Automation of Examination Invigilation Duty

Satyakam Pugla*, Rajesh Jangade*, Anil Barnwal* and A. N. Sahi*

ABSTRACT

Pre-requisite for conduct of Examination viz competitive school and college level exams, entrance exams etc. requires faculty or staff members to perform invigilation duty. Preparation of invigilation duty list is a tedious work if done manually when large number of invigilators is involved for examination scheduled daily in two or more shifts for large number of days. Here we have discussed development of an automated system that can generate invigilation duty list for any type examination. This automated system will take some required data like staff list, dates of examinations and number of invigilators on the days, as input and, gives the invigilation duty list as output according to fed data. It can be useful for any organization, universities, institutes where examinations are held. One can reduce the time wasted in making the invigilation duty list manually using this automated system.

Keywords: Examination, Invigilation, Invigilator, Duty List

I. INTRODUCTION

Here an automated software have been designed that will take all the required data as input and gives the examination duty list as output. All the details, whatever user entered are stored in a database for future use and reference. For trail work Visual Basic 6.0 (VB 6.0) as front end to enter details by users and MS Access as backend to store all details in tabular format are chosen[2][3][8]. There are 8 permanent tables and few temporary tables. Permanent tables are used to store some important and useful data/information but temporary tables are used to store the temporary data which are used for logical work only. After successful completion of such logical work, temporary tables are not needed in future, so such tables are removed from database. The software is password protected to stop the access of strangers and unauthorized person [1][2][3].

II. ANOMOLIES

As we have already discussed in the introduction paragraph of the paper that this software is designed to full fill the specific requirement of the department to conduct the fair and transparent examination. It works in less human efforts to make invigilation duty list. And such type of software is not available either on the WEB as well as in any university.

III. FRAMEWORK

First, all the given details in database are entered then we retrieve the required data from database for logical work. Here the logic implemented to generate the duty list and to make different types of report. Finally, output data are stored in different tables of database for future reference [1][2][3]. The complete work of this automated system is illustrated in figure 1.

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Figure 1: Framework of automated Invigilation Duty List

IV. SETUP

Here in the setup option the user enters all the required data to get the invigilation duty. It contains few sub options as input of different types of data which are as following:

4.1 Exam Dates

Here user gives enters the scheduled dates of examination [2][3]. The screen shot is shown in figure 2.

First enter or select the date of examination from calendar, then number of invigilators required in morning or evening shifts.

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Inside frame 2 in figure 2 three buttons are shown as follows:

Figure 2: Screen to enter the date of exams

- (i) Ok-> if user chooses the ok button then entered details are populated in grid given inside the frame2 in same diagram.
- (ii) Cancel-> if user chooses this cancel button means does not want to populate the given details to the grid due to some wrong input. Then the calendar and two textboxes became blank for new input [5][6].
- (iii)Next-> if this option is chosen, user can select another exam date and number of invigilators in both shifts.

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Figure 3: All details of exam date in grid

Again the ok button is chosen then the details will be populated in the grid. This process is repeated till the entry of all exam dates [7][8]. Now all the entered details are populated in the gird as shown in figure 3.

There are again two buttons in frame 2 of figure 3 as follows:

 (i) Post Duty Dates-> if this button is pressed, all the details shown in the grid is stored in database for future use and confirmation of this saving process is shown in figure 4 with message box displaying message "Duty dates are posted successfully"[5][6][7].

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Figure 4: Data saved confirmation message

(ii) Cancel-> if it is chosen, it will remove all the details shown in grid and user have to enter fresh exam details.

4.2. Faculty Setup

Here details of the employees who are eligible for invigilation duty are saved. There may be some employees in the organization who are not eligible, not willing or not allowed for the duty. Such employees may be removed from the database first [1][2][3]. The final list is saved to database to make invigilation duty.

V. DUTY

5.1. Generate Duty Chart-

Here there are two very important inputs entered in previous menu. First one is final exam dates and second is final employee list for invigilation [4][5]. Both options are shown in two separate frames in figure 5.

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Figure 5: Generation of Duty List

Whenever user clicks the command button 'Generate Duty Chart, it will generate the list of employees according to the requirement entered. This list is stored in the database for future reference [6].

When the process of duty list generation is completed, it will show the confirmation message as shown in figure 6 and status bar indicates that the list is saved successfully in the database. After saving, it is reconfirmed by the message box also [7][8].

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Figure 6: Generating duty chart

5.2. Display Duty Chart

The option 'display duty chart' under the menu Duty will display the list of faculty members with their required personal details as well as their invigilation duty details as shown in figure 7 [6][7].

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11	9				12/2/2015	MOR_SHIFT		
24	0				12/3/2015	MOR_SHIFT		
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Figure 7: Generated duty chart

It shows the consolidated details of date and shift (Timing) of invigilation duty of all the invigilators according the entered details in setup option of paragraph III. This chart is useful for future reference and records.

VI. DUTY QUERY

This menu contains three sub menus to generate invigilation duty list according to different requirements.

6.1. Date Wise

As shown in figure 8, it displays the duty list for the selected date and time. Here user first selects the date and shift of examination and after pressing the show button the list of all invigilators are displayed in the grid for the respective date and time [5][6][7]. It is shown in figure 7, which also shows the number of faculty allotted for the same.

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12 540 Ur. Novitran Kaur Assumation Professor 1532(11111/123/2015 MOR_SHIFT) 13 1055 Dr. Neeta Bhagai Assistant Professor 132015 MOR_SHIFT 14 1105 Dr. Nithin Sinvasta Assistant Professor 1350/2712 11/23/2015 MOR_SHIFT 15 1120 Dr. Nithins Raa Assistant Professor 1332/2716 11/23/2015 MOR_SHIFT 16 603 Dr. Nuper Sinha Assistant Professor 17 2515 Dr. Praveen Dahi, Assistant Professor 1372/2015 MOR_SHIFT 17 2515 Dr. Praveen Dahi, Assistant Professor 17/39/271 11/23/2015 MOR_SHIFT Total Faculty Alloted-> 44	12 610 L		Assistant Professor	38641646 1	1/23/2015	MOR_SHIP	
13 1055 Dr. Nedita Sinvaita Assistanti Profession 17/242/3015 MOR_SHIFT 14 1105 Dr. Nidha Sinvaita Assistanti Profession 19/24/2015 MOR_SHIFT 15 1120 Dr. Nilma Rao Assistanti Profession 16 603 Dr. Naput Sinvaita Assistanti Profession 1932206 11/23/2015 MOR_SHIFT 17 2515 Dr. Proveen Dahn, Assistant Professon 17139127 11/23/2015 MOR_SHIFT 17 2515 Dr. Proveen Dahn, Assistant Professon 17139127 11/23/2015 MOR_SHIFT	10 1055 5	Dr. Navkiran Kaur	Assistant Professor	26332111 1	1/23/2015	MORSHIP	
1 1100 Dr. Nilima Radia Assistant Professor 74332206 11/3/2015 MOR. SHIFT 16 603 Dr. Nuppr Sinhe Assistant Professor 74332206 11/3/2015 MOR. SHIFT 17 2515 Dr. Praveen Dahi, Assistant Professor 17/3/2015 MOR. SHIFT ▼ 17 2515 Dr. Praveen Dahi, Assistant Professor 17/3/2015 MOR. SHIFT ▼	13 1055 L	Dr. Neeta Bhagat	Assistant Professor	1783288 1	1/23/2015	MOR_SHIP	
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Total Faculty Alloted -> 44	17 2515 0	Dr. Proveen Dahiy	Assistant Professor	17139127 1	1/23/2015	MOR_SHIP	
	Tote	al Faculty Alloted	⇒ 44				

Figure 8: Duty Chart for Selected Date

6.2. Employee ID Wise

It displays the duty list for the selected employee. Here user first enter the ID number of invigilator and after pressing the show button the date and time for invigilation of that invigilator is displayed in the grid as shown in figure 9[7][8].

to · Form2]	
			10 Mail							
		Select Employee	ID No:-> [638	tepoit						
10		F	F. 01 N	10	less as	D. L. D. L.	D. J. T			
Sr	No	Faculty_id	Facility Name	Designation	Ph. No	Duty_Date	Duty_Tim	-		
	- 1	030	Dr. Rajashree Das	Assistant Professo	001051054	112312015	MUR_SH			
	2	038	Dr. Rajashree Das	Assistant Professo	891301304	1/24/2016	EVE_SH			
	- 25	638	Dr. Rajashree Das	Assistant Protesse	001261264	12/1/2016	NUR_SH			
	- 4	638	Dr. Rajashree Das	Assistant Professo	891351354	12/1/2015	EVE_SH			
	0	030	Dr. Rajashree Das	Assistant Professo	091301304	12/2/2015	EVE_SH			
	- 12	638	Dr. Rajashree Das	Assistant Protesse	891361364	12/4/2015	MOR_SH			
	0	638	Dr. Rajashree Das	Assistant Professe	001261264	12/0/2015	EVE CH			
	0	620	Dr. Rajashree Das	Accietant Professo	001261264	12/0/2015	MOD SH			
	10	698	Dr. Rajashroo Das	Accistant Professo	801951954	2/14/2015	MOR SH			
	11	638	Dr. Rajashree Das	Accietant Professo	891351354	2/16/2015	MOR SH			
	12	638	Dr. Rajashree Das	Assistant Professo	891351354	2/17/2015	MOR SH			
	1.00.0							_	1	

Figure 9: Duty Chart for Selected Date

VII. REPORTS

7.1. Consolidate Exam Duty Chart

This option generates the consolidate exam duty chart report. This report contains the list of all the invigilators according to invigilation date and invigilation time. Here one can find number of examination duties of any invigilator [1][7]. The example report is shown in figure 10.

20	ataReport2							
	E Zoom 100%	-						
	-						1	
			Amity Inst	itute of Biote	chnolog	Y		
	Print Date	Wednesday Janua	ry 20 FBME Sementer	Exam Duty Chart (C)	00 SEM 20151			
	(MMIDD/TY)	rites areas and	all con and another and	MOR SHIFT: 1	O AM EVE	SHIFT: 2.5 PM		
	Duty Date	Faculty ID	Faculty Name	Designation	Contect No	Duty Time		
	11/23/2015	1104	Mr. Ankur	Assistant Professor	0001501042	MOR_SHIFT		
	11/23/2015	2534	Dr. Subhasha	Assistant Professor	0068164264	MOR_SHIFT		
	11/23/2015	1055	Dr. Neets Bhagat	Assistant Professor	871789288	MOR_SHIFT		
	11/23/2015	1182	Mr. Ankur Saxena	Assistant Professor	0691819235	MOR_SHIFT		
	11/23/2015	2608	Dr. Rachana	Assistant Professors	0282038	MOR_SHIFT		
	11/23/2015	257	Dr. Smta Sahu	Assistant Professor	9610732200	MOR_SHIFT		
	11/23/2015	2825	Ms Ruchi	Assistant Professors	9711270719	MOR_SHIFT		
	11/23/2015	1120	Dr. Nilma Reo	Assistant Professors	9071932206	MOR_SHIPT		
	11/23/2015	2827	Ms. Shweta	Assistant Professors	9711350796	MOR_SHIFT		
	11/23/2015	3361	Ms. Neetu Jabalia	Assistant Professors	9654092349	MOR SHIFT		
	11/23/2015	1109	Dr. Nidhi	Assistant Professors	9899507912	MOR_SHIFT		
	11/23/2015	3514	Mr. Abhishek	Assistant Professors	9999301096	MOR_SHIFT		
	11/23/2015	1126	Dr. Satya Pal	Assistant Professor	3527890869	MOR_SHIFT		
	11/23/2015	1164	Dr. Sarka	Associate Professors	9013865137	MOR_SHIFT		
	11/23/2015	1077	Mr. Neeraj	Assistant Professor	9999929416	MOR_SHIFT		
	11/23/2016	794	Dr. Amit Kaushik	Assistant Professor	8447733804	MOR_SHIFT		
	11/23/2015	988	Mr. Rajesh	Assistant Professors	9312579801	MOR_SHIFT		
	11/23/2015	1127	Dr. Tuhin Rashmi	Assistant Professors	9618797646	MOR_SHIFT		
	11/23/2015	1123	Mrs Smtha M S	Asst Professor 1	871556257	MOR SHIFT		
	11/23/2015	1097	Dr. Archna	Assistant Professors	9999114407	MOR_SHIFT		
			Ber Marriel Hanking	Annonista Professed	1010222127	UCD SHIFT	(a)	

Figure 10: Consolidate Duty Report

7.2. Faculty Wise Exam Duty Chart

This option generates the complete invigilation duty list of any single invigilator. As shown in figure 11,

5 - Faculty Wise Duty Report [23]	DataReport3						
Select Faculty ID:> 257	[[[[]]]	Zoom 100%	7				
Faculty Name of Dr. Smith Salar			-				
Di. onita aana							1
OK Cencel			AMITY INSTIT	UTE OF BIOTECHN	OLOGY		
			ENU SEMESTER LAAD	EVE SHIET 2	6 DM MOS	SHIET 10.1 AM	
		Date: > Wednes	day, January 20,	LVL_JIM L-2	SZ.E.M MOZO	Sele 1.º 19/1 Pale	
					(Month/Day/year	1	
		Eaculty id	Eaculty.name	Designation	Duty Date	Duty Time	
		257	Dr. Smita Sahu	Assistant Professor	11/23/2015	MOR SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	11/24/2015	EVE_SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	11/27/2015	MOR_SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	11/28/2015	MOR SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/1/2015	EVE_SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/12/2015	EVE_SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/14/2015	MOR SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/16/2015	MOR SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/17/2015	EVE SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/2/2015	EVE SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/4/2015	MOR SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/5/2015	MOR SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/7/2015	MOR SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/8/2015	EVE_SHIFT	
		257	Dr. Smita Sahu	Assistant Professor	12/9/2015	MOR SHIFT	

Figure 11: Invigilation Duty list of Individual Invigilator

ID of invigilator is selected from the left panel then it will automatically show the name. If it is correct then user presses the 'Ok' button and the report is generated for selected invigilator [4][7][8]. The individual copy of this report is send to each and every invigilator for their future reference. Invigilators can take the print out of this copy to remember the dates and time for their invigilation duty.

7.3. Date Wise Duty Report:

This option generates the duty list for any particular date and time as shown in figure 12. Here user first selects the date and the time of examination from left panel and after pressing the 'Ok' button it generates the duty list of invigilators who are expected to perform invigilation on the selected date and time.

mination Automation (Amity Institut	e of Biotechnology)	Statement Statements	-	Strengt that Public 5	Status Inc. No. of Concession, Name				
Setup Duty Duty Query Re	sorts Reset								
	Consolidated Exam Duty Chart								
	Faculty wise exam duty chart		_			_			
	Date wise duty report)	
- Date wite data	DataRe	port4							
alest the Free Dates & Las months	@ 1	Zoom 100%	•						
elect the Exam Date > [11/23/2015	-								
MOR_SHIFT	-			Amity Universi	ty U.P				
OK Caneel				Amity Institute of Bi	stechnology				
			End	Semester Exam Duty Cha	rt (EVEN SEM April 20	14)			
				MOR	SHIFT: 10-1 AM	VE SHIFT : 2-5	PM		
		Durby Date	Excuttor ID	Encolty Name	Oscionation	Contact No.	Destry Times		
		23/11/2015	993	Dr. Sanieev Kumar (Jr.)	Assistant Professor	9899348303	MOR SHET		
				an adapter have (m)			mengenet		
		23/11/2015	257	Dr. Smta Sahu	Assistant Professor	9610732200	MOR_SHFT		
		23/11/2015	1127	Dr. Tuhin Rashmi	Assistant Professor	0818707648	MOR_SHPT		
		23/11/2015	1120	Dr. Satya Pal Singh Saroha	Assistant Professor	6527890669	MOR_SHFT		
		23/11/2015	1123	Mrs.Smitha M.S	Asst.Professor I	9871556257	MOR_SHIFT		
		23/11/2015	1120	Dr. Nilma Rao	Assistant Professor	9671932206	MOR_SHFT		
		23/11/2015	1109	Dr. Nidhi Srivastava	Assistant Professor	9899507912	MOR_SHFT		
		23/11/2015	1107	Dr. Nahid Siddiqui	Assistant Professor	9611027206	MOR_SHFT		
		23/11/2015	1097	Dr. Archna	Assistant Professor	9999114407	MOR_SHIPT		
		23/11/2016	1164	Dr. Kemai Mathur	Associate Professor	9810566167	MOR_SHET		
		23/11/2015	1055	Dr. Neela Bhagat	Assistant Professor	9671789288	MOR_SHFT		
		23/11/2015	1164	Dr. Sarika Saxena	Associate Professor	9013865137	MOR_SHFT		
	Parent M	23/11/2015	988	Mr. Raiesh Kumar Janaada	Assistant Professor	9312579601	MOR SHET		
	Pages. N		21						1

Figure 12: Invigilation Duty List with Date and Time

The examination superintendent can refer this report to know the invigilators of particular date and time [5][6][7]. Based on this list, if any invigilator does not report till the time of examination then superintendent can timely contact to the invigilator.

VIII. CONCLUSION

The software developed is in running condition for last 3 years and has been tested at department / institute level for End Term Semester Examination / Supplementary Examination / Entrance / Competitive Examination which continues for 1-30 days in a stretch in morning / evening shifts with requirement of 0-150 or more invigilators. The data output can be at the level of individual faculty report / date wise report / consolidated report for the examination can be generated based on input of the data.

IX. FUTURE WORK

Still this has scope for improvement depending upon the requirement in future. We are targeting for modification in the software which will be web enabled where faculty will receive information as required by email or generated it through valid login ID. As well as the desktop application described above will be online, so the administrator and the users can access the application and data online.

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