



Optimum Shift Scheduling

Creating the schedule for shifts of employees can be a very difficult and time-consuming procedure for administrative staff when done with empirical methods while the results can be not very satisfying in terms of cost and quality of provided services.

PRIMARY implements state-of-the-art technology for the scheduling of shifts for employees through the development of appropriate mathematical models and through the application of mathematical optimisation algorithms capable of calculating the optimum schedule.

Objectives

- Creation of a detailed shift schedule
- Minimization of the cost for satisfying the operational requirements by:
 - Minimizing the number of the employees required (wages)
 - Minimizing the amount of overtime, and
 - Minimizing other benefits (work on holidays, weekends, etc.)
 - Improvement of working conditions and thus improvement of employees' efficiency
 - Decrease of the time required for producing the shift schedule by administrative staff

Data entered to the mathematical model

- Wages per employee
- Expertise of each employee
- Seniority per employee
- Participation of each employee to a specific work group - branch - department
- Specific needs for employees of each branch - department
- Preferences of employees for specific shifts
Calendar
- Leave requirements of employees

Constraints taken into account by the mathematical model

- Constraints for minimum - maximum number of working days between successive days-off
- Constraints for minimum - maximum number of night shifts (evening shifts, other special shifts, etc.) per scheduling period
- Constraints for successive shifts (e.g. night shift - morning shift)
- Constraints for number of shifts on holidays
Any other type of constraint

Complementary functionality

- Hierarchy of soft - hard constraints
- Manual override of shift schedule in case of unexpected requirements (e.g. unexpected absence, irregular increase of workload, etc.)
- Shift schedule for substitutes (stand-by)
- Simple process for entering data
- User-friendly Graphical User Interface (GUI)