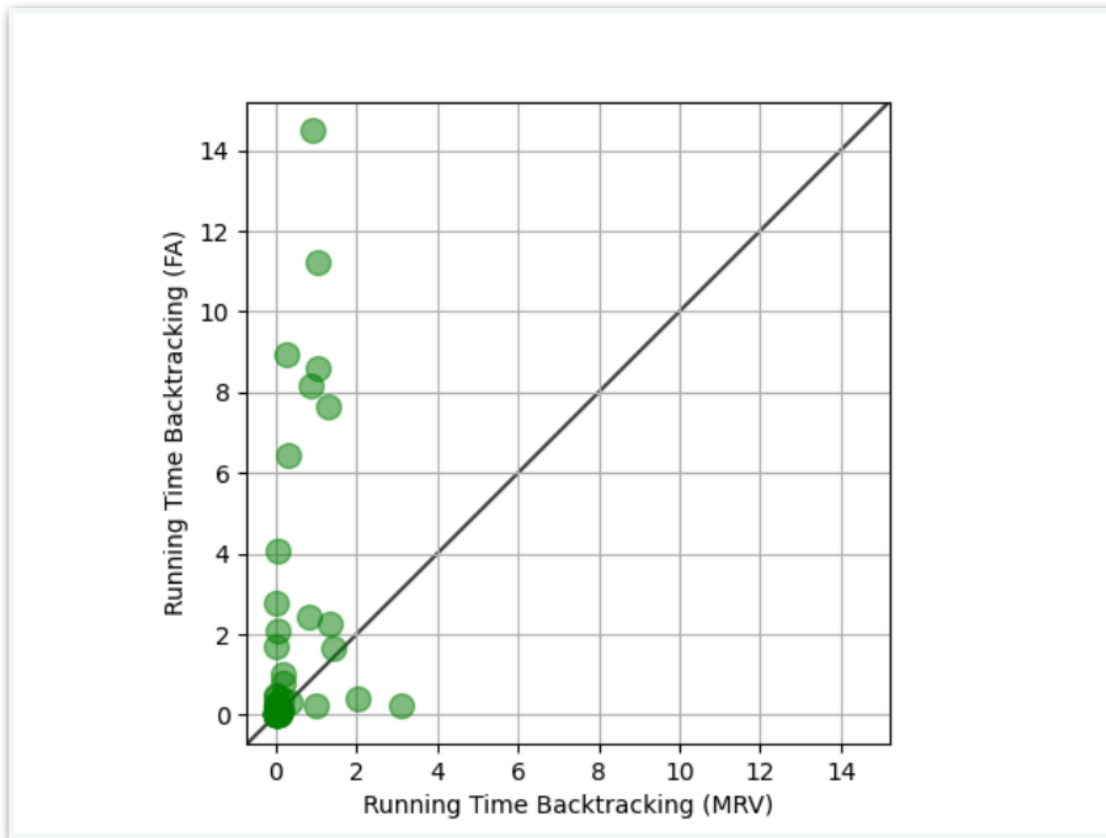


#### **Question 4 — Plot And Discuss the results (4 marks)**

Explain and discuss the results you observe in the scatter plot; please include the plot in your answer. Your answer should not be long. All you need to do is to describe the results you observe and explain them (i.e., why the points in the scatter plot are distributed the way they are?).



- In the code given, `running_time_mrv` and `running_time_first_available` are lists containing the running time in seconds for each of the 95 Sudoku puzzles. The first entry of each list is the running time of the two approaches for the first instance, the second for the second instance and so on.
- The Scatterplot represents — Running time for FA (Y axis) Vs Running time for MRV(X axis)
- The MRV heuristic is much faster than FA in terms of running time, as shown in the scatter plot comparing the two variables' selection times.
- This is also to be expected, as FA's search algorithm will encounter more instances where a solution is not possible, forcing it to go back a greater number of times, whereas MRV will encounter fewer of those because it selects the next variable based on the smallest domain.