TERM PROJECT

August, 2024

1   TERM PROJECT STEPS

1. Think of a real-world application and come up with the right name for the application.

    Ex: (a) Learning Management System (LMS)
    (b) Health Care System (for IIT Guwahati users)

2. Requirement Analysis: Describe the requirements of your project in detail in plain English. The requirement analysis is usually prepared by interacting with users. Since we do not have this step, you must read documents to understand the system.

3. Capture the requirement in an ER diagram, including constraints (if any).

4. Convert the ER diagram into relations (tables) complete with keys, constraints etc.

5. Create the relational design.

6. Design the front end. You need to understand the queries that users may want to ask and design your system accordingly.

7. Fine-tuning and security

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2   List of Projects

1. Learning Management System

2. Health Care System

3. Portal for buying and selling – For buying and selling pre-owned products. Allow search for specific products to prospective buyers

4. Fitness Portal – Users feed in their personal data and requirement. The portal comes up with a fitness regime and diet plan.

5. Placement portal – Companies and students can register. The portal will show students the companies they are eligible to apply. Provide various placement statistics

6. Online volunteering services - A platform where people can freely join as a volunteer and render their services.Those people who need help, they can get services from the volunteers by registering in the platform.

7. Peer-to-Peer (P2P) Lending: Connects verified borrowers seeking loan (at low-interest rates compare to banks,quick and hassle-free service,no prepayment penalty) with investors looking to earn higher returns on theirinvestments.

8. Event Management System: A centralised system which gives schedule of different events happening around the campus with detailed description ofeach

events (for example: seminars, conferences, guest lectures, etc). The system will also allow organizers to book rooms, statistics of sponsors for an event, etc.

9. Online election system: A centralized system which allows candidates to nominate themselves as candidates till a given deadline, allots them with candidate numbers/logos, allows them to campaign for themselves using short videos. It also schedules election timings and allows registered students to vote for the nominated candidates within a certain timeframe. The system also keeps track of the number of votes and publishes results after the stipulated voting period.

10. Parking management: A centralized system that will keep track of the area of parking spot available. Allow vehicle owners to register their vehicles (mentioning size and type). System divides available parking area accordingly and assigns nearest available parking spot to registered vehicles according to the destination location and area required to park the vehicle.

11. Platform for conducting Spardha: A platform which allows the institute to organize the sports meet Spardha. It allows registered students of the institute to login and register for individual/team events. It also schedules matches and locations where the matches will be conducted. It also keeps track of the scores and declares the result after all the matches of a certain game has been conducted.

12. Hostel Allocation: Keeps track of the room allocation of students of the institute. Also keeps track of the available rooms and allocate every new student with a room when they first arrive on campus. Room changes, complaints regarding issues in the allocated room are also kept track of by this platform.

13. Gym timings: The institute gym remains open for a certain interval of time. This platform will take into account the student's preferable timeslot, available equipment, equipment required by the student, and will accordingly allocate a gym timeslot for the student. Bookings for slots on a particular day begins 24hrs prior to the slot. In case a slot remains unbooked, it can be booked during the slot as well.

14. Vehicle rent system: A centralized system that keeps track of vehicles for a certain rental company. Any person wishing to rent a vehicle from the company, must first register himself/herself with the platform by providing proper identity proof. Then the user needs to fill in the details of his/her requirement; according to which he/she will be allocated a vehicle according to the requirements.

15. Bus service management: A transportation management system for the institute which will keep track of the number of buses that the institute has and schedules buses along particular routes. It will keep into account the traffic congestion and passenger load while scheduling buses. A student needs to register with the portal and book tickets online for availing the bus service.

3   Projects Description

1.1   Learning Management System (LMS)

An LMS is a software for delivering, tracking and managing training. They can have several features such as managing courses, users and their roles; assessment; user feedback and so on. In this project, we will develop the feature for evaluation. The project will have at least three primary modules:

1. **Quiz module:** In the quiz module, an instructor should be able to set different question types: multiple-choice, true-false, short answers and others. The quiz should allow multiple attempts and immediate grading. The aim is to use this module for pop-up quizzes during an ongoing lecture. The submissions made by the students will be recorded in the database.

2. **Assignment module:** This module will allow instructors to set various assignments and due dates. The students are then permitted to upload their assignments in specified formats (.pdf, .txt, .ppt, etc.). Late submissions are not allowed.

3. **Survey module:** The survey module will allow an instructor to have in-line surveys during an ongoing lecture. For example, "Whether we should have a quiz next week?". Students should be able to record their responses and the survey response should be immediately available.

1.2   Health Care System

In this project, we try to automate the process involved in a dispensary, such as that of IIT Guwahati. It will have at least four modules.

1. **Admin module:** This module will manage the different users and assigna role to the users – doctors, patient etc. Setup up appointment with the doctor; cancel appointment etc

2. **Doctor:** Each registered doctor will have a profile which will includename, specialization, college/institute etc. The doctors will indicate their availability (Monday, first half). Based onthis information, the admin will prepare a roster.

    Doctors can check the medical history of a patient. Record the information related to the current diagnosis including medicines prescribed

3. **Patient:** A patient need to first register itself to the system. While registration, the patient will record its name, employee id/roll number, department, previous medical history.

4. **Staff:** This module will contain information about all the medical staff as well as non-medical staff. The medical staff include nurse, lab technician, etc. The non-medical staff include those working in the medical office, receptionist etc.

1.3 Portal for buying and selling

In this project, we will create a online market place for IITG campus. where any one from IITG campus can buy and sell pre-owned products. products can be searched using set of filters. It will have at least following module.

1. **Admin module:** This module will manage the website, user, product, perform needed updates and generate income from each purchase.

2. **User module:** Each user need to create a profile before buying or selling any product. User can list, update and delete his product. Buyer can show interest or buy the product.

3. **Product:** Each product will be registered buy seller managed (preference order and brokerage) by admin. Each product will have set of filters.

4. **Customer Care:** admin will have of some staffs with limited access to take care of each customers(buyers and seller).

1.4 Fitness Portal

In this project, we will create a service portal, which help user to maintain their fitness, and provide different service like GYM, YOGA and DIET PLAN. It will have at least following module.

1. **Admin module:**This module will manage the website, user, service, per- form needed updates.

2. **User module:** Each user need to create a profile with their requirement. User may buy a membership or can go for a trial period(limited facilities). After membership can choose specialist from prescribed department.

3. **Department:** Fitness club have three department GYM, YOGA and DIET PLAN with their facilities and specialized staff.

4. **Staff:**fitness club will have specialized staff and service staff. specialized staff will train the customers on the basis of their requirement. Service staff will assign the department on the basis of users requirements.

5. **Customer Care: A**dmin will have some staffs with limited access to take care of each customers.

1.5 Placement portal

In this project, we will perform the placement activity and maintain the place- ment information of IITG. Website will have list of companies, placement infor- mation university and departments wise. It will have at least four modules.

1. **Admin module:**This module will manage the different users and assign a role to the users companies, students, students coordinators and faculties in charge.

2. **Company:**Each Company will have to register and have to provide the eligibility criteria, placement examination stage and vacancy.

3. **Student:** Each Student need to register itself. While registration, the Student will provide its name, roll number, department, academic information. Each student has to go for placement eligibility test for appearing in any company placement.

4. **Placement:** Registered Company will show no of vacancy of different profile and criteria. Registered student apply for the job. Company will select the student on the basis of their criteria and test.

1.6   Online volunteering services

In this project, we will create a plateform where people register to provide volunteering service of their expertise(Teaching and Training, Translator, Art and Design, Technology Development, and Health Service). Any organization or user in need may get the volunteers service. It will have at least the following modules.

1. **Admin module:**This module will manage the different users and assign volunteer to the needee.

2. **Volunteer:**Each volunteer will have to register and have to provide the his expertise(Teaching and Training, Translator, Art and Design, Technology Development, and Health Service) and availability.

3. **Needee:** Any organization or user in need have to register in the portal and request for volunteer and with date and time.

4. **Assignment:** On the basis of Needee and volunteer data admin will assign the volunteer to the needee.

5. **Feedback:** Both needee and volunteer will give feedback to one another which will help admin to maintain rating of needee and volunteer.

1.7   Peer-to-Peer (P2P) Lending

In this project, we will create a service portal to Connects verified borrowers seeking loan (at low-interest rates compare to banks,quick and hassle-free service,no prepayment penalty) with investors looking to earn higher returns on their investments. It will have at least the following modules.

1. **P2P Service Provider:**P2P Service Provider will work as middle man between lender and borrower.it will maintain transaction and related data.

2. **Lender:**Each Lender will have to register and have to provide the his total investment and criteria of investment.

3. **Borrower:**Each Borrower have to register in the portal and request for loan. Borrower has to provide source of income and monthly income.

4. **Coustomer Care:**P2P Service Provider will have of some staffs with limited access to take care of each coustomers problems.

5. **Feedback:**Both Lender and Borrower will give feedback to one another which will help P2P Service Provider to maintain rating of needee and volunteer.

1.8   Event Management System

In this project, we will manage the Different events and participant in different auditorium in such a way that no two event will be schedule in same auditorium at same time. No student can participate in two event at same time. Each event should have some sponsors. It will have at least the following modules

1. **Admin module:** This module will manage the different Event, Partici- pant and Auditorium. Admin will schedule each even in auditorium and allow participant to attend event without conflict.

2. **Event:** Each Event will have to register and have to provide the require- ment of the event.

3. **Participant:** Each Participant need to register itself. While registration, the Participant will provide his basic information. Student may request to participate in different event as per his interest. Admin will allow participant to attend event without conflict.

4. **Auditorium:** Different Auditorium will have different capacity. On the basis of event requirement auditorium will be assigned to event by admin without conflict.

5. **Feedback:** Participant will provide feedback for each event.

1.9   Online Election System

In this project, we will create a centralized portal for handling the election process of the institute. It should have at least the following modules:

1. **Admin module**: This module will keep track of the list of students, posts available, will assign logos/candidate numbers to the nominated candidates, schedule timings, and extend voting deadlines. It should also keep track of the vote count for each candidate, so that the election results can be published after the election process is over.

2. **Nomination module**: Registered students of the institute may nominate themselves by creating a candidate account and signing up as a competing candidate for the desired post.

3. **Voting module**: During the voting timeline, this module will be working, it will first authenticate whether the student is eligible to vote by checking the registration number of the student. If found eligible, the student will be displayed the posts and for each post, the list of nominated candidates. The student will be able to cast the vote only till the deadline.

1.10 Parking management

In this project, we will create a portal for efficient management of parking space in the institute. The portal will at least have the following modules:

1. **Admin module**: will keep track of the total available parking area (segregated as per the type of vehicle that can be parked there) , locations of the parking areas, and will allocate parking spots to the cars as per their arrival.

2. **User module**: Each user needs to register their cars by providing his/her identity, car type (size etc.), car number and other details.

3. **Slot booking module**: A user needs to authenticate himself as a registered user, and give the required time slot and destination location; and the admin module will allocate parking spots in the nearest parking area according to the location and the space required for the car.

1.11 Spardha

In this project, we will create a centralized portal for hosting and managing the sports event of the institute, Spardha. There should be at least three modules:

1. **Admin module**: Manages the list of games, schedules the matches and the venue for the matches so that no two games are scheduled in the same venue at the same time. Manages the list of students who have signed up for a particular game, keeps track of the score, and announces the results after the completion of the game.

2. **Registration module**: Students registered with the institute can register themselves for the individual/team games as per wish. Students need to provide list of team members for registering for team games. One student/team cannot register for two games that are scheduled to be conducted at the same time.

3. **Scores module**: Keeps track of the winners of each of the matches played and the scores of each of the participants/teams and declares the overall winner after the completion of all the matches of a particular game. The scoring pattern of the games needs to be followed according to the game rules.

4. **Feedback:** Participant will provide feedback for each game

1.12 Hostel Allocation

In this project, we will create a centralized portal for Hostel affairs board for the management of hostel rooms. The following modules need to be there:

1. **Admin module**: Manages the list of hostels gender wise, and the number of rooms (segregated according to room capacity- one student or two students) each hostel has. It also keeps track of rooms that has been already allocated and the student information for each allocated room. It also keeps track of room changes, and a log of complaints pertaining to the amenities in the room.

2. **Student module**: Each registered student of the institute will have an account in the portal, where the room allocation history of the student will be given, a student may register complaints related to the amenities of the room, which would be followed up by the admin module and necessary action will be taken for solving the issues.

3. **Allocation module**: Whenever a new student joins the institute and arrives on campus, the admin module will allocate a room to the student (with BTech and PG first year students getting twin sharing rooms, and rest getting single rooms). If for some reason, the student wants to change rooms or hostels, which will be taken up by the allocation module.

1.13 Gym timings

In this project, a gym slot allotment portal will be created. The institute gym remainsopen for only a certain period of time, the objective is to reduce overcrowding of thegym and efficiently allocate the equipment so that maximum number of people are able to use it.

1. **Admin module**: Keeps track of available equipments and also allocates equipment slots according to the need of the student.
2. **Registration module**: Each student desiring to use the gym must register themselvesin the portal using roll number and other information that will validate him/her as a student of the institute.
3. **Slot booking module**: A student wishing to use a particular gym equipment must place the request on the portal, mentioning few preferred timeslots and the equipment of choice. The portal will then assign a timeslot out of the student's preferred timeslots(ifavailable), or display a list of slots available out of which the student may choose accordingly.
4. **Feedback module**: Any grievances related to the gym may be provided.

1.14 Vehicle Rent system

In this project, a portal for renting vehicles will be created.

1. **Admin module**: A list of vehicles available with the company will be kept, along with the information of the vehicles (vehicle size etc.). It will also keep track of the vehicles already rented, and the vehicles available for renting out.
2. **User module**: First time users need to create an account by giving their identity proofs. For renting a vehicle, the user needs to provide the required information like destination location, time duration, vehicle size requirement etc.
3. **Allocation module**: Vehicles will be rented out to users according to the user requirement and availability. The cost will be calculated accordingly and the user needs to pay the required amount to confirm the booking.
4. **Payment module**: For paying the booking fees and the caution money calculated by the allocation module according to the vehicle size and duration of rent.

1.15 Bus management

In this project, we will manage the IITG buses and schedule the buses using theportal we create. It must at least have the following three modules:

1. **Admin module**: Bus lists, route lists, allocation and reallocation of buses according to the requirement will be handled by this module. Allocation of the buses will be done according to the demand and/or the road congestion generally experienced on the route.
2. **Student module**: Students need to register themselves using their IITG credentials. They can sign in and type the destination location to find the list of buses plying on that route to choose the one matching with his requirement. He can also choose the seat of his choice according to the list of available seats. A fare will be calculated for the ride.
3. **Payment module**: The student needs to complete the payment to confirm the booking and then the ticket will be generated for the ride.