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высшего профессионального образования  
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УПРАВЛЕНИЯ И РАДИОЭЛЕКТРОНИКИ» (ТУСУР)  
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АВТОМАТИЗИРОВАННЫЙ АНАЛИЗ ТЕКСТА НА ЕСТЕСТВЕННОМ  
ЯЗЫКЕ.

Отчет по практической работе №1  
по дисциплине «Языки программирования»

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## **1 Введение**

Целью практической работы является закрепление знаний, полученных при изучении учебных курсов по программированию, ознакомление с алгоритмами обработки текста.

## 2 Ход работы

Составить программу для решения нижеприведенной задачи:

Разработать алгоритм определения конца предложения в текстах, написанных на языке, соответствующем варианту задания. В алгоритме учесть многообразие языка и особенности функционального стиля. Например, многоточие (а также !!!, ??? и прочее), сокращения, смайлики, инициалы, точку как разделитель числа, прямую речь, отсутствие заглавных букв и прочее для английского языка (для вариантов будут свои особенности).

Индивидуальное задание: Вариант 8 английский разговорно-обиходный.

Была создана блок-схема для данного задания (рисунок 2.1).

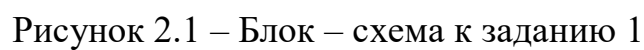
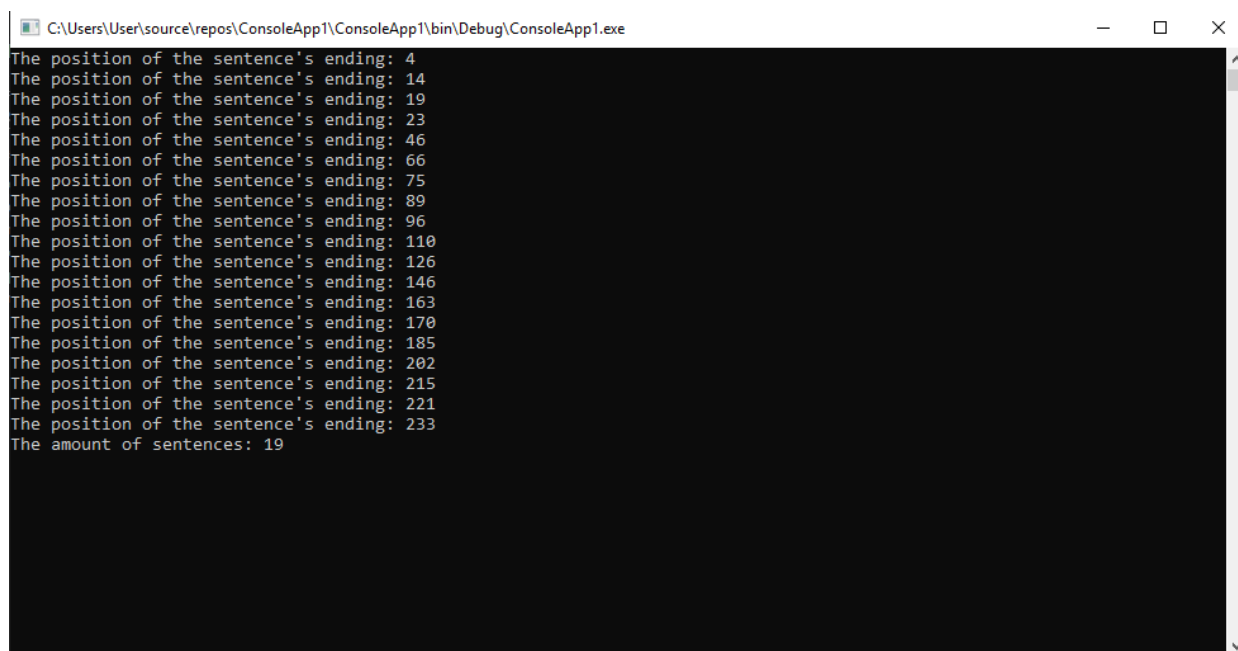


Рисунок 2.1 – Блок – схема к заданию 1

Код программы представлен в приложении А.

Ниже представлены правильно пройденные тесты (рисунок 2.2 – 2.5).

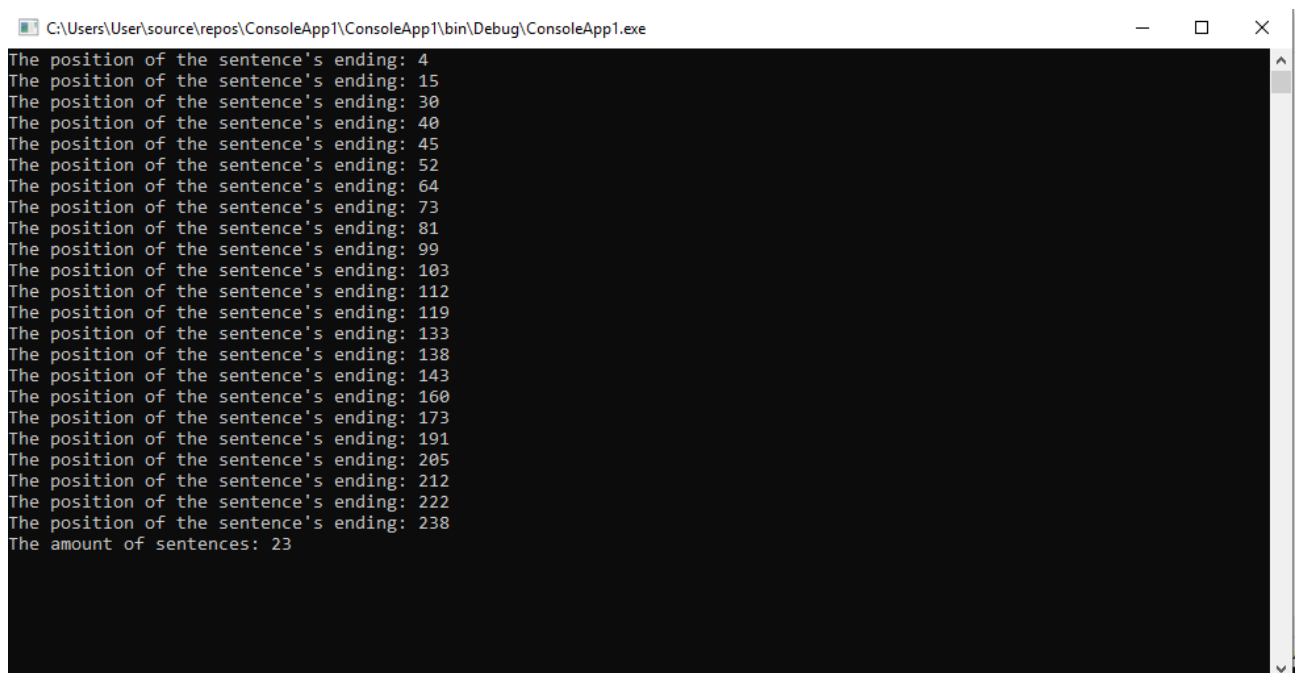
My name is Dima. I am a student of the second year of study. I study at the university. My hobby is music c: When I have free time I usually go to the biggest music shop in my town and buy CDs with my fav. music. I have a big collection of CDs at home, but I cannot resist the temptation of buying a new CD. That's what I like to buy most of all. But when it comes to buying new clothes, I am really at a loss. I do not follow fashion very much. That's why I almost always have problems with finding the clothes that suit me. When I need new clothes, I usually go to a shop with my friend or relatives. Some of them are fond of fashion and may advise me the clothes that are becoming and suit me best. As for food, I like to go to a supermarket and buy there everything my family needs. I often go shopping with my mother. She buys healthy food for our family fruits and vegetables, fish, honey, cheese and turkey. As for me, I buy what I most of all: biscuits, candied fruit jelly, shrimps and sweets. I buy them not only for myself but also for the whole family. That's what I like shopping for. I can buy things that I like and it raises my mood.



```
C:\Users\User\source\repos\ConsoleApp1\ConsoleApp1\bin\Debug\ConsoleApp1.exe
The position of the sentence's ending: 4
The position of the sentence's ending: 14
The position of the sentence's ending: 19
The position of the sentence's ending: 23
The position of the sentence's ending: 46
The position of the sentence's ending: 66
The position of the sentence's ending: 75
The position of the sentence's ending: 89
The position of the sentence's ending: 96
The position of the sentence's ending: 110
The position of the sentence's ending: 126
The position of the sentence's ending: 146
The position of the sentence's ending: 163
The position of the sentence's ending: 170
The position of the sentence's ending: 185
The position of the sentence's ending: 202
The position of the sentence's ending: 215
The position of the sentence's ending: 221
The position of the sentence's ending: 233
The amount of sentences: 19
```

Рисунок 2.2 – Результат первого тестирования программы

Let me introduce myself :) My name is Mariya I am a 20-year-old student from Donetsk. I study at the university in my native town and my future profession is bookkeeping. I live with my parents and my elder sister Lena. We are a friendly family. Lena is 2 years older than me. We share our room and tell all our secrets to each other. We are very much alike: open-hearted, smart and merry. That's why we have a lot of friends. I like organizing parties for our friends as we often gather to-gether, discuss our plans and have fun. My hobby is music. I play the guitar and write my own songs. They say, I have a nice voice. My family and friends often ask me to sing to guitar their favorite songs. Cooking is also my hobby. My Mom cooks very well. She has taught me how to cook a lot of delicious dishes from Ukrainian and Russian cuisine. My favorite dish is French soup, which I cook for the whole family. In the evening, I often watch TV with my family and discuss my plans for the next day. On weekends, I often meet my friends or stay at home and read books. I like novels by J. K. Rowling. I sometimes discuss her style and ideas with my sister. Literature, cooking, TV: I have a lot of topics to talk about and make new friends.



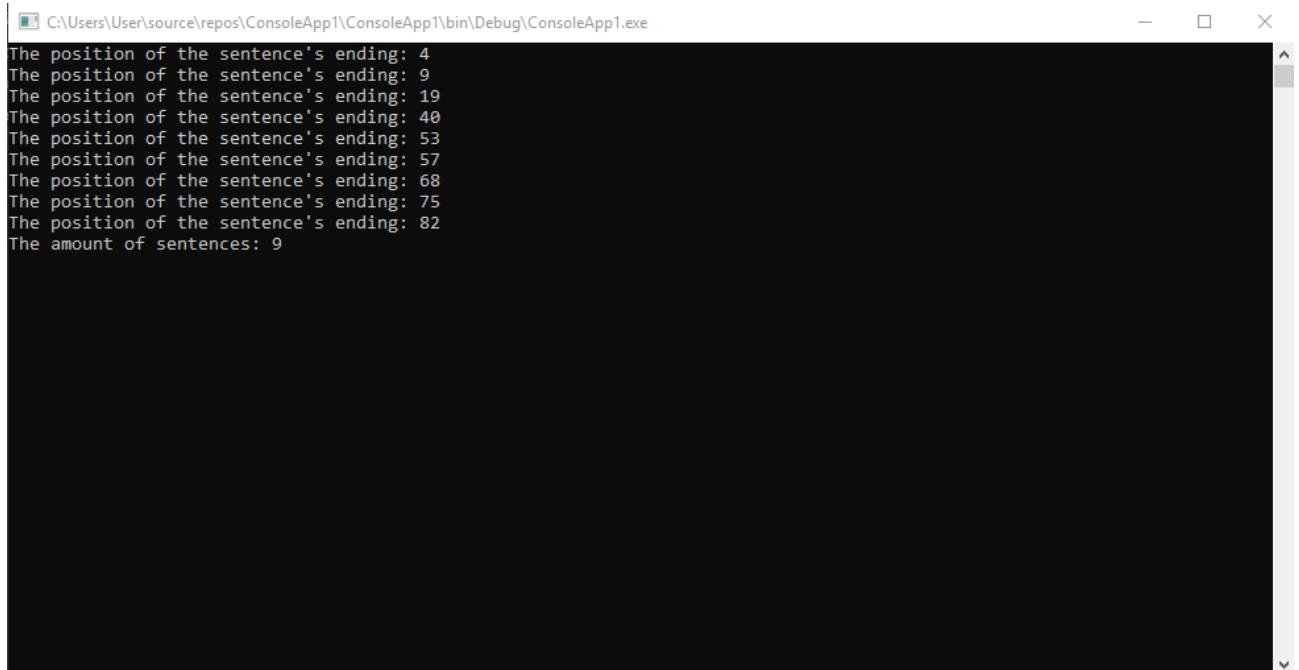
```

C:\Users\User\source\repos\ConsoleApp1\ConsoleApp1\bin\Debug\ConsoleApp1.exe
The position of the sentence's ending: 4
The position of the sentence's ending: 15
The position of the sentence's ending: 30
The position of the sentence's ending: 40
The position of the sentence's ending: 45
The position of the sentence's ending: 52
The position of the sentence's ending: 64
The position of the sentence's ending: 73
The position of the sentence's ending: 81
The position of the sentence's ending: 99
The position of the sentence's ending: 103
The position of the sentence's ending: 112
The position of the sentence's ending: 119
The position of the sentence's ending: 133
The position of the sentence's ending: 138
The position of the sentence's ending: 143
The position of the sentence's ending: 160
The position of the sentence's ending: 173
The position of the sentence's ending: 191
The position of the sentence's ending: 205
The position of the sentence's ending: 212
The position of the sentence's ending: 222
The position of the sentence's ending: 238
The amount of sentences: 23

```

Рисунок 2.3 – Результат второго тестирования программы

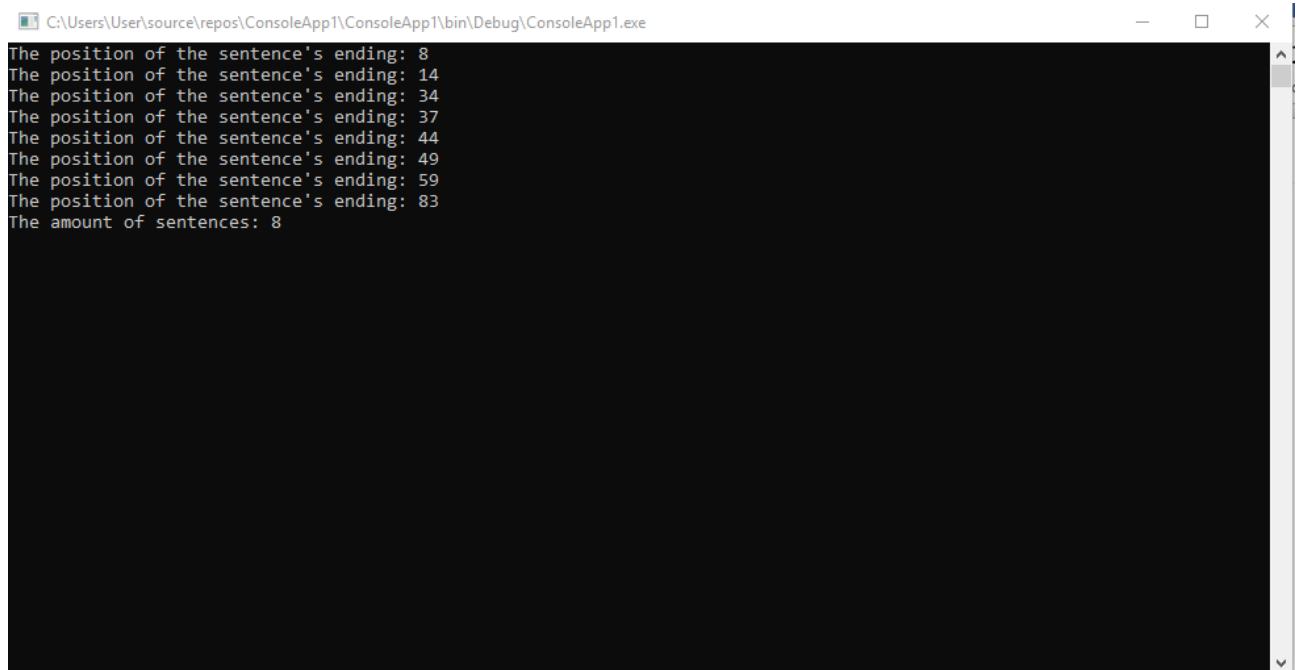
Let's talk about money! It's a very important subject -- I suppose everyone will agree that money gives us freedom. It helps us to feel financially independent, I mean, if we have lots of money and have different source of income. The more money we have, the more things we can afford to buy. It goes without saying. However, I think money shouldn't be the meaning of our life. It's just one side of our life. Money is a means, it isn't everything.

A screenshot of a Windows console application window. The title bar shows the file path: C:\Users\User\source\repos\ConsoleApp1\ConsoleApp1\bin\Debug\ConsoleApp1.exe. The console output is as follows:

```
The position of the sentence's ending: 4  
The position of the sentence's ending: 9  
The position of the sentence's ending: 19  
The position of the sentence's ending: 40  
The position of the sentence's ending: 53  
The position of the sentence's ending: 57  
The position of the sentence's ending: 68  
The position of the sentence's ending: 75  
The position of the sentence's ending: 82  
The amount of sentences: 9
```

Рисунок 2.4 – Результат третьего тестирования программы

A friend in need is a friend indeed. I absolutely agree with this statement. Friends help us when we have different problems and when we need their help but friendship isn't only about help. It's much more. I like spending time with my friends. It's so interesting for me! I don't notice time when I am with my friends. It's a wonderful feeling to have real friends who will never let you down and who will always support you and help in trouble!

A screenshot of a Windows console window titled "C:\Users\User\source\repos\ConsoleApp1\ConsoleApp1\bin\Debug\ConsoleApp1.exe". The window has a black background with white text. The text displays the results of a sentence analysis program, showing the ending position for each of the eight sentences in the input text and the total count of sentences.

```
The position of the sentence's ending: 8
The position of the sentence's ending: 14
The position of the sentence's ending: 34
The position of the sentence's ending: 37
The position of the sentence's ending: 44
The position of the sentence's ending: 49
The position of the sentence's ending: 59
The position of the sentence's ending: 83
The amount of sentences: 8
```

Рисунок 2.5 – Результат четвертого тестирования программы



### **3 Заключение**

В ходе выполнения данной практической работы были закреплены знания, полученные при изучении учебных курсов по программированию, ознакомлены с алгоритмами обработки текста.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.IO;
namespace CSharpConsoleApp
{
    public class Program
    {
        static void Main(string[] args)
        {
            string text =
                File.ReadAllText(@"C:\GevDa\text.txt", Encoding.UTF8);
            string[] words = text.Split(' ');
            string[] exc = { "Mr.", "Mrs.", "Ms.", "Jr.", "Sr.", "Smth.", "Smb.", "smth.",
"smb.", "etc.", "e.g.", "i.e.", "vs.", "ex.", "P.S.", "P.P.S.", "avg.", "approx.", "e.g.",
"esp.", "incl.", "misc.", "prev.", "pt.", "pvt.", "cpt.", "lt.", "cpl.", "Dr.", "dr.",
"a.m.", "p.m.", "fav." };
            string[] smile = { ":"), ":D", "xD", "XD", ":-)", ":-(", ":(", ":*", "._.", "-_-",
":C", ":c", ":/", ":", "|", "o_o", "oO", "o.O", "O_o", "Oo", "O.o", "OWO", "owo", "D:", "o/",
"O/", "0/", ";)", ":P", ":(", ":'(", ":3", "<3", "=3", "./", "c:", "C:", "c;", "C;" };
            int m = 28;
            int s = 35;
            int amount = 0, n = words.Count();
            for (int i = 0; i < n; i++)
            {
                var word = words[i];
                for (int j = 0; j < s; j++)
                {
                    if (smile[j] == word)
                    {
                        amount++;
                        int k = i;
                        int k1 = 1;
                        int k2 = k + k1;
                        Console.WriteLine("The position of the sentence's ending: ");
                        Console.WriteLine(i);
                        //actually people use smiles in the end of the sentence, so we can
confidently say that smile may be some kind of hypothetical ending of sentence
                    }
                }
                if (word.EndsWith("...") || word.EndsWith("!") || word.EndsWith("?") ||
word.EndsWith("!!!") || word.EndsWith("???"))
                {
                    // end of sentence
                    amount++;
                    int k = i;
                    int k1 = 1;
                    int k2 = k + k1;
                    Console.WriteLine("The position of the sentence's ending: ");
                    Console.WriteLine(k2);
                }
                else if ((word.EndsWith(".")) & (word.Length > 2)) // Initials contain only
one letter and doubt, so we make an exception for it by taking any word which contains more
than two symbols
                {
                    bool abbreviation = false;
                    // end of sentence with doubt

```

```

for (int j = 0; j < m; j++)
{
    if (exc[j] == word)
    {
        abbreviation = true;
        // exception check
    }
}
if (abbreviation != true)
{
    if (i + 1 == n)
    {
        // last word
        amount++;
        int k = i;
        int k1 = 1;
        int k2 = k + k1;
        Console.Write("The position of the sentence's ending: ");
        Console.WriteLine(k2);
    }
    else
    {
        string a = words[i + 1];
        if (System.Char.IsUpper(a[0]))
        {
            // capital letter
            amount++;
            int k = i;
            int k1 = 1;
            int k2 = k + k1;
            Console.Write("The position of the sentence's ending: ");
            Console.WriteLine(k2);
        }
    }
}
}
Console.Write("The amount of sentences: ");
Console.WriteLine(amount);
Console.ReadKey();
}
}
}

```