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TANONGSAK GULYANON : PRINCIPLE OF COMPATIBILITY AND REQUIREMENT ANALYSIS FOR TIMETABLE SCHEDULING FOR THAI UNIVERSITY. THEMATIC PAPER ADVISORS : JARERNSRI MITRPANONT, Ph.D. SUPACHAI TANGWONGSAN, Ph.D. 125 p. ISBN 974-664-848-9

This research project describes Brookes's concept as another alternative approach to manually solve the Timetable scheduling problem. All major ideas have been studied, analyzed and reiterated as algorithm for computer automating process. These processes include the *"Principle of Compatibility"*, the *"Requirement Analysis"*, and the *"Solution Space Diagram"* which are performed in Brookes's Planning Stage and Construction Stage. In addition, various techniques such as Recursion and Backtracking are implemented as the problem solving and searching tools.

To elaborate the aforementioned concepts, the new advanced modeling concept called the Unified Modeling Language (UML) is adapted in the Timetable scheduling system analysis and designing step. UML modeling is currently known as a standard visualized modeling language of the Object Oriented Designing Model accepted by the Object Management Group (OMG). Then, the prototype system is developed based on the UML's designing tools such as the Use Case Diagram, Sequence Diagram, Activity Diagram, Class Diagram, etc. The prototype program checks the compatibility of resources, searches for a conflict in the requirement analysis. The most critical resources is scheduled early in the timetable and the least critical resources is scheduled last in order to reduce the number of Backtracking. Finally, the system is tested in four aspects of Brookes's concept test, correctness test, efficiency test and effectiveness test. The results are satisfactory.