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ABSTRACT

Most the healthcare facilities are operating 24 hours that require nurse at all times. Generally, there are two or more shifts in a day among the nurses. Nurse scheduling was a difficult scheduling problem that occurs when constructing the schedule for each nurse. There are some problems that need to be considering in having a good scheduling. Normally, the scheduling was created manually that will affect the dissatisfaction of nurses. So, the schedule should be fair enough for everyone and not disturbing nurses' health, families, or social lives. The aim of this study is to analyse the manual schedule for the total number of working days, day shift and night shift and to maximise working days of a nurse by using graph colouring approach. In this study, nurse schedule is a secondary data made by the head nurse of Riyadh Al-Kharj Hospital in Saudi Arabia. The clique number, adjacency matrix, vertex colouring and chromatic number were applied while using Graph colouring approach. Then, GraphTea is used to solve the conflicts among the nurses and the schedule was constructed by using Microsoft Excel linked by Visual Basic for Application (VBA). The graph colouring schedule has shown a feasible solution for the scheduling problem. The better result of this study can be achieved when the number of nurses is increasing in constructing the schedule for getting the flexible and efficient result.