Assigment 1

Yuri Lavinas – 201820755

The popularity of fast food has had a dramatic impact on worldwide health. Because of the still increasing intake of fast food all over the world, many researches were carried out about the effects of eating fast food on health. It is well known that they are rich in calories [1] and fat [1,2], while they lack several nutrients [2-4]. Fast food is claimed to have an important role in causing many diseases, such as obesity and cardiovascular diseases [4,5-8]. Because of its taste and affordable price, fast food is a still growing business, which increases the occurrence of those related diseases [9].

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The Multiobjective Evolutionary Algorithm based on Decomposition (MOEA/D) is a class of algorithms for solving Multiobjective Problems [1] proposed by Zhang in 2007 [2]. Since then several studies were conducted that aimed to improve its limitations. Its main components are decomposition approach, aggregation functions, neighbourhood assignment methods, and variation operators [3]. Some studies carried out investigations on the neighbourhood assignment methods, which defines the neighbourhood structure. In 2009, Li and Zhang [4], proposed the introduction of extra measures when calculating the neighbourhood size that helped to maintain the population diversity. Also in 2009, Ishibuchi et al. [5] introduced the local replacement selection to the MOEA/D, and demonstrated that it has a key role in the performance of the algorithm. In 2012 Zhao et al. [6] proposed to use different values for the neighbourhood size with its related probabilities calculated on the fly. The experiments indicated that using adaptive schemes leads to better results.