the students for individual semesters,
 - iii. A dummy academic section.

2. Room Delivery Service of Tea/Snacks: Suppose the tea stall of IITG Core-II is planning for "room delivery" service for the CSE, EEE, and DD faculty members and students. Implement the system keeping the following aspects in mind.

- a. A person can order tea, coffee, cookies, snacks etc., from a list of items online mentioning her/his lab/room. Secure 'log-in' is required.
- b. Availability and expected time for delivery will be shown instantly after the order is placed.
- c. Assume that
 - i. Tea/coffee should never be unavailable.
 - ii. Time required to prepare a cup of tea/coffee is 1 minute.
 - iii. Time required to deliver the order is 2 minutes.
 - iv. Stock of cookies, snacks, packaged food etc. is limited (e.g., 100 packets). When stock reaches its minimum threshold value (e.g., 10), that item should be enlisted to the purchase list to maintain the stock.
 - v. Multiple customers can place order at the same time.
 - vi. All the items for a particular order should be delivered together.
 - vii. Order should be delivered in FCFS manner.
 - viii. For the time being, it is not required to think about the actual payment process for the orders.
- d. An invoice should be generated mentioning the order details with price. Name of the customer and their id number should also be there in the invoice.
- e. The owner of the stall can view the queue of orders, so that accordingly s/he can ask his workers to deliver the item in time.
- f. A sales list should be prepared with date, name of the customer, item, rate, quantity, and price. The total amount of sales (daily, monthly and for a particular period) should also be prepared.

- g. The owner can view the purchase list anytime. After purchasing the items s/he can update the amount for the list of available items. S/he can also add new items in the list. Secure 'log-in' is required.

3. Municipality Grievance Redressal Automation: The Guwahati Municipal Corporation (GMC) wants to provide the best possible services to its people. However there has been a growing consensus that the corporation is not able to redress the grievances of the people. So, the concerned authority decided to automate the grievance redressal system for transparent and prompt service. You are hired to develop the automation system. The concerned administrative officer specified the following requirement for the system:

- a. The system has three types of users: citizen, field engineer and supervisor. A citizen can register a complaint and track it. A field engineer approves tasks and issues task completion certificate. A supervisor approves task (finally), issues sanction order and approves task completion certificate.
- b. There are three departments of the corporation: Water Supply, Road Management, and Sewage & Waste Management.
- c. There are a limited number of workers for each of the three departments. Workers of a department can be assigned to a task of that department only.
- d. For a complaint, the citizen has to select a complaint from a list of complaints related to a department. Each type of complaint has a predefined number of workers required. If a task is allotted, the predefined number of workers will be assigned for the task from the pool of workers. The following is the complaint list.

Department	Complaint	No. of Workers
Water Supply	Pipeline Blockage	5
	Pipeline Leakage	3
Road Management	Potholes	7
	Cleaning	3
	Reconstruction	20
	Speed breaker	5
Sewage & Waste Management	Manhole	5
	Drainage Leakage	10
	Drainage Cleaning	7
	Drainage Repair	10
	Dead Animal	4
	Dustbin installation	6

- e. The complaint is registered with a serial number on First Come First Serve basis. A registered complaint is approved by the field engineer and then by the supervisor. Once the supervisor approves the task, it will be allotted by the system only if sufficient

- f. After the task is completed, the field engineer approves the task completion and the system issues a task completion certificate (just generate a task completion certificate number). The supervisor approves the task completion certificate finally. Once the task completion is finally approved the assigned number of workers will be free and added to the pool. Then tasks in the queue will be served if possible.

- a. There are three types of users: citizen, ASI (Assistant Sub Inspector) and SI (Sub Inspector). Citizen can register their complaint, download FIR and track the investigation; ASI receives the complaint and approves it; SI accepts a FIR and submits primary report
- b. The citizen enters the following details for the FIR:
 - i. Name
 - ii. Age
 - iii. Address
 - iv. Date and time of Incident
 - v. Complaint
- c. The FIR should be auto generated after the approval of the ASI. The FIR should be in the following format

First Investigation Report		No:
Name:		
Age:		
Address:		
Complaint:		
Section:		
Date of Incidence:	Time:	
Date of Registration:	Time:	

- d. The system will auto generate a number for the FIR. A Complaint will be a predefined list from which a citizen can select. (eg. Attempt to murder, theft, domestic violence, etc) and the system will automatically map the complaint to a section (eg. 344, 304, etc.) and category (murder, theft & robbery, domestic affairs, etc.) [eg. The complaint 'domestic violence' will be categorized as 'domestic affairs']
 - e. Under each category of crime, there is one or more SI. Any complaint of a crime category will be allotted automatically to an SI of that category only.
 - f. The citizen can also track the status of the FIR process
 - g. The status of the FIR process is updated by the SI. Once the primary report is generated (no need to generate any document. Just set a message of report generation), The FIR process is completed.
5. **Research Conclave 2020:** The research conclave of IITG is organized every year. The organizers are facing difficulties as all communications are made through email service, where it is very difficult to track the process. Build an online system taking the following constraints into consideration.
- a. There are 4 types of users: faculty convener, student convener, reviewer and participant.
 - b. Each user should have username and password.
 - c. The notice regarding the event details can be posted by faculty convener or student convener. After the notice is posted, every user can see the notice including the non-participants.
 - d. Consider there are two types of events: Poster presentation and Oral presentation.
 - e. Each participant has to send a file consisting of abstract and technical details which will be reviewed by a panel of reviewers.
 - f. While submitting the abstract, the title of the abstract, name of participant, email id and file upload option should have to be there. One dropdown menu should have to be there for types of events.
 - g. There will be a start and end date for submitting Abstracts for the events.
 - h. After the begin date only the participants can submit their abstracts.
 - i. The system should add topic wise abstract numbering e.g. Poster001
 - j. Two categories of reviewers are there according to the event name.
 - k. After last date, the student convener assigns each abstract to two reviewers, but it needs approval from the faculty convener. More than one abstracts may be assigned to one reviewer.
 - l. A report needs to be generated about the assigned abstracts to the reviewer, which will be only visible to student convener and faculty convener.
 - m. While the student convener assigns an abstract to the reviewer, the list of reviewer should have to be shown the dropdown menu.
 - n. The reviewer assigns grade out of 10 to the received abstracts.
 - o. When both the reviewers submit their grades, the average of the two grades is shown to the faculty convener only.
 - p. After completion of the review process, the list of students and topics should have to be generated and published to all users.
 - q. Information of all the users should have to be stored in the database.
6. **IITG Hostel Mess Rating System:** You are given the task to develop a web-based IITG hostel mess rating system. The system automatically provides ratings for a mess considering the feedbacks of the students (sentiment analysis). Consider the following specifications for the system:

- a.** There are three types of users: students, administrator and mess manager. Students can provide feedback, choose mess for the upcoming month and view mess ratings. Administrator can add/remove users, update/add hostel mess, add/ remove keywords to/from database. The mess manager can view ratings of all messes and view message/notice.
- b.** For each month, a student can provide his/her feedback for the mess in which s/he is subscribed.
- c.** A list of keywords and their positivity/ negativity weights have to be stored in the database. The keywords of the feedback have to be matched with these keywords to find out the rating (This should be done by the system automatically). Consider the rating to be in a scale of your choice (eg. -5 to 5; 0 to 10, etc.). Also fix a set of keywords and map each keyword to a specific rating point (eg. excellent is mapped to 5; worst is mapped to -5). If multiple keywords are encountered in the feedback, calculate the rating based on the average of all the rating points corresponding to those keywords. The overall rating of a mess is the average of all the individual ratings of that mess.
- d.** A monthly report consisting of the overall ratings of all the messes needs to be published. This can be accessible by students and mess managers.
- e.** If the overall rating of a mess is poor, then a 'show cause' notice would be sent to the mess manager of that mess.