AUTOMATION OF SEATING ARRANGEMENT FOR EXAMS USING EXCEL

VIKAS NAGVE, YOGESH BHALEKAR, MARIYAM KHAN, JITENDRA PATIL, PRIYANKA DESHMUKH, ASHA BHAVE, VINOD SALUNKHE

Department of Engineering Sciences & Humanities

Thakur College of Engineering and Technology

***ABSTRACT*--The purpose of this study is to automate the making of seating arrangement for exams. This study focuses on use of excel formulas to generate seating arrangement by inputting basic details. Making seating arrangement involves allocating a number of students from different class or classes to seat in a block for writing exam, this can be a tedious task if the students and classes are large in number. Generally making seating arrangement is a time-consuming task and may require hours of work based on number of students involved. Also, we have to do lot of mathematical calculations and need to input lot of data manually wherein chances of making error is high but, with the help of sequentially used excel formulas we can get the end result with just few clicks irrespective of number of students involved and also chances of making error are negligible**

Keywords: Excel, Seating Arrangement, Automation

I. INTRODUCTION

We all know how complicated it is to work with a paper spread sheet.Being in an education sector means handling a wide range of data. The most crucial time is during the exam where the seating arrangement becomes a challenging task. First of all it is required to find out how many students will be giving the exam, secondly the number of rooms available to accommodate them. Also, we need to find out the seating capacity of the rooms available. After sorting out all this data we finally work on allocating each student to a designated room. Now doing this work manually would be an intricate mechanism. Here comes excel to our rescue as it has the ability to simplify these tasks. Microsoft Excel is equipped to handle, sort and segregate large data in an easier way. By using excel initially we can form a base structure of seating arrangement where we can give the input for a particular room number and a set of roll numbers allocated to that room. Likewise by filling the details of all the rooms a proper input structure for seating arrangement will be prepared. The same data will be reflected in individual block seating arrangement where the block refers to the room where the exam will be conducted.

The process of making seating arrangement for exam begins with allocating different classes students in exam blocks. Here we have considered 40 or less students seating in a block, this automation won't work if number of students are going above 40, for that we need some tweaks in excel formulas. After allocating students we need to form seating arrangement structure where we can see all prepared blocks with class and roll number of students in it.

BLOCK No.	FLOOR	ROOM NO.	Perticulars(Group1)	TOTAL
1	5th	503(wing A)	Comp-A(10-20)=11 Comp-C(1-29)=29	40
2	5th	504(wing A)	CIVIL-(20-38)=19 IOT-(1-21)=21	40
3	5th	505(wing A)	CS&E-(44-64)=21 CIVIL-(1-19)=19	40
4	5th	506(wing B)	CS&E-(4-43)=40	40
5	5th	508(wing B)	AIDS-B(27-63)=37 CSE-(1-3)=3	40
6	5th	512(wing C)	AI&DS-A(50-63)=14 AI&DS-B(1-26)=26	40
7	5th	513(wing C)	AI&DS-A(10-49)=40	40
8	5th	516(wing C)	COMP-C(33-63)=31 AI&DS-A(1-9)=9	40
9	5th	517(wing C)	COMP-B(57-64)=8 COMP-C(1-32)=32	40
10	5th	518(wing C)	COMP-B(17-56)=40	40
11	5th	530(wing A)	COMP-A(41-64)=24 COMP-B(1-16)=16	40
12	5th	531(wing A)	COMP-A(1-40)=40	40
13	5th	532(wing A)	E&CS-(30-63)=34	34

Figure 1 Seating arrangement structure

Final step is to form block seating arrangement where we insert actual seating arrangement of the students inside the block. This is done for each block separately.

Comp-A(10-20)=11
Comp-C(1-29)=29

ROLL NO.	BENCH NO.	ROLL NO.	BENCH NO.	ROLL NO.	BENCH NO.	ROLL NO.	BENCH NO.
Comp-A10	1	Comp-A20	11	Comp-C10	21	Comp-C20	31
Comp-A11	2	Comp-C1	12	Comp-C11	22	Comp-C21	32
Comp-A12	3	Comp-C2	13	Comp-C12	23	Comp-C22	33
Comp-A13	4	Comp-C3	14	Comp-C13	24	Comp-C23	34
Comp-A14	5	Comp-C4	15	Comp-C14	25	Comp-C24	35
Comp-A15	6	Comp-C5	16	Comp-C15	26	Comp-C25	36
Comp-A16	7	Comp-C6	17	Comp-C16	27	Comp-C26	37
Comp-A17	8	Comp-C7	18	Comp-C17	28	Comp-C27	38
Comp-A18	9	Comp-C8	19	Comp-C18	29	Comp-C28	39
Comp-A19	10	Comp-C9	20	Comp-C19	30	Comp-C29	40

Figure 2 Block Seating Arrangement

II. PROBLEM STATEMENT

Exam time is the most crucial and critical phase in any academic institute. Smooth conduction of exams not only depends on paper setting and evaluation but also on the seating arrangement of the students. The work seems to be effortless but it becomes chaotic if the students are huge in number. Documenting all the data manually would be very tedious task and in addition to this it would be time consuming. Seating arrangement is one of the important part of exam which decides in which room and at which bench the students will be seating. Making block seating arrangement for large number of blocks may take hours to complete if done manually. The best solution for this situation is Excel which gives us the liberty to sort huge amount of data in a short period of time.

III. METHODOLOGY

The problem that arises due to manual documentation of any large scale data is very genuine. It requires lot of concentration and time dedication plus it becomes difficult to minimize the occurrences of error. This part will give us a detailed briefing about how Excel is useful to overcome the problem and its methodology.

'CONCATENATE' is one of the functions used to combine text from different cells into one cell. Also 'IF' which is one of the most popular functions in Excel, is used to make logical comparisons between a value and its outcome. These two functions are used to form a basic structure of the seating arrangement where only room number of the block and roll numbers of the students are to be given as input.

After this the seating arrangement structure of a block is to be defined which includes 40 students per block and 10 students in a column. Later on the base structure of the seating arrangement is linked with the seating arrangement in individual block.

The actual seating arrangement of each block is automatically generated by using VSTACK function. VSTACK combines all the arrays vertically into a single array. Each array is appended to the bottom of the previous array and thus a proper seating arrangement for 40 students in each block is prepared.

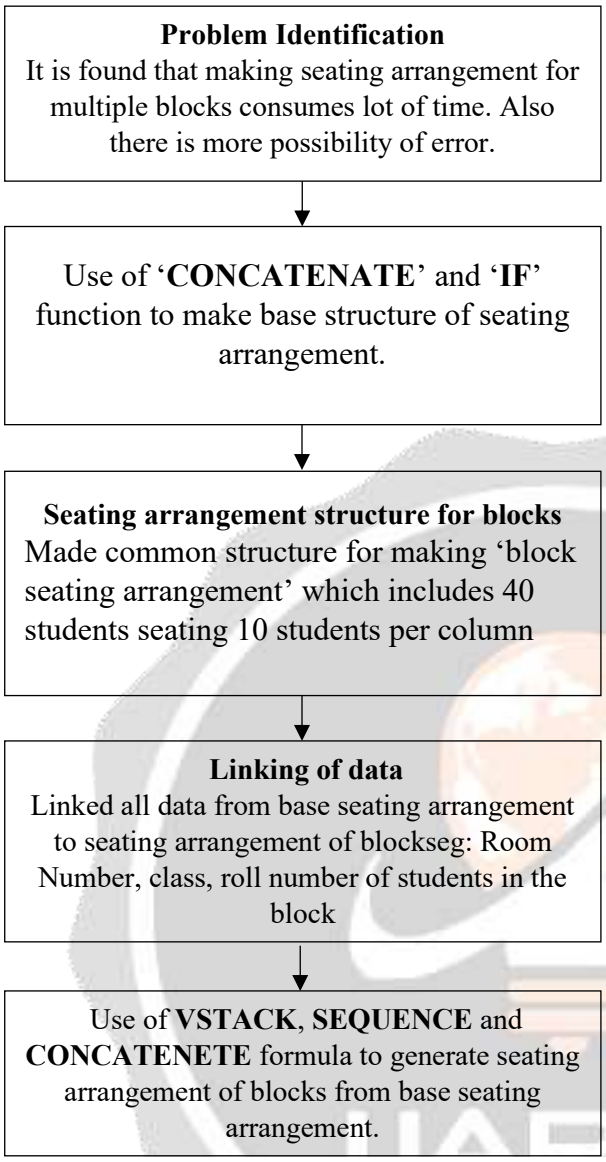

Figure 3- Flow chart

IV. RESULT AND DISCUSSION

The final outcome after using excel to make the seating arrangement will ease the job of exam in charge. The input data that needs to be updated in the excel sheet is very limited and in return we get fully organised output. By using this method, the seating arrangement can be made for 'n' number of blocks having a capacity of less than or equal to 40. The same work if done manually would take 4-5 hours of dedicated time but with the use of excel the work can be sorted within 15-20 minutes. This method is not only time saving but also it gives error free results because excel sheets are totally formulated. Unless someone feeds a wrong input there is very less chance of inaccuracy. To get seating arrangement of all blocks we just need to do entries like class, roll umber from, roll number to in input structure as shown.

CLASS G1	roll no. from	to
Comp-A	10	20
Comp-C	1	29
CIVIL-	20	38
IOT-	1	21
CS&E-	44	64
CIVIL-	1	19

Figure 4 Input structure of seating arrangement

After assigning all students in different blocks the formulated excel will generate 'basic structure of seating arrangement' as well as 'block seating arrangement' automatically.

V. FUTURE SCOPE

There is always a scope of future study in any research work. It gives an idea about the extent to which the findings can be explored more. In this current study we have limited the block capacity to 40 students as per the ergonomics and area of each block. This capacity can be increased up to any desired number as per the availability of space. The only trick would be to experiment more with the functions of the Excel.

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to honorable Principal, **Dr. B.K Mishra** for giving us this platform to unveil our research work. We would also like to thank our ES&H department Incharge, **Dr.SunitaPachori** for continuously encouraging and motivating us. Furthermore we would like to acknowledge with much appreciation the crucial role of our colleague and ex-faculty member of TCET, **Mr.VimalGosar** who gave us his guidance and necessary inputs throughout the course of our research work.

REFERENCES

https://www.educationworld.com/a_tech/techtorial/techtorialintro.shtml
https://support.microsoft.com/en-us/office