



## PANNASOFT OPTIMA™

The Optimized Scheduler  
optimized scheduling on the go!

Resource scheduling in most organizations generally encountered similar problems such as accommodating staff preferences and demands, irregular shift patterns, shortage and excess of manpower distribution and many more. All these constraints have to be met in order to maximize staff satisfaction and have efficient utilization of the workforce.

Pannasoftware Optima™ is an optimized staff scheduler that assists in finding optimal solutions to resource scheduling. It takes into consideration your broad-based requirements as well as your specialized requirements (soft and hard constraints). Moreover, it is easily customizable and scalable to any type of your resource scheduling problem.

Pannasoftware Optima's optimization engine uses state-of-the-art artificial intelligence based on evolutionary computation model to produce optimized and feasible solutions for very large and complex optimization problems taking into consideration feasible criteria and optimization objectives.

### Main Features

Pannasoftware Optima™

- ❖ considers your broad-based requirements as well as your specialized requirements
- ❖ is flexible, customizable and scalable to various types of scheduling problems
- ❖ generates optimized schedules quickly and easily without hassle
- ❖ is platform independent, enabling seamless integration to existing systems

### Benefits

Pannasoftware Optima™ simplifies the complex and time-consuming tasks of resource scheduling into an organized and fluid process. Errors are greatly reduced on constructing schedules and it saves organizations time and resources on complex scheduling activities.

Pannasoftware Optima™ is suitable for use in education institutions, health care institutions, logistic companies, event organizing companies and business enterprises.

## Sample Application – Healthcare Institutions

Pannasoft Optima™ aids healthcare institutions in finding optimal solutions to nurse scheduling with consideration to multiple constraints using the evolutionary computation model.

Table 1 lists the actual hard and soft constraints based on the requirements gathered from a reputable private hospital in Malaysia. The requirements encompassed 160 nurses.

Table 1: Hard and Soft Constraints	
Hard Constraints (must be met)	Soft Constraints (can be given up)
Number of nurses on duty for each shift	Less than 2 same shifts in a row is not preferred (e.g. M-E-M-E)
Mixture of skilled and unskilled nurses	More than 4 same shifts in a row is not preferred (e.g. E-E-E-E-E)
Maximum of 6 continuous working days for each nurse according to labour law	Day off after morning shift is preferred
Hospital's package for night shift: <ul style="list-style-type: none"> <li>o 4 continuous night shifts must be followed by 3 days off</li> <li>o 3 continuous night shifts must be followed by 2 days off</li> </ul>	Day off after evening shift is not preferred
Only staff nurses can become team leader	Evening shift after day off is preferred
	Even distribution of shift assignments among nurses is preferred
	Continuous OT (double shift) is not preferred
	Duty assignment follows the order of the wards
	Equal number of overtime to all staff to avoid dispute
	Apply annual leave when scheduled to work night shift is not preferred
<b>Individual Requests</b>	
Part timers work only 3 days in a week and preferably Tuesday to Thursday	
Some nurses can only work on evening shift except Saturday, Sunday & public holiday	
Some nurses do not work OT (double shift)	
Break of service of 1 week for contractual staff	



A sample output is shown in Figure 1. Outputs are flexible and can be customized according to the user's needs.

STAFF NURSE MIDWIFE / MIDWIFE ROSTER YEAR 200X.		ASSIGNMENT														SHIFT			OTHERS																	
DEPARTMENT:- LABOUR, DELIVERY & NURSERY.		TEAM LEADER 2ND NURSE NIGHT DUTY 1 LABOUR ROOM 2 NURSERY														M 7AM-2PM E 2PM-9PM N 9PM-7AM			r REQUEST OVER-TIME DO DAY OFF AL ANNUAL LEAVE PH PUBLIC HOLIDAY																	
DATE: 01/01/200X--14/01/200X.		WEEK 1							WEEK 2							WEEK 3							WEEK 4							SHIFT		OVERTIME				
NO	DES	STAFF'S NAME	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	H	E	OT	PH	AL	
	SR		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	02	03	04	05	06	07	08	09	10	11	12	13	14	15					
1	SN	ALICE YONG	DO	ALr	ALr	ALr	PHr	ALr	ALr	DOr	ALr	ALr	ALr	ALr	ALr	PHr	DO	PH	E1	M1	M2	M2	M2	E	E	E	M	DO	N1	N1	2	4	4	2	*	
2	SN	KAMILAH	E	E	E1	E1	DO	M1	M1	M1	E2	E2	DO	E	E	M	M	E1	DO	PH	E1	E1	M1	E2	E2	DO	E2	E2	M1	3	*	*	2	*		
3	SN	T K LIM	E1	E1	M	E	E	DO	E	M	N1	N1	N1	SD	NO	DOr	DOr	PHr	PHr	E1	M1	M1	ALr	DOr	E	E	E	M	M	M	3	*	2	2	*	
4	SN	JOLINE MARY	M	M	M1	M	PH	DO	E1	E1	M1	M1	M1	DOr	N1	N1	SD	DO	E	E	E	M	M	M	M	E	E	E	DOr	3	*	5	2	*		
5	SN	MINAH K	E	E	DO	E	M	M	PH	DO	E1	E1	E1	E1	M2	M2	M	N1	N1	N1	SD	DO	E	E	E1	M1	M1	M1	DO	E	3	11	3	2	*	
6	SN	DEVI D	N1	SD	NO	DOr	PHr	ALr	E	E	E	E	DO	M1	M1	M1	M1	N	N	N	SD	DO	E1	E1	M1	M2	M2	M2	DO	E1	4	7	5	2	*	
7	SN	L L MING	DOr	N2	N2	N2	SD	NO	E2	E2	M2	DO	M	M	M	M	E	E1	M	M	DO	N	N	N	SD	NO	DO	E	E	M	6	7	5	2	*	
8	SN	SARIMAH J	DOr	N1	N1	N1	SD	NO	PH	E	E	E	M	M	M	DO	E	E	E	DO	M	M	M	DO	N	N	N	SD	NO	E	6	7	6	2	*	
9	SM	MARY J	DO	E2	E2	E2	E2	M2	M2	M2	N2	N2	N2	SD	DO	PH	E2	E2	M2	DO	E2	E2	E2	DO	N2	N2	N2	SD	NO	M2	6	*	3	2	*	
10	SN	ROSNAH C	N	SD	NO	DO	PH	N	N	N	SD	NO	DO	N	N	N	N	SD	NO	DO	N1	N1	N1	N1	SD	NO	DO	N	N	N	*	9	1	2	*	
11	SN	T Y ONG	DO	N	N	N	N1	SD	NO	DO	N	N	N	SD	NO	PH	DO	N2	N2	N2	SD	PH	NO	DO	N1	N1	N1	N1	SD	NO	*	9	3	2	*	
12	SEN	KURMIT K	N2	SD	NO	DO	PH	N2	N2	N2	SD	NO	DO	N2	N2	N2	N2	SD	NO	DO	N2	N2	N2	N2	SD	NO	DO	N2	N2	N2	*	9	1	2	*	
	SN	SUSILAH L	ON OWN LEAVE							M2	M2	M2	E							ON OWN LEAVE							7									
	SN	W S CHEE	M1	M2	M1	M2	M							E2	E2	M							E1	E1	E1	E1										
MORNING/EVENING/NIGHT DUTY QUOTA			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4						

Figure 1: Sample Output

## BENEFITS FROM USING PANNASOFT OPTIMA™

### Efficiency

- Assists in eliminating problems associated with manual scheduling and allows matrons to focus on quality of care.
- Reduces the administrative effort in creating and managing nurse schedules, except for manual overrides to cater for dynamic changes.
- Helps track details regarding shifts, vacation, sick time, leaves and more.
- A well scheduled workforce optimizes valuable resources.

### Productivity

- A well scheduled roster
  - produces equitable working hours, shifts, overtime and time off
  - provides nurses with adequate restIn turn, increases nurses' productivity, motivation and quality of service.
- Improves nurses' satisfaction and retention by accommodating their requests and preferences.

### Financial Planning

- Assists in calculating financials for staffing requirements, in order to better manage overtime and double shifts.
- Assists in estimating budget and labor costs to manage the bottom line.

### Time Savings

- Quick, easy and effortless scheduling by converting a complex manual process into a simple automated task.
- Time is freed for matrons to focus on other important issues instead of spending hours designing a best-fit schedule.

### Compliance

- Provides information on shift rotation, overtime and annual leaves to enable monitoring of nurses' working records for labour law compliance.
- Schedules produced can be archived to provide labour auditors detailed records of staffing resources.

As a result, Pannasoft Optima™ saves healthcare institutions time and resources while minimizing cost and errors.





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Through Intelligence**

