Алгоритмизация и программирование

Урок 02

Отчёт по заданию № 1
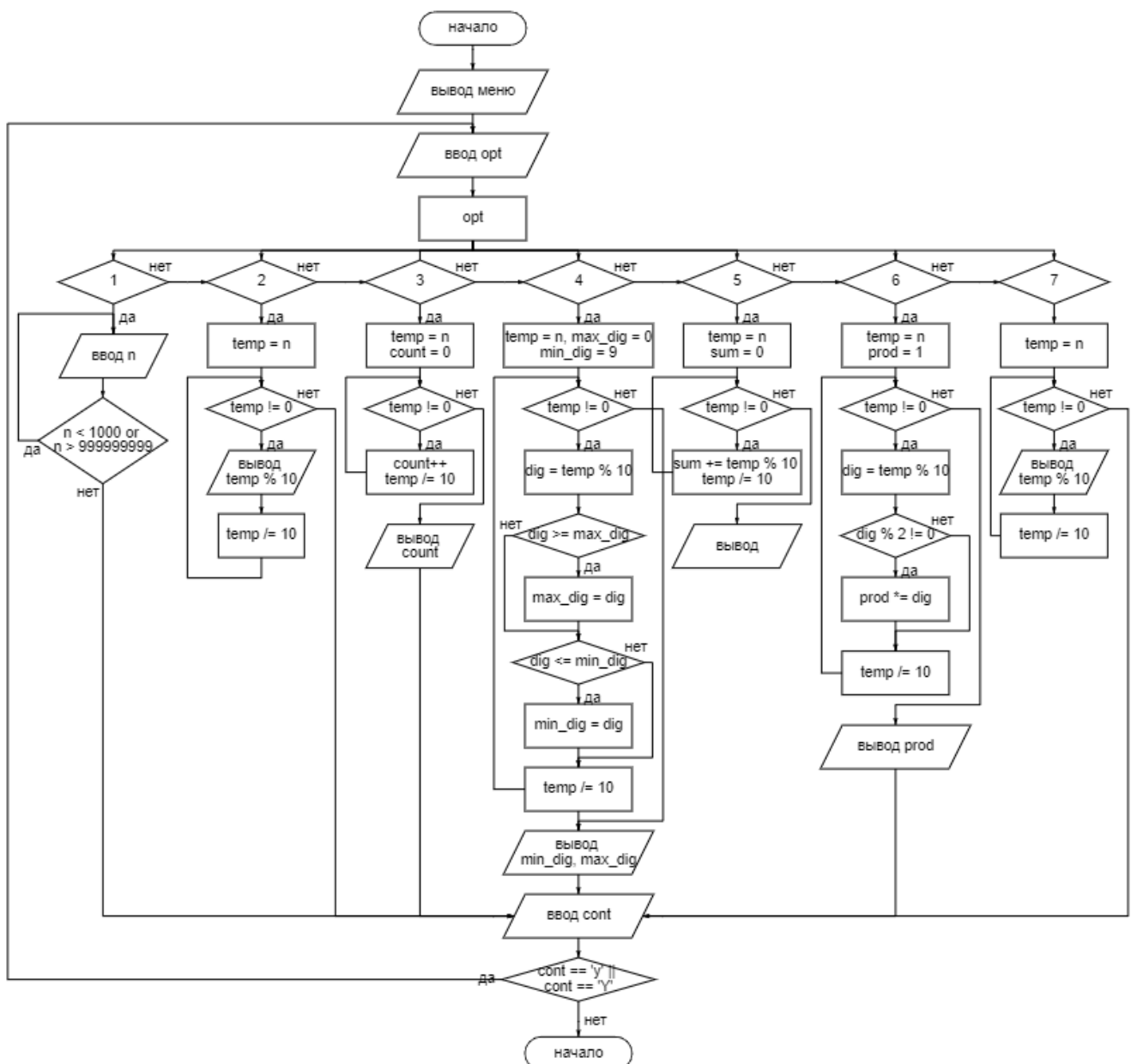
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Задача 1.

Тест:

```
Value of A (from 10 to 1000): 240
Value of B (from 10 to 1000): 720
1) Sum of divisors of A and B = 3162
2) Product of the number of A and B's divisors = 600
3) Sum of product of A's odd divisors and sum of B's even divisors = 2565
4) The greatest common divisor of A and B = 240
```

Задача 2.

Схема:

Тесты:

Пункты 1-3

```
Select an option from [1-7] according to the menu:
[1]. Enter a number in the range between 1000 and 999 999 999
[2]. Print the digits of the number
[3]. Count how many digits the number has
[4]. Return the lowest and highest digits of the number
[5]. Return the sum of the digits of the number
[6]. Return the product of the odd digits
[7]. Calculate the inverted version of the number
-------------------------------------------------
Enter option: 1
Enter a number: 91286

Do you want continue [Y|N]?
y

Enter option: 2
Digits of the number: 6 8 2 1 9

Do you want continue [Y|N]?
y

Enter option: 3
The number has 5 digits.
```

Пункты 4-7

```
Enter option: 1
Enter a number: 91286

Do you want continue [Y|N]?
y

Enter option: 4
The lowest digit of the number: 1
The highest digit of the number: 9

Do you want continue [Y|N]?
y

Enter option: 5
The sum of the digits of the number = 26
Do you want continue [Y|N]?
y

Enter option: 6
The product of the odd digits = 9
Do you want continue [Y|N]?
y

Enter option: 7
Inverted version: 68219
```

Задача 3.

Тесты:

Пункты 1-3

```
------------------------------------------------
Enter option: 1
Enter a value of a variable x: 6
Enter a number of members n of the maclaurin series (2 to 20): 17

Do you want continue [Y|N]?
y

Enter option: 2
Serie terms:
1 6 18 36 54 64.8 64.8 55.5429 41.6571 27.7714 16.6629 9.08883 4.54442 2.09742 0.898895 0.359558 0.134834 0.0475886
Final result:
e^6 = 403.406

Do you want continue [Y|N]?
y

Enter option: 3
Value of x is out of range.
Enter the value of x (-1 < x <= 1): 0.74
Serie terms:
0.74 -0.2738 0.135075 -0.0749664 0.0443801 -0.0273677 0.017359 -0.0112399 0.00739338 -0.00492399 0.0033125 -0.00224698
.00153486 -0.00105467 0.000728424 -0.000505344 0.000351958
Final result:
ln(1 + 0.74) = 0.55403
```

Пункты 4-5

```
------------------------------------------------
Enter option: 1
Enter a value of a variable x: 7
Enter a number of members n of the maclaurin series (2 to 20): 18

Do you want continue [Y|N]?
y

Enter option: 4
Serie terms:
7 -57.1667 140.058 -163.401 111.204 -49.5362 15.5594 -3.63054 0.654031 -0.0937062 0.0109324 -0.00105867 8.6458e-05 -6.03
482e-06 3.6417e-07 -1.91875e-08 8.90327e-10 -3.66605e-11 1.34862e-12
Final result:
sin(7) = 0.656987

Do you want continue [Y|N]?
y

Enter option: 5
Serie terms:
1 -24.5 100.042 -163.401 142.976 -77.8426 28.8961 -7.77972 1.58836 -0.254345 0.0327972 -0.00347849 0.000308779 -2.32772e
-05 1.5087e-06 -8.4973e-08 4.19726e-09 -1.83303e-10 7.12844e-12
Final result:
cos(7) = 0.753902
```

Пункт 6

```
Enter option: 1
Enter a value of a variable x: 25
Enter a number of members n of the maclaurin series (2 to 20): 15

Do you want continue [Y|N]?
y

Enter option: 6
Value of x is out of range.
Enter the value of x (-1 < x < 1): 0.74
Serie terms:
1 1.48 1.6428 1.6209 1.49933 1.3314 1.14945 0.972102 0.809275 0.665404 0.541639 0.43725 0.350529 0.279345 0.22148
Final result:
1/(1 - 0.74)^2 = 14.0009
```