Mobile Based Linear Programming Solver Application

(MBLPSA)

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ABSTRACT

Mobile technology has developed during the last few years. Due to this fast development in this field, subscribers of today are enjoying the use of many applications ranging from data, voice, audio to video irrespective of the place where they are stationed or moving. This study focused on the development one of mobile applications which is a Mobile Based Linear Programming Solver Application (MBLPSA). The linear programming is considered one of the basic methods using by the decision makers and scientists, but owing to its complexity in solving of the linear problems that is lead to prove the important roles of the computer applications to hold and solve that kind of problems. But the luck of the availability of computer devices and web applications any where can cause some obstacles for the users. If the system can be automated and made available on mobile access, it will solve that issues currently faced by them. This study proposes to design and to develop a mobile linear programming solver application which can be ensure the solving of the linear programs anytime and anywhere through the using of the mobile devices. The study proposes to follow the research adopted from System Development Research Methodology (SDRM) proposed by (Nunamaker & Chen, 1990); due to its suitability for small to medium sized development projects or applications. Finally it has been proposed conduct a usability test on the prototype developed for ease of use and user friendliness with the aid of a questionnaire.

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CHAPTER 1

INTRODUCTION

The linear programming is considered one of the basic methods which help the decision makers to take right decisions by a scientific way (Li & Xu, 2005; Erensal & Albayrak, 2006). The problems of linear programming are a part of the mathematical programming problems, which may be linear and nonlinear. Moreover, the mathematical programming is in turn part of the topic of a more comprehensive, which is called operational research, which is related with the issues of organization, management, transport, agriculture, industry and so on (Chen & Xi, 2010; Zhengfeng & Jinfu, 2010). The linear mathematical programming is an issue of preference, where the issues whose are intended in this caseare those issues whose are looking to maximize or minimize a linear function related to linear constraints as well (Ho*et al.*, 2010).

From the most important and easiest methods to solve the linear mathematical programs, the simplex method of Dantzig, which is a method of linear programming where it is not necessary to calculate all the acceptable solutions, but it is working on the transition from a solution to another solution better until the getting of the optimal solution (Nash, 2000).This method has remained applicable in many domains (Peng and Li, 2011; Spampinato &Elster, 2009) because of ease of dealing with it in spite of the high complexity, where the complexity reflect on the number of calculations to reach the maximum ideal solution of the problem(Guerfi & Damkhi, 2009).

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