Applied problems of information systems operation

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"OPTIMAL" SOFTWARE FOR CALCULATION OF THE TACTIC GROUP COMPOSITION

Abstract. The preparation of operations the definition of number of ammuniation and technical means involved (used) in tactical group is one of the main matter. In many cases it is required to minimize the estimated casualties among the personnel by taking into account the number of ammunation, weaponry, crew, special forces involved in forming the tactical group. The article is devoted to the programme providing the mathematical model called "Optimal" which deals with the optimizing the content of the tactical group by minimizing the casualties. The program is designed in Visual Studio environment and written in C# algorithm language. In order to use the programme you have to have NET Framework v4.0.30319 version in your operational system.

Keywords: tactical group; casualties; optimization; software.

Introduction

In the course of preparation of operations the definition of number of ammuniation and technical means involved (used) in tactical group is one of the main matter. The definition of tactical group has been prevalently enlightened in a myriad periodic (scientific technical literature) depending on the form of advance, type and the circumstances. It is obvious that these principles can be implemented by selecting various types of ammunition and technical means. This tendency enables to make an optimal choice in selecting variants of ammunitions depending on requirements proposed. The mathematical formulations of aforementioned principles are shown in chart [8, 9]. It comprises different approaches of optimization of the weapons included to the tactical group, their general estimation and minimizing the value have been accepted.

In many cases it is required to minimize the estimated casualties among the personnel by taking into account the number of ammunation, weaponry, crew, special forces involved in forming the tactical group. The article is devoted to the programme providing the mathematical model "Optimal" which optimize and minimize the losses within the tactical group.

"OPTIMAL" programme provision

"OPTİMAL" programme is designed in Visual Studia environment and written in C# algoritm language. In order to use the programme you have to have NET Framework v4.0.30319 version in your opperational system. The block scheme of the module is displayed in Fig. 1. The images on optimal program's interface are shown in Fig. 2, a, b, c. Initially from the Programme window the ammunition category is chosen from the existing forces part. The weapons appropriate to the categories are seen in interface.

Any existing weapon can be chosen by clicking and replaced in a new scheme. At the same time the number and names of the weapons become visible for the user. The maximal number of the weapons chosen for the usage should be selected in " the maximum number of weapons for disposal " window as well. It should be taken into account that the number of weapons selected for usage must not be fewer than the existing number of weapons.

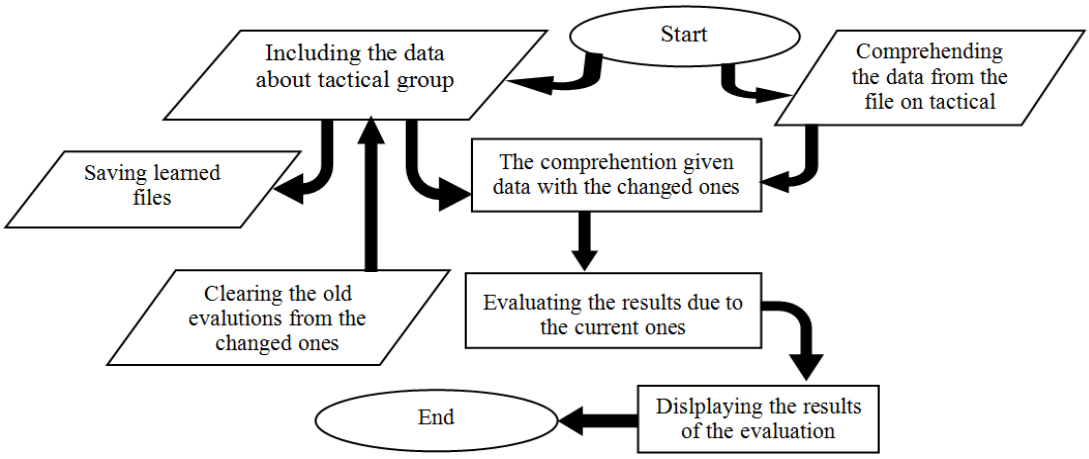
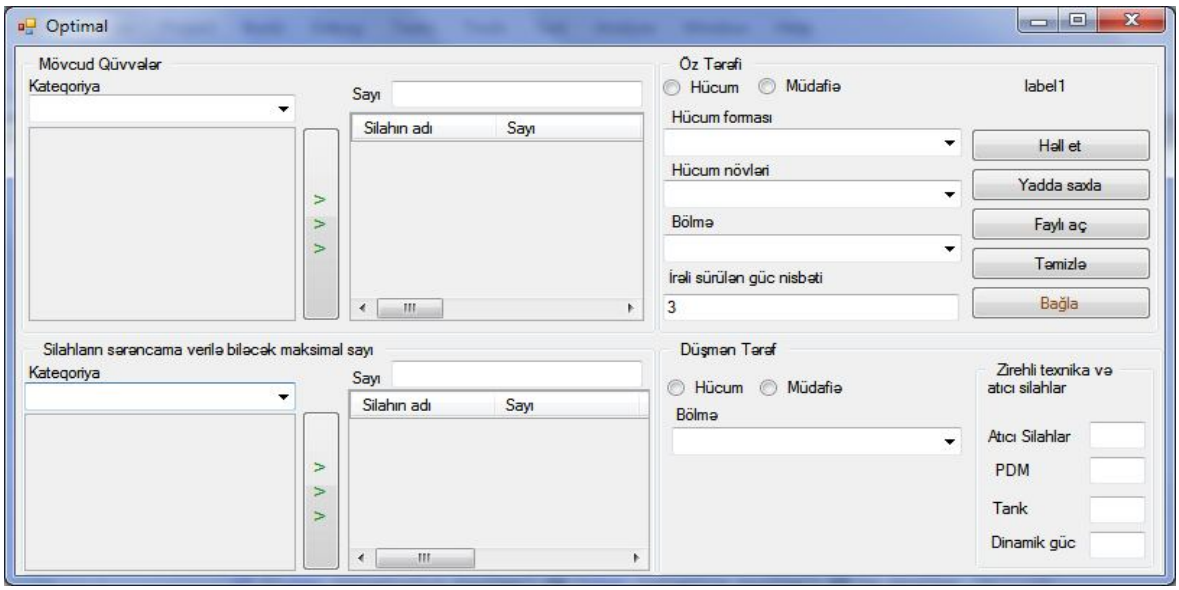
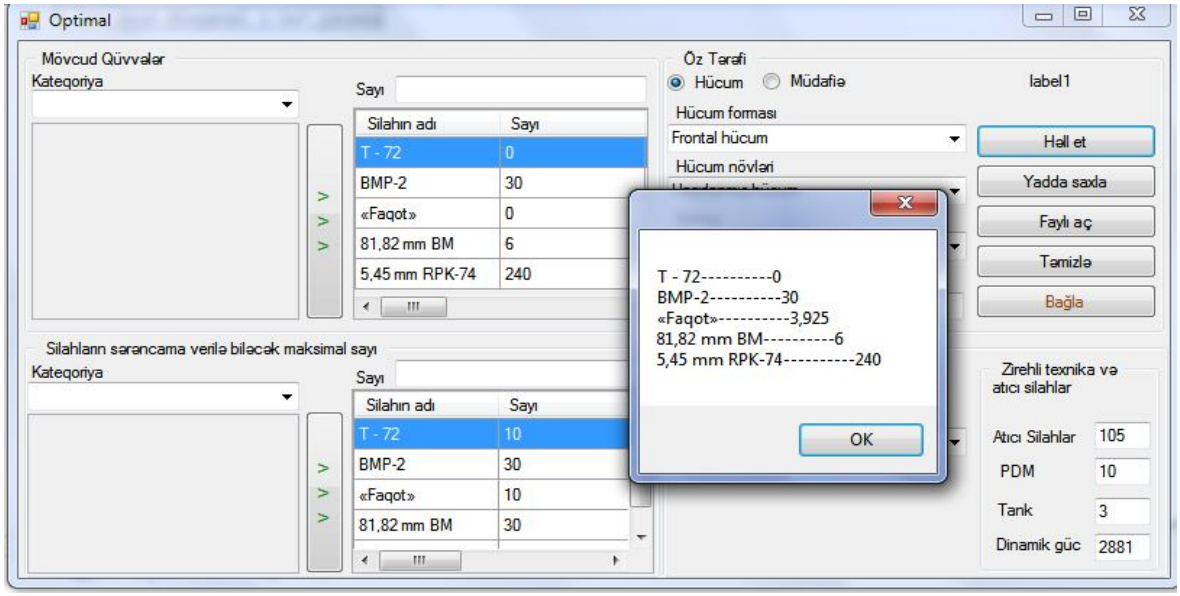


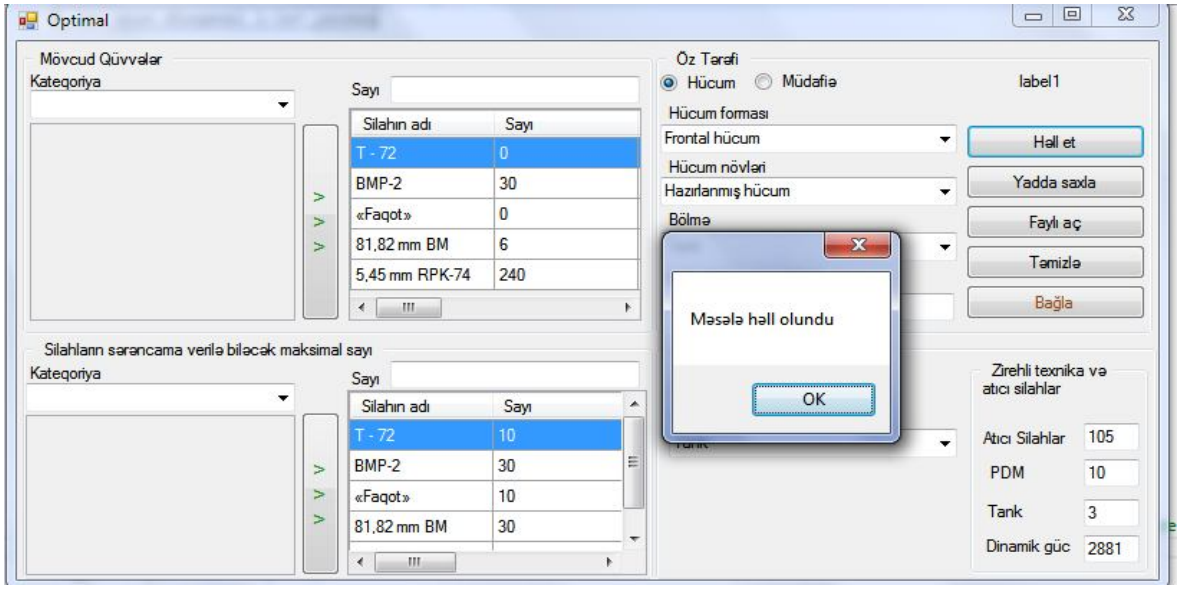
Fig. 1. Scheme of module "OPTİMAL"



a



b



c

Fig. 2. Images on interface

The advance form (the level of defence readiness), the types of advances (the condition obstacle system), sections and selections like aforementioned are carried out in own window part of the program. The number of enemy's armed weaponry and small guns should be selected in the armored vehicles and shooting weapons" section.

The data should be included with maximal accuracy. In the case of necessity of reusing the date later it is possible to save it in ".txt" type of file by clicking the "save" button.

By clicking "open the file" button we can use given data for the latest usage .the name of the weapon included by mistake or if it does not respond the current situation the scheme of weapon file is cleared by using "Clear" button and the names of new weapons are included again. By clicking "Solve" "the optimal contain of tactical group" appears the new window. It is possible to close completely the window and summarize the programme by clicking "Close" button.

Conclusion

So, the article is devoted to the programme providing the mathematical model called "Optimal" which deals with the optimizing the content of the tactical group by minimizing the casualties.

"OPTİMAL" programme has been written in Visual Studio environment in C+ algorithm language. In order to use the Program provision it is necessary to posses .NET Framework v4.0.30319 version.

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Програмне забезпечення "OPTIMAL" для розрахунку оптимального складу тактичної групи

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Анотація. Однією з основних завдань підготовки військових операцій є визначення кількості необхідного озброєння і техніки, що використовується в тактичних групах. У багатьох випадках це вимагає мінімізацію втрат в живій силі спеціальних сил, військової техніки і озброєння для формування тактичної групи. Дана стаття присвячена результатам розробки та експлуатації програмного забезпечення математичної моделі "Optimal", яка дозволяє оптимізувати склад тактичної групи шляхом мінімізації втрат. Програма складена в середовищі Visual Studio і написана на алгоритмічній мові C#. Для використання програми необхідно мати .NET Framework v4.0.30319 версії в оперативній системі комп'ютера.

Ключові слова: тактична група; втрати; оптимізація; програмне забезпечення.

Программное обеспечение "OPTIMAL" для расчета оптимального состава тактической группы

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Аннотация. Одной из основных задач подготовки военных операций является определение числа необходимого вооружения и техники, используемого в тактических группах. Во многих случаях это требует минимизацию потерь в живой силе специальных сил, военной техники и вооружения для формирования тактической группы. Данная статья посвящена результатам разработки и эксплуатации программного обеспечения математической модели "Optimal", которая позволяет оптимизировать состав тактической группы путем минимизации потерь. Программа составлена в среде Visual Studio и написана на алгоритмическом языке C#. Для использования программы необходимо иметь .NET Framework v4.0.30319 версии в оперативной системе компьютера.

Ключевые слова: тактическая группа; потери; оптимизация; программное обеспечение.