In the propounded thesis author studies the periodic railway timetable. The aim of this thesis is to construct time shifts among train lines so that transfers between lines would be planned in the best possible way. Author discusses the problem to solve, and its differences from standard processing of periodic railway timetable construction. Author propounds and code 2 algorithms for optimization of given timetable. At the end of thesis the solutions and algorithms are compared based on statistical data related with the process of periodic railway timetable construction.