COLLEGE MANAGEMENT SYSTEM

MAJOR/ MINOR PROJECT SYNOPSIS

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1 Introduction

The COLLEGE MANAGEMENT SYSTEM can be used to store student information like attendance, fees, and student result etc. admin can create report regarding any student any time using this system. Using this system you can register new student and their course details. You can submit students fees and can check fees details anytime. You can create exam result and submit in this system. Student can check their result online by logging to the system. You can also add new employee in the system and can check details of the employee easily. Student can also check course detail online from this system.

Using this system you can manage all information of all aspects of a college, its students, faculties, Departments, marks and other curricular activities. College management system provides the easiest way to manage all functionalities of a college. This system facilitates colleges to maintain the functionality related to college employees and their students. College Management System can store and manage all data of the various departments of a college like Administration, Attendance, Staff details etc. using this system user can retrieve any information related to student, teacher and fees. Using this system teacher can check student attendance anytime. This system also help teacher to announce the result. College administration can also manage college work easily. Admin can check leave, salary and other details of teacher any time. They can also create time table of classes from this system. The Library module is used for the data process of library and book accessing for students and staffs.

There are so many technologies are available in today era that can be used for developing and hosting College Management System. Frameworks like Angular, React, Vuejs, Laravel and so on and Databases like MongoDB, Google Firebase, MySQL and so on. So we are using Angular as a framework, Google Firebase as a database and Git as a version control system.

What is Angular?

Angular is a platform and framework for building single-page client applications using HTML and TypeScript. Angular is written in TypeScript. It implements core and optional functionality as a set of TypeScript libraries that you import into your apps.

What is Google Firebase?

Firebase is a toolset to "build, improve, and grow your app", and the tools it gives you cover a large portion of the services that developers would normally have to build themselves, but don't really want to build, because they'd rather be focusing on the app experience itself. This includes things like analytics, authentication, databases, configuration, file storage, push messaging, and the list goes on. The services are hosted in the cloud, and scale with little to no effort on the part of the developer.

When I say "hosted in the cloud", I mean that the products have backend components that are fully maintained and operated by Google. Client SDKs provided by Firebase interact with these backend services directly, with no need to establish any middleware between your app and the service. So, if you're using one of the Firebase database options, you typically write code to query the database in your client app.

This is different than traditional app development, which typically involves writing both frontend and backend software. The frontend code just invokes API endpoints exposed by the backend, and the backend code actually does the work. However, with Firebase products, the traditional backend is bypassed, putting the work into the client. Administrative access to each of these products is provided by the Firebase console.

What is Git and Github?

Git is software for tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development. Its goals include speed, data integrity, and support for distributed, non-linear workflows.

GitHub, Inc. is a provider of Internet hosting for software development and version control using Git. It offers the distributed version control and source code management (SCM) functionality of Git, plus its own features. It provides access control and several collaboration features such as bug tracking, feature requests, task management, continuous integration and wikis for every project.

2 Objective

The main objective of college management system is to automate all functionalities of a college or university. Using this system you can manage all college management work like admission, fees submission, time table management and result declaration. Using this college management system you can view or update data and information about students and staff easily. This system helps in managing the activity like student admission, student registration, fees submission. Admin can also retrieve information of employee student.

Admin can also generate following reports from this system like Student Report, Employee Report, Fee Detail Report, Marks Detail Report and so on.

The benefits of college management system for the employee is they can create any kind of certificate easily using this system. They can easily retrieve all information related to student and employee. Admin has all the Collective records of students of all the branches. Admin can check all the records of employees of all departments anytime. This system gives easy approach to find the detailed information for any student/employee. This system is beneficial for both students and employees as they can get all previous or current information when they need. This system is also helpful to maintain the students record like admission record, fees record, exam result records. College management system can help to get all or a particular student attendance information. Also it can help to maintain the fees and accounting reports of college in proper way. This system also helps to generate mark sheets of current year.

3 Feasibility Study

Preliminary investigation examine project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation: Technical Feasibility, Operational Feasibility and Economical Feasibility.

TECHNICAL FEASIBILITY

Technical Feasibility centers on the existing computer system hardware, software, etc. and to some extent how it can support the proposed addition. This involves financial considerations to accommodate technical enhancements. Technical support is also a reason for the success of the project. The techniques needed for the system should be available and it must be reasonable to use. Technical Feasibility is mainly concerned with the study of function, performance, and constraints that may affect the ability to achieve the system. By conducting an efficient technical feasibility we need to ensure that the project works to solve the existing problem area. Since the project is designed with Angular Front end and Google Firebase as Back end, it is easy to install in all the systems wherever needed. It is more efficient, easy and user-friendly to understand by almost everyone. Huge amount of data can be handled efficiently using Google Firebase as back end. Hence this project has good technical feasibility

OPERATIONAL FEASIBILITY

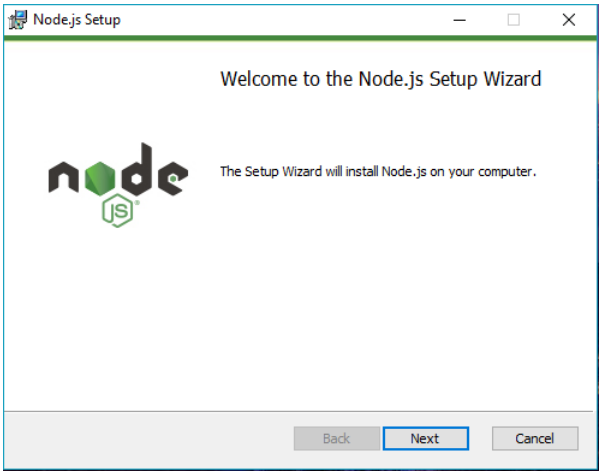
People are inherently instant to change and computers have been known to facilitate change. An estimate should be made to how strong a reaction the user staff is likely to have towards the development of the computerized system. The staff is accustomed to computerized systems. These kinds of systems are becoming more common day by day for evaluation of the software engineers. Hence,this system is operationally feasible. As this system is technically, economically and operationally feasible, this system is judged feasible.

ECONOMICAL FEASIBILITY

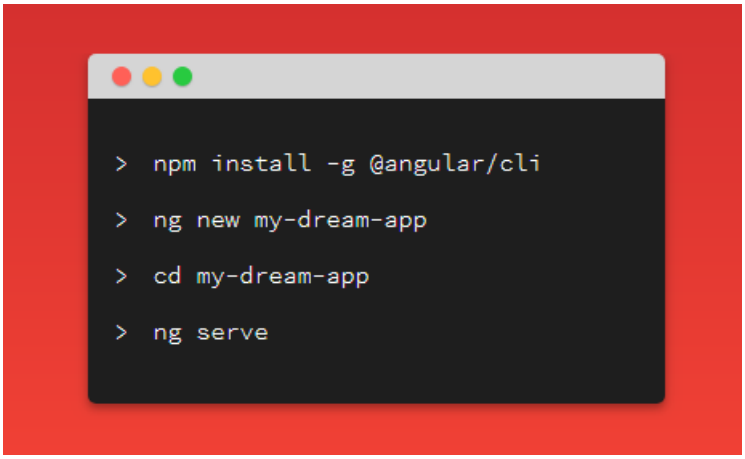
The role of interface design is to reconcile the differences that prevail among the software engineer's design model, the designed system meet the end user requirement with economical way at minimal cost within the affordable price by encouraging more of proposed system. Economic feasibility is concerned with comparing the development cost with the income/benefit derived from the developed system. In this we need to derive how this project will help the management to take effective decisions.

4 Methodology/ Planning of work

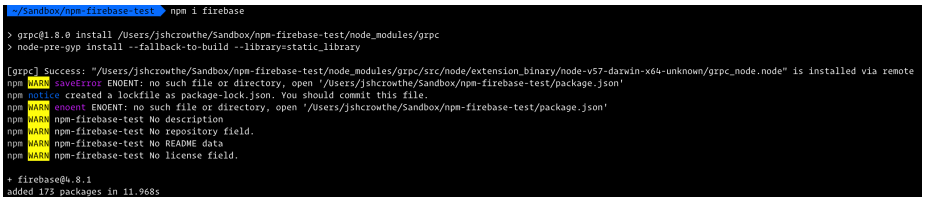
Installation NodeJs in our host system which is requrired to build angular application and nodejs is run time environment for javascript which is the subset of typescipt.

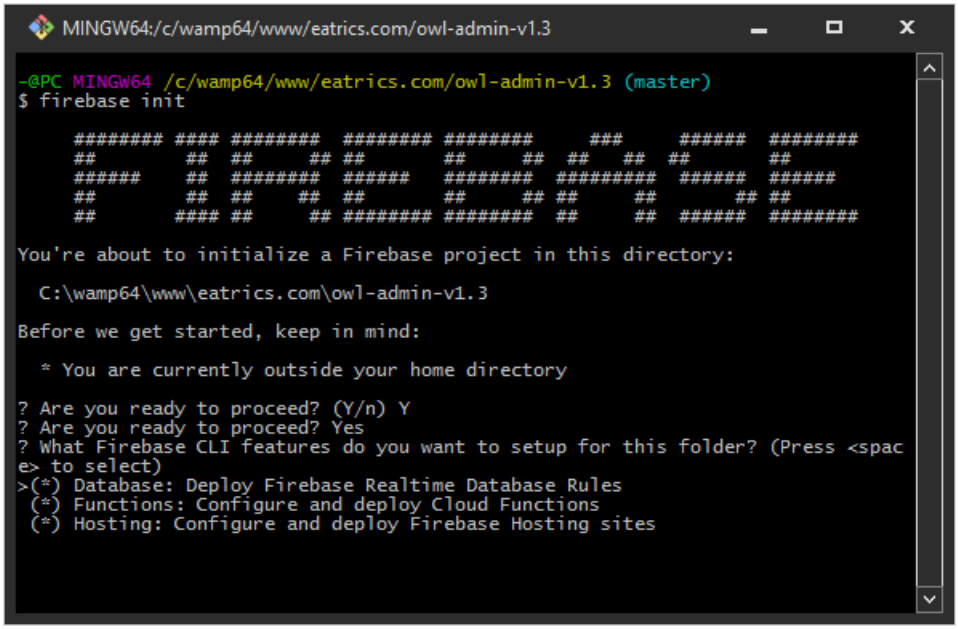


Installing Angular using NPM, Creating Angular App and Serving the App



Installing Firebase SDK using NPM and Initialising in the angular app





5 Facilities required for proposed work

The software used for the development of the project is:
OPERATING SYSTEM: Windows 8, Windows 10
ENVIRONMENT: NODEJS
ANGULAR FRAMEWORK: Version 11.1.2
NODEJS: Version 14.15.2
NPM (Node Package Manager): Version 6.14.10
FIREBASE SDK: Version 9.3.0
LANGUAGE: Typescipt
BACK END: Google Firebase

References

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[4] https://en.wikipedia.org/wiki/Git