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AUTOMATIC SEATING ARRANGEMENT TOOL FOR EXAMINATIONS IN UNIVERSITIES/COLLEGES

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Abstract: This paper is dedicated to simplify the task of manually seating students in an examination hall. The tool provides an effective measure to dynamically place students in an examination hall just by providing the number of rooms available. This program was developed in C/C++ language referred from various sources. The main agenda of the paper to describe the working of the software and how it is used to lessen the mammoth task of manually allocating seats during an examination. This research can be further extended to seating planning in conferences, weddings, movie theaters etc.

Keywords:

Seating Tool- A seating Tool is a diagram or set of written or spoke instructions that determines where people should take their seats. It is widely used on diverse occasions.

C/C++ Language- This program is developed using the basics of C/C++ language. The coding and programming requires various tools and attributes from these languages and forms a major part of the project.

Examination- The paper is purely related to seating plan for examinations held in colleges and universities.

I. INTRODUCTION

Every institution has examinations held at particular intervals. Placing the students for appearing in the exams is an important of the procedure. If we manually allocate each student to a specified seat, it is a mammoth task. Institutions have various databases and software designed to perform this task.

The paper is attributed to design an Examination Seating Arrangement Tool which automatically places students in their respective seats according to their allotted roll numbers. The students are seated serially roll number wise in numeric order. Each student has a specific seat as allotted by the server and no two students from the same course structure can be seated next to each other. This project focuses on improving the efficiency of the seat allotment system and the tedious task of manually allocating seats to each individual.

The Examination Seating Arrangement Tool depends upon the number of vacant rooms and seating capacity of each room. The rooms are considered as a multi-dimensional array with specified number of rows and columns. The students are placed in each seat one behind the other according to last digits of their enrollment number. This software can be greatly used in every institution for any kind of exam or sometimes even event managements. It decreases our time and makes the procedure very systematic. The software can be extended to various other ways to seat people in a hall for any event or function. The Examination Seating Arrangement Tool encompasses a wide variety of uses in our daily lives and has made examination planning very efficient.

Some important terms/resources used for this paper have been described as follows:

Dev C++ compiler: Dev C++ is an integrated development environment distributed under the General Public License for programming in C & C++. It is bundled with a free compiler called MinGW. This language used in writing IDE is Delphi. Colin Laplace was the original developer of Dev C++. It is designed to function only in Microsoft Windows.

Emulator: DOSBox is a full CPU emulator, capable of running C/C++ programs that require the CPU to be in real or protected mode. The systems which provide i385 instruction set DOSBox translator each instruction dynamically which results in a much faster execution vis-à-vis interpretive CPU emulation.

Multi-dimensional array: Arrays can have more than one dimension; these arrays-of-arrays are called *multi-dimensional arrays.* They are very similar to standard arrays with the exception that they have multiple sets of square brackets after the array identifier. A two dimensional array is considered as a grid of rows and columns.

Integrated Development Environment: An IDE or interactive development environment is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of a source code editor, build automation tools and a debugger. Most modern IDEs offer intelligent code completion features.

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II. REQUIREMENT

The Examination Seating Arrangement Tool focuses on seating students serially according to their enrollment number in the rows and columns of vacant rooms. This paper is developed in C/C++ using Dev C++ compiler. It involves basic functions of C/C++ language such as multi-dimensional array, matrices, functions and code reusability.

This is used to allot seats to students automatically during an examination by just entering the number of rooms. This saves time and errors if each student is manually allocated a seat number in the system. This proves to be a very efficient and effective method of examination planning.

III. METHODOLOGY

This paper has been coded in basic C/C++ language. It has three basic functions- to determine the number of vacant rooms available, to determine the number of students appearing and placing those students in rows and columns of rooms in serial order. All these features are then incorporated into a main function. The model is software to place students serially in a seating pattern based on their enrollment number. The paper is focused on the following parts. Based on these features we are able to design a model for a seating-wise plan.

Availability of Vacant Rooms: The room is considered as a multi-dimensional array or matrix with rows and columns. When the user is asked to enter the number of vacant rooms available for seating, it also takes into account the seating capacity of the room which is calculated by the number of rows and columns.

Number of students appearing: The total number of students appearing for the examination must be stated by the user. Each student has an allotted enrollment number through which it can be placed serially one after the other. The students who are debarred or absent are skipped in the number of appearing students. The enrollment need not necessary be one after the other due to withdrawal of admissions or any other case.

Allocating students in seats: The students are seated one behind the other by dynamic allocation in an array. It has to be placed in such a way that no two adjacent columns have the same course students seated next to each other. The students are placed serially according to their enrollment numbers. Once the room is completely occupied, the students start filling up the next room. The voids between two columns are filled by students from another course in similar fashion.

The Main function: The main function is the crux of the program where all the other features are called and combined with each other. It takes user input for number of vacant rooms and number of appearing students. The third function is then declared and the main returns a value. Once debugged, the program performs its functions.

BENEFITS: This software is particularly useful in today's time with the increasing number of people appearing for various examinations. Manually handling data is not only tedious and time consuming but prone to errors as well. This software enables the user to be accurate, fast and produce reliable results.

It manages the system very efficiently and secures our work. Once the work has been executed, we can make changes manually as well. It is a multi-user environment and can be easily shifted from one OS

terminal to another. The importance of this software is to make our tasks faster and more reliable. In today's day and age work-reducing applications are much required esp because of the increasing demands of new trends.

It is an organized system which enables us to automatically allocate students to their desired location. For people handling institutions, the work load is very high and the need for faster work is a need of the hour. There is a general complaint that government offices have surplus work load but the speed of efficiency is very low. It is software such as these which can decrease our work time. Institutions who use the software can save an ample amount of time during the examination time. Some of the few benefits of this model is that it is very fast, reliable and robust. In today's world, it is the tool for event management which is extremely useful of various occasions. This much needed feature of user-friendliness is present in this model and can be used for all types of user whether Agile, Naïve or expert.

IV. LIMITATIONS

Even though the model is of great use, there are some drawbacks to it such as the software considers each room to be of equal seating capacity. Also for a large amount of data, the software slows down. Sometimes, it is not completely reliable as it does not take into broken chairs and damaged furniture.

V. CONCLUSION

This paper has been a great learning experience because not only is it efficient but a great method to reduce work. It eases our work load and gives us an accurate measure to resolve seating arrangements. Most institutes should install this software and it can be a great help to them. Apart from that, it can be extended to use in event managements and meetings where large gatherings need to be present. It gives us an organized structural overview of our work.

VI. FUTURE IMPLICATIONS

This software's can be designed and improved upon to handle larger groups. It can also be used to allocate positioning of things in various other areas. It can be used to design timetables for large number of workers. It can also be used to automatically allot a bed to patients in hospitals and it can give them a rough estimate of how many beds are required. The software which increases human efficiency and reduce time is a boon and necessity for the coming years.

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