CHAPTER III
RESEARCH METHODOLOGY

Problem Analysis

The first step is analyzing a problem. In this project, the problems are the time taken to make a crossword puzzle is long. This happens because it takes time to find the letter that can be checked and to make sure each word not adjoin or coincide to another. Then, after finding an algorithm and data structure that can solve the problem. In this project Parallel Genetic algorithm and array will be used to solve this problem.

Literature Study

In this project, British style grid crossword will be used. Then the first step will be find a source and learn about the British style grid crossword. After that finding and learn from any source about genetic algorithm such as what is genetic algorithm, how to implement genetic algorithm in solving a problem. Then learn about multithreading from books and other source such as what is multithreading, what is thread, what is the difference of parallel and concurrent. Then find suitable data structure to use for the algorithm. In this step, all of the requirement must be learned well. So later on, it will be easier to be implemented in the program to find the solution.

Design

After learned the algorithm, the next step is to design how the algorithm will be implemented in the program. Since multithreading will be used in the program, it must be designed well. Because the memory used in each thread is shared. If shared data changed or edited by more than one thread at once it can make that data corrupt.

Testing

      After design the program, the last step is to test the program. The test will be done by run the program with cases that might be happens. The testing is meant to find error or bug in the program.