CS2104 Lab 3 Report

Yip Jiajie (A0101924R)

Question 1

The ordered function has a complexity of O(n!) as it generates every possible permutations and find one that is actually sorted. The permute function works by picking an element from the list and put it in front of Ys to generate every possible permutations.

Question 2

Functions appendRed, appendWhite and appendBlue finds retrieves the respective colors and then finally appendAll appends all the sorted colors in the red, white and blue order.

Question 3

Firstly, we can find out whether we can move from a start point to an end point by checking all the paths. If there's a solution, we add it to the List of answers.

To avoid cyclic path, we just need to check if the point has been already been accessed by cross-referencing with the List of answers.

Question 4

Since each child is four years apart, we can be sure that Peter and Jane has an age difference of (N-1) * 4 where N is the number of children Granny has. And given that Jane is 19 years old now, we can easily determine granny's age given the number of children she has.

Question 5

A, B, C and D represents the four distinct items in the shopping cart. Since the addition of the four items results to $7.11, we can be sure that every item ranges from $0.00 to $7.11.

Conclusion

Lab 3 is generally manageable except that the syntax and logic behind Prolog can be quite confusing and difficult to debug.