Lab 6.

1. Given a file f whose components are real numbers. To find:

a) the sum of the components of the file f;

b) the product of the components of the file f;

c) sum of squares of file components;

d) the modulus of the sum and the square of the product of the file components;

f) the last component of the file.

2. Given a file f whose components are real numbers. To find:

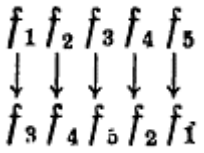
- ✓ the largest of the component values;
- ✓ the smallest of the even-numbered component values;
- ✓ the largest of the modulus values of the components with odd numbers;
- ✓ the sum of the largest and smallest of the values of the components;
- ✓ the difference between the first and last components of the file.

3. Given a file f whose components are integers. To find:

- ✓ the number of even numbers among the components;
- ✓ the number of doubled odd numbers among the components;
- ✓ the number of squares of odd numbers among the components;

4. Symbol files f_1 and f_2 are given. Rewrite the components of file f_1 into file f_2 while preserving the order, and the components of file f_2 into file f_1. Use help file h.

5. Files f_1, f_2, f_3, f_4, f_5 are given, the components of which are real numbers. Organize the exchange of components between files in accordance with the following scheme:



those. the components of file f_1 are overwritten by f_3, the components of file f_2 are overwritten by f_4, and so on. Only one helper file , h , is allowed .

6. Given a symbol file f . File f has at least two components. Determine if the first two characters of a file are digits. If yes, then determine whether the number formed by these digits is even.

7. Given a file f whose components are integers. Get in file g all the components of file f :

- ✓ being even numbers;
- ✓ divisible by 3 and not divisible by 7;
- ✓ which are perfect squares.

8. Given a file f whose components $u_0, u_1, \ldots, u_n$ are consecutive Fibonacci numbers. Get in file f consecutive Fibonacci numbers $u_0, u_1, \ldots, u_{n+1}$.

9. Given a symbol file f . Get file g , formed from file f by replacing all its uppercase (large) letters with lowercase (small) ones of the same name.

10. Calculate according to Horner's scheme the value of a polynomial with rational coefficients for a given rational value of a variable. Assume that the numerators and denominators of the coefficients are written in the file f : first, the numerator and denominator of the highest coefficient, etc., lastly, the numerator and denominator of the free term.

11. Given a file f whose components are integers. Write all even numbers of file f to file g , and all odd numbers to file h . The order of the numbers is preserved.

12. Given a symbol file f . Write the components of file f to file g in reverse order.

13. Symbol files f and g are given . Write to the file h first the components of the file f , then the components of the file g , preserving the order.

14. Given a file f whose components are integers. Get file g formed from file f excluding repeated occurrences of the same number.

15. Given a file f whose components are integers. None of the file components is null. File f contains as many negative numbers as positive ones. Using the auxiliary file h , rewrite the components of file f in file g so that in file g :

- ✓ there were no two neighboring numbers with the same sign;
- ✓ first there were positive, then negative numbers;
- ✓ the numbers came in the following order: two positives, two negatives, two positives, two negatives, and so on. (assuming the number of components in file f is divisible by 4).

16. Given a file f whose components are integers. None of the components of file f is not equal to zero . The numbers in the file are in the following order: ten positive, ten negative, ten positive, ten negative, and so on. Rewrite the components of file f into file g so that the numbers in file g are in the following order:

- ✓ five positive, five negative, five positive, five negative, etc.
- ✓ twenty positive, twenty negative, twenty positive, twenty negative, etc.

(assuming that the number of file components f is divisible by 40).

17. Given a file f whose components are integers. The number of file components is divisible by 100. Write to file g the largest value of the first hundred components of file f , then the next hundred components, and so on.

18. Given a symbol file f . Add characters e , n , d to its end (if necessary, use additional file g).

19. Symbol files f and g are given . Write to file h all initial matching components of files f and g .

20. Given a symbol file f . Write to the file g with the preservation of the order of those characters f :

- ✓ preceded by the letter a in this file;
- ✓ followed by the letter a in this file.