**CO226 : DATABASE SYSTEMS**

**DATABASE PROJECT – PROJECT DESCRIPTION**

**GROUP 07 - E/18/098, E/18/100, E/18/155**

**DATABASE MANAGEMENT SYSTEM FOR INTERNSHIP ALLOCATION FOR DEPARTMENT OF COMPUTER ENGINEERING**

**INTRODUCTION**

A database management system (DBMS) is a software package designed to define, manipulate, retrieve, and manage data in a database. A DBMS generally manipulates the data itself, the data format, field names, record structure and file structure. It also defines rules to validate and manipulate this data.

With the use of DBMS, we can be much more efficient in managing data and get the best use of it as per desire. The events include data storage, data update, data deletion and data retrieval through query.

Under the course CO226 : Database Systems, the database project is about designing and developing a database system that interfaces with a backend database. As per the task of the project our team has decided to create a database management system for the internship allocation for the Department of Computer Engineering. The main aim of the project is to learn how to implement a DBMS and as a real and extra challenge we have chosen to implement a useful application to our department. The need for a DBMS for the internship allocation in the department would surely improve and ease the internship allocation process while creating a much more efficient and advanced interface between the main entities involved in the process. Upon successful completion of the project, we would try implementing the interface on a department level for the benefit of the department.

**OBJECTIVE**

The main objective of the project is to learn the implementation of a real-time database, identify the uses and importance of a DBMS. The project would create a database to manage the allocation of internships in Companies for Students of the department of Computer Engineering under the supervision of the Staff through Student profiling, Company profiling and creating an interface between Students, Staff and Companies.

**SPECIFICATIONS**

1. **USERS**

The internship allocation mainly involves three parties, namely;

1. STUDENT
2. COMPANY
3. STAFF

Therefore; we have identified the above users as the main entity types of the database. The database would focus on the relations between each entity in the task of internship allocation. Therefore; identifying the inter-relationships among all entities, intra-relationships between individual entities are essential in creating a much more user-friendly interface for each entity separately.

1. STUDENT

The STUDENT entity will include all students of the department from the given batch group which would have their industrial training to be allocated as internships in respective companies.

**Use** of the database for a student would include,

* Creation of a student profile on the database.
* Identification of all companies applicable for an internship.
* Learning company details, current position in the local industry and global recognition.
* Categorizing companies upon personal interests in fields of ;

Hardware

Software

Technologies

Web development

Mobile Applications

* Categorizing companies by other features and details such as,

Location of the company

Work from home availability

* Communication and information sharing with companies.
* Application for an available internship opportunity in a company.
* Submission of CV, Portfolio, and necessary information.
* Managing interviews, appointments, and introductory sessions.
* Requesting references , approvals from staff members.
* Requesting suggestions, ratings, and guidance from staff members.

1. COMPANY

The COMPANY entity will include all the companies that are in cooperation with the department in the task of accepting and recruiting interns for the Industrial Training process of the department.

**Use** of the database for a company would allow a company to,

* + - * + View student profiles.
        + Request students for interviews.
        + Review Staff references on students.
        + Request Staff suggestions and student interns for available opportunities.
        + Create a company profile.
        + Appoint supervisors for guidance.
        + Advertise the company, through statistical data on rankings, awards, history, and projects.
        + Communicate with the Staff and Students.
        + Categorize students under given skills and interests in fields of,

Hardware

Software

Technologies

Web development

Mobile Applications

GPA

* + - * + Have a stronger relationship with the department throughout and communicate about job opportunities, vacancies.

Use of such a system for a company will help to choose students that are suitable for their companies.As they don’t have to do interviews for all the students, just for the students they sorted out from this application it will save time for them as well.

1. STAFF

The STAFF entity includes all the staff members, the lecturers, instructors who are involved in the process of internship allocation and those who are interested in helping the student with the process.

**Use** of the database for the staff would help them in the process through,

* Review and Verify Student profiles.
* Writing Recommendations on Student Profiles.
* Guide Students in selecting a company for industrial training.
* Review company profiles and identify the current ongoing projects that are related with the course content of the department.
* Referencing students and approving for companies.
* Managing the workshops, mock interviews, and introductory sessions on companies through inter-communication among Staff, Students and Companies.

Furthermore, features could be improved vastly by the suggestions of the staff and companies in the real implementation. But for the sake of completion of the project, we would consider the most reliable and sufficient usage of the system.

1. **FEATURES**
2. Web interface

The web interface would be a typical website that users can visit through a web browser. The home page would be much of a general but less functional unless you have access to the database through login.

1. User account

According to the log-in credentials (Ex: email and password) the user type would be categorized as a Staff member, Student or Company. Note that a Staff member and a Student would be auto recognized by the faculty email whereas a Company should get special request to be registered as a Company in the site.

Mainly the three main entities would main user account types,

1. Student Account
2. Company Account
3. Staff member Account

Here, the Student account and Company accounts will be of much interest, whereas the Staff member account has minimal information.

Initialization of Staff and Student accounts would import data from APIs in <http://api.ce.pdn.ac.lk> .

Following a common (default) template for every account would generalize and ease the review of independent profiles.

1. Hosting (Serving) and Data Storage

The project level hosting would be done at 000webhost (But for the real implementation, department facilities and servers would be ideal.)

**IMPLEMENTATION**

1. Technologies
   * + - HTML – structure the web pages.
       - CSS – improve appearance and presentation of web pages.
       - Bootstrap 5 – simplify web page design.
       - PHP – implement dynamic functionality of web pages.
       - MySQL – RDBMS with SQL querying the database.
2. Teamwork

Teamwork and coordination remotely require another set of resources and platforms.

* Git – for version control management and branching by multiple contributors.
* GitHub – cloud-based platform to store data and manage version control by GIT.
* Zoom meetings – real time meetings for planning and discussions.
* WhatsApp group - update of project matter.

1. Presentation

The web-based DBMS would hosted at

<http://internship-allocation.000webhostapp.com/> and to be accessed through a web-browser.

**GROUP MEMBERS**

* [FERNANDO K.A.I](https://people.ce.pdn.ac.lk/students/e18/098/) – E/18/098
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