TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES

COLLEGE OF SCIENCE

Developing a College of Science Scheduling System Using Genetic Algorithms

A research proposal presented to the Technological University of the Philippines,

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INTRODUCTION

The main objective of the study is to develop and implement a scheduling system for a College of Science using genetic algorithms to optimize the course scheduling process. The system ensures optimal use of classrooms, laboratories, and other resources, preventing the underutilization or overbooking of facilities. This method can help Philippine9 universities improve their scheduling efficiency, better serve their students, and enhance overall educational outcomes. The study aims to demonstrate the viability and advantages of using genetic algorithm for course scheduling in College of science. The rapid increase of student populations in the Philippines further complicates the scheduling process. Traditional manual scheduling is often used which are labor-intensive and susceptible to errors. Systematizing the schedule process, it lessens the time and effort required by administrative staffs. This will allow instructors to plan their time better, and maintain a balanced load. Students can also benefit from a well-constructed schedule system that minimizes conflicts and guarantees access to necessary courses. The general and specific goals are outlined, as well as the scope and limitations.

METHOD

The research developed an automated scheduling system intended to assist department heads and regular faculty members in selecting their preferred subjects and setting scheduling. The system's flow and design process are elaborated in the system design, which includes the system context diagram, use case diagram, and entity-relationship diagram. Data flows between these entities: from Faculty Members to the system for preference input and schedule review, and from the system to the Central Database for data storage and retrieval. The evaluation tool that was used to assess the system?s acceptability was adapted from ISO 25010. The scheduling system is used to manage school schedules. It is used by administrators, faculty, and students. The system has several use cases, including adding, viewing, and deleting components such as faculty names, rooms, meeting times, subjects, and sections. The scheduling system also has a data storage component. The Scheduling system was designed to allow teachers to schedule their classes in a timely manner. It was developed to help students learn how the scheduling system works. It also helps administrators and faculty members understand the system.

RESULTS

The official documentation for the Scheduling system, Figure 4, includes code samples in various programming languages, guides for installing django, reportlab, pandas, and random. The system can be created in different programming language such as Python, CSS, and HTML. Using PIP, the django,. random, report lab, and pandas packages are simple to install. The unique methods are provided by the package, each of which corresponds to a different endpoint of the system. The project description, project structure, project capabilities, and results of evaluation for the project.

DISCUSSION

The Scheduling system was evaluated to be highly acceptable in terms of Functional, Compatibility, Performance, Usability, and Reliability. The system can be easily used by installing the modules and packages created for Python, CSS, and HTML. The Scheduling System was successfully designed to have the following features:. Ability to assign random faculty members to sections and ensuring that the preferred time slots are consistent with the defined periods in the database. Can handle form and form and cache operations that ensure that changes are reflected in newly generated time tables.