

Тестирование программы:

Случаи некорректного ввода:

Несколько возможных случаев некорректного ввода разобраны на одном скриншоте. При вводе неподходящей строки или числа программа запросит повтор ввода и продолжит выполняться после корректного ввода:

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"D:\MiniProject AVS\cmake-build-debug\MiniProject_AVS.exe"  
Enter the number number of bees:  
3  
Entered number is greater than 30 or less than 4  
Repeat the input  
0  
Entered number is greater than 30 or less than 4  
Repeat the input  
-1  
Entered number is greater than 30 or less than 4  
Repeat the input  
2/0  
Input error!  
Repeat the input  
2.0  
Input error!  
Repeat the input  
Run  
Input error!  
Repeat the input  
a  
Input error!  
Repeat the input  
31  
Entered number is greater than 30 or less than 4  
Repeat the input  
|
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Примеры корректного ввода:

Ниже я проанализировал примеры тестирования.

Для 4 пчел и 1 попытки медведя. Как видно на 23 секунде медведь забирает 15 меда, т.к. в улье было всего две пчелы.

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Enter the number number of bees:
4
Enter the number of times bear coming for honey:
1
Time: 4.885. Bee num 1 fly to search some honey.      |0 honey and 1 bees in the hive|
Time: 5.885. Bee num 2 fly to search some honey.      |0 honey and 1 bees in the hive|
Time: 6.886. Bee num 3 fly to search some honey.      |0 honey and 1 bees in the hive|
Time: 6.889. Bee num 3 add honey.      |Now 1 honey and 2 bees in the hive|
Time: 7.887. Bee num 4 fly to search some honey.      |1 honey and 1 bees in the hive|
Time: 7.889. Bee num 1 add honey.      |Now 2 honey and 2 bees in the hive|
Time: 8.890. Bee num 4 add honey.      |Now 3 honey and 2 bees in the hive|
Time: 8.893. Bee num 1 fly to search some honey.      |3 honey and 1 bees in the hive|
Time: 9.888. Bee num 2 add honey.      |Now 4 honey and 2 bees in the hive|
Time: 9.893. Bee num 3 fly to search some honey.      |4 honey and 2 bees in the hive|
Time: 9.897. Bee num 1 add honey.      |Now 5 honey and 2 bees in the hive|
Time: 11.892. Bee num 2 fly to search some honey.     |5 honey and 1 bees in the hive|
Time: 12.894. Bee num 4 fly to search some honey.     |5 honey and 1 bees in the hive|
Time: 12.896. Bee num 3 add honey.      |Now 6 honey and 2 bees in the hive|
Time: 12.901. Bee num 1 fly to search some honey.     |6 honey and 1 bees in the hive|
Time: 12.904. Bee num 1 add honey.      |Now 7 honey and 2 bees in the hive|
Time: 13.896. Bee num 2 add honey.      |Now 8 honey and 3 bees in the hive|
Time: 15.900. Bee num 3 fly to search some honey.     |8 honey and 1 bees in the hive|
Time: 16.898. Bee num 4 add honey.      |Now 9 honey and 2 bees in the hive|
Time: 17.902. Bee num 2 fly to search some honey.     |9 honey and 1 bees in the hive|
Time: 17.905. Bee num 3 add honey.      |Now 10 honey and 2 bees in the hive|
Time: 17.908. Bee num 1 fly to search some honey.     |10 honey and 2 bees in the hive|
Time: 18.906. Bee num 2 add honey.      |Now 11 honey and 2 bees in the hive|
Time: 19.910. Bee num 3 fly to search some honey.     |11 honey and 1 bees in the hive|
Time: 20.914. Bee num 3 add honey.      |Now 12 honey and 2 bees in the hive|
Time: 21.902. Bee num 4 fly to search some honey.     |12 honey and 2 bees in the hive|
Time: 21.910. Bee num 2 fly to search some honey.     |12 honey and 1 bees in the hive|
Time: 21.912. Bee num 1 add honey.      |Now 13 honey and 2 bees in the hive|
Time: 21.915. Bee num 2 add honey.      |Now 14 honey and 3 bees in the hive|
Time: 21.918. Bee num 3 fly to search some honey.     |14 honey and 2 bees in the hive|
Time: 23.921. Bee num 3 add honey.      |Now 15 honey and 2 bees in the hive|
Time 23.923. The bear is awake 15 honey in the hive
Time: 23.925. Bear get 15 honey. Bees in hive 2
Time 23.927. Bear is now sleeping. Zzzzz.....
Time: 24.905. Bee num 4 add honey.      |Now 1 honey and 3 bees in the hive|
Time: 25.916. Bee num 1 fly to search some honey.     |1 honey and 1 bees in the hive|
Time: 25.919. Bee num 1 add honey.      |Now 2 honey and 2 bees in the hive|
Time: 27.928. Bee num 3 fly to search some honey.     |2 honey and 2 bees in the hive|
Time: 28.920. Bee num 2 fly to search some honey.     |2 honey and 2 bees in the hive|
Time: 29.924. Bee num 2 add honey.      |Now 3 honey and 3 bees in the hive|
Time: 30.931. Bee num 3 add honey.      |Now 4 honey and 4 bees in the hive|
Для продолжения нажмите любую клавишу . . .

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Следующий пример теста, где при 8 пчелах и 2 попытках медведю один раз не повезло, а другой уже повезло и он сорвал куш в целых 19 порций меда.

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Enter the number of bees:
8
Enter the number of times bear coming for honey:
2
Time: 5.793. Bee num 4 fly to search some honey.      |0 honey and 4 bees in the hive|
Time: 6.794. Bee num 5 fly to search some honey.      |0 honey and 1 bees in the hive|
Time: 6.798. Bee num 4 add honey.      |Now 1 honey and 2 bees in the hive|
Time: 7.793. Bee num 1 fly to search some honey.      |1 honey and 2 bees in the hive|
Time: 7.794. Bee num 6 fly to search some honey.      |1 honey and 2 bees in the hive|
Time: 8.793. Bee num 2 fly to search some honey.      |1 honey and 1 bees in the hive|
Time: 8.794. Bee num 7 fly to search some honey.      |1 honey and 1 bees in the hive|
Time: 8.796. Bee num 5 add honey.      |Now 2 honey and 2 bees in the hive|
Time: 9.793. Bee num 3 fly to search some honey.      |2 honey and 1 bees in the hive|
Time: 9.796. Bee num 3 add honey.      |Now 3 honey and 2 bees in the hive|
Time: 10.797. Bee num 1 add honey.      |Now 4 honey and 2 bees in the hive|
Time: 10.800. Bee num 6 add honey.      |Now 5 honey and 2 bees in the hive|
Time: 11.796. Bee num 8 fly to search some honey.      |5 honey and 2 bees in the hive|
Time: 11.798. Bee num 8 add honey.      |Now 6 honey and 3 bees in the hive|
Time: 11.800. Bee num 1 fly to search some honey.      |6 honey and 2 bees in the hive|
Time: 11.801. Bee num 4 fly to search some honey.      |6 honey and 2 bees in the hive|
Time: 11.803. Bee num 6 fly to search some honey.      |6 honey and 1 bees in the hive|
Time: 12.796. Bee num 2 add honey.      |Now 7 honey and 2 bees in the hive|
Time: 12.799. Bee num 7 add honey.      |Now 8 honey and 3 bees in the hive|
Time: 12.800. Bee num 3 fly to search some honey.      |8 honey and 3 bees in the hive|
Time: 12.804. Bee num 1 add honey.      |Now 9 honey and 3 bees in the hive|
Time: 12.811. Bee num 6 add honey.      |Now 10 honey and 4 bees in the hive|
Time: 13.802. Bee num 5 fly to search some honey.      |10 honey and 3 bees in the hive|
Time: 13.804. Bee num 5 add honey.      |Now 11 honey and 3 bees in the hive|
Time: 13.807. Bee num 1 fly to search some honey.      |11 honey and 2 bees in the hive|
Time: 13.810. Bee num 1 add honey.      |Now 12 honey and 3 bees in the hive|
Time: 13.814. Bee num 6 fly to search some honey.      |12 honey and 2 bees in the hive|
Time: 13.816. Bee num 6 add honey.      |Now 13 honey and 3 bees in the hive|
Time: 14.800. Bee num 2 fly to search some honey.      |13 honey and 3 bees in the hive|
Time: 14.802. Bee num 8 fly to search some honey.      |13 honey and 3 bees in the hive|
Time: 14.803. Bee num 7 fly to search some honey.      |13 honey and 3 bees in the hive|
Time: 15.805. Bee num 3 add honey.      |Now 14 honey and 2 bees in the hive|
Time: 15.808. Bee num 4 add honey.      |Now 15 honey and 3 bees in the hive|
Time 15.812. The bear is awake 15 honey in the hive
Time: 15.815. Bear can't get 15 honey. He must heal after fighting with bees. Bees in hive 3
Time: 16.802. Bee num 2 add honey.      |Now 16 honey and 3 bees in the hive|
Time: 16.808. Bee num 7 add honey.      |Now 17 honey and 3 bees in the hive|
Time: 17.805. Bee num 8 add honey.      |Now 18 honey and 3 bees in the hive|
Time: 18.808. Bee num 2 fly to search some honey.      |18 honey and 1 bees in the hive|
Time: 18.808. Bee num 5 fly to search some honey.      |18 honey and 1 bees in the hive|
Time: 18.809. Bee num 3 fly to search some honey.      |18 honey and 1 bees in the hive|
Time: 18.811. Bee num 7 fly to search some honey.      |18 honey and 1 bees in the hive|
Time: 18.814. Bee num 1 fly to search some honey.      |18 honey and 1 bees in the hive|
Time 18.820. Bear is now sleeping. Zzzzz....
Time: 19.811. Bee num 2 add honey.      |Now 19 honey and 2 bees in the hive|
Time 19.813. The bear is awake 19 honey in the hive
Time: 19.814. Bear get 19 honey. Bees in hive 2
Time 19.817. Bear is now sleeping. Zzzzz....
Time: 19.815. Bee num 4 fly to search some honey.      |19 honey and 2 bees in the hive|
Time: 19.821. Bee num 7 add honey.      |Now 1 honey and 3 bees in the hive|

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Time 19.813. The bear is awake 19 honey in the hive
Time: 19.814. Bear get 19 honey. Bees in hive 2
Time 19.817. Bear is now sleeping. Zzzzz....
Time: 19.815. Bee num 4 fly to search some honey.      |19 honey and 2 bees in the hive|
Time: 19.821. Bee num 7 add honey.      |Now 1 honey and 3 bees in the hive|
Time: 19.821. Bee num 6 fly to search some honey.      |1 honey and 3 bees in the hive|
Time: 20.816. Bee num 2 fly to search some honey.      |1 honey and 1 bees in the hive|
Time: 20.818. Bee num 3 add honey.      |Now 2 honey and 2 bees in the hive|
Time: 20.821. Bee num 2 add honey.      |Now 3 honey and 3 bees in the hive|
Time: 22.809. Bee num 8 fly to search some honey.      |3 honey and 3 bees in the hive|
Time: 22.815. Bee num 5 add honey.      |Now 4 honey and 4 bees in the hive|
Time: 22.822. Bee num 4 add honey.      |Now 5 honey and 5 bees in the hive|
Time: 22.823. Bee num 1 add honey.      |Now 6 honey and 6 bees in the hive|
Time: 23.827. Bee num 6 add honey.      |Now 7 honey and 7 bees in the hive|
Time: 24.812. Bee num 8 add honey.      |Now 8 honey and 8 bees in the hive|
Для продолжения нажмите любую клавишу . . .
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Еще один пример, где медведю повезло при 7 пчелах и 1 попытке. На 13 секунде медведь забирает мед, так как в улье было всего 2 пчелы. Для удобства понимая я вывожу еще и время.

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Enter the number of bees.
7
Enter the number of times bear coming for honey:
1
Time: 2.949. Bee num 4 fly to search some honey.      |0 honey and 3 bees in the hive|
Time: 3.950. Bee num 5 fly to search some honey.      |0 honey and 1 bees in the hive|
Time: 3.953. Bee num 4 add honey.      |Now 1 honey and 2 bees in the hive|
Time: 4.949. Bee num 1 fly to search some honey.      |1 honey and 2 bees in the hive|
Time: 4.950. Bee num 6 fly to search some honey.      |1 honey and 2 bees in the hive|
Time: 5.950. Bee num 2 fly to search some honey.      |1 honey and 1 bees in the hive|
Time: 5.954. Bee num 5 add honey.      |Now 2 honey and 2 bees in the hive|
Time: 6.950. Bee num 3 fly to search some honey.      |2 honey and 1 bees in the hive|
Time: 6.952. Bee num 3 add honey.      |Now 3 honey and 2 bees in the hive|
Time: 7.950. Bee num 7 fly to search some honey.      |3 honey and 1 bees in the hive|
Time: 7.952. Bee num 1 add honey.      |Now 4 honey and 2 bees in the hive|
Time: 7.956. Bee num 6 add honey.      |Now 5 honey and 2 bees in the hive|
Time: 8.956. Bee num 1 fly to search some honey.      |5 honey and 1 bees in the hive|
Time: 8.957. Bee num 4 fly to search some honey.      |5 honey and 1 bees in the hive|
Time: 9.953. Bee num 2 add honey.      |Now 6 honey and 2 bees in the hive|
Time: 9.957. Bee num 3 fly to search some honey.      |6 honey and 2 bees in the hive|
Time: 9.960. Bee num 1 add honey.      |Now 7 honey and 3 bees in the hive|
Time: 9.963. Bee num 6 fly to search some honey.      |7 honey and 2 bees in the hive|
Time: 10.957. Bee num 5 fly to search some honey.     |7 honey and 1 bees in the hive|
Time: 10.959. Bee num 5 add honey.      |Now 8 honey and 2 bees in the hive|
Time: 10.963. Bee num 1 fly to search some honey.     |8 honey and 1 bees in the hive|
Time: 10.966. Bee num 6 add honey.      |Now 9 honey and 2 bees in the hive|
Time: 10.969. Bee num 1 add honey.      |Now 10 honey and 3 bees in the hive|
Time: 11.953. Bee num 7 add honey.      |Now 11 honey and 4 bees in the hive|
Time: 11.957. Bee num 2 fly to search some honey.     |11 honey and 4 bees in the hive|
Time: 11.970. Bee num 6 fly to search some honey.     |11 honey and 2 bees in the hive|
Time: 11.973. Bee num 6 add honey.      |Now 12 honey and 2 bees in the hive|
Time: 12.960. Bee num 3 add honey.      |Now 13 honey and 2 bees in the hive|
Time: 12.963. Bee num 4 add honey.      |Now 14 honey and 3 bees in the hive|
Time: 13.956. Bee num 7 fly to search some honey.     |14 honey and 2 bees in the hive|
Time: 13.960. Bee num 2 add honey.      |Now 15 honey and 3 bees in the hive|
Time 13.962. The bear is awake 15 honey in the hive
Time: 13.964. Bear get 15 honey. Bees in hive 2
Time 13.966. Bear is now sleeping. Zzzzzz....
Time: 15.960. Bee num 7 add honey.      |Now 1 honey and 2 bees in the hive|
Time: 15.964. Bee num 5 fly to search some honey.     |1 honey and 2 bees in the hive|
Time: 15.964. Bee num 3 fly to search some honey.     |1 honey and 2 bees in the hive|
Time: 15.973. Bee num 1 fly to search some honey.     |1 honey and 1 bees in the hive|
Time: 16.967. Bee num 4 fly to search some honey.     |1 honey and 1 bees in the hive|
Time: 16.968. Bee num 2 fly to search some honey.     |1 honey and 1 bees in the hive|
Time: 16.977. Bee num 6 fly to search some honey.     |1 honey and 1 bees in the hive|
Time: 17.971. Bee num 3 add honey.      |Now 2 honey and 2 bees in the hive|
Time: 17.973. Bee num 2 add honey.      |Now 3 honey and 3 bees in the hive|
Time: 19.968. Bee num 5 add honey.      |Now 4 honey and 4 bees in the hive|
Time: 19.970. Bee num 4 add honey.      |Now 5 honey and 5 bees in the hive|
Time: 19.976. Bee num 1 add honey.      |Now 6 honey and 6 bees in the hive|
Time: 20.980. Bee num 6 add honey.      |Now 7 honey and 7 bees in the hive|
Для продолжения нажмите любую клавишу . . .

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Пример с фрагмента консоли, при 30 пчелах и 2 попытках медведя, как видно медведь не может забрать мед, так как уже при таком значении пчел практически всегда будет >2. Зеленым выделил, где медведь выводит информацию о своей попытки.

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Time: 5.352. Bee num 20 add honey.      |Now 8 honey and 8 bees in the hive|
Time: 5.354. Bee num 15 add honey.      |Now 9 honey and 9 bees in the hive|
Time: 5.357. Bee num 10 add honey.      |Now 10 honey and 10 bees in the hive|
Time: 5.360. Bee num 25 add honey.      |Now 11 honey and 11 bees in the hive|
Time: 6.327. Bee num 3 fly to search some honey.      |11 honey and 11 bees in the hive|
Time: 6.330. Bee num 3 add honey.      |Now 12 honey and 12 bees in the hive|
Time: 6.328. Bee num 28 fly to search some honey.      |11 honey and 11 bees in the hive|
Time: 6.336. Bee num 28 add honey.      |Now 13 honey and 13 bees in the hive|
Time: 6.328. Bee num 18 fly to search some honey.      |11 honey and 11 bees in the hive|
Time: 6.342. Bee num 18 add honey.      |Now 14 honey and 14 bees in the hive|
Time: 6.327. Bee num 8 fly to search some honey.      |11 honey and 11 bees in the hive|
Time: 6.349. Bee num 8 add honey.      |Now 15 honey and 15 bees in the hive|
Time 6.351. The bear is awake 15 honey in the hive
Time: 6.328. Bee num 23 fly to search some honey.      |11 honey and 11 bees in the hive|
Time: 6.356. Bee num 23 add honey.      |Now 16 honey and 16 bees in the hive|
Time: 6.353. Bear can't get 15 honey. He must heal after fighting with bees. Bees in hive 15
Time: 6.328. Bee num 13 fly to search some honey.      |11 honey and 11 bees in the hive|
Time: 6.366. Bee num 13 add honey.      |Now 17 honey and 17 bees in the hive|
Time: 7.330. Bee num 1 add honey.      |Now 18 honey and 18 bees in the hive|
Time: 7.334. Bee num 21 add honey.      |Now 19 honey and 19 bees in the hive|
Time: 7.337. Bee num 16 add honey.      |Now 20 honey and 20 bees in the hive|
Time: 7.340. Bee num 6 add honey.      |Now 21 honey and 21 bees in the hive|
Time: 7.343. Bee num 11 add honey.      |Now 22 honey and 22 bees in the hive|
Time: 7.346. Bee num 26 add honey.      |Now 23 honey and 23 bees in the hive|
Time: 7.350. Bee num 30 add honey.      |Now 24 honey and 24 bees in the hive|
Time: 9.330. Bee num 12 add honey.      |Now 25 honey and 25 bees in the hive|
Time: 9.334. Bee num 2 add honey.      |Now 26 honey and 26 bees in the hive|
Time: 9.337. Bee num 17 add honey.      |Now 27 honey and 27 bees in the hive|
Time: 9.340. Bee num 22 add honey.      |Now 28 honey and 28 bees in the hive|
Time: 9.343. Bee num 27 add honey.      |Now 29 honey and 29 bees in the hive|
Time: 9.347. Bee num 7 add honey.      |Now 30 honey and 30 bees in the hive|
Time: 9.363. Bee num 1 fly to search some honey.      |30 honey and 12 bees in the hive|
Time: 9.363. Bee num 16 fly to search some honey.      |30 honey and 10 bees in the hive|
Time: 9.363. Bee num 21 fly to search some honey.      |30 honey and 10 bees in the hive|
Time 9.363. Bear is now sleeping. Zzzzz.....
Time: 9.363. Bee num 6 fly to search some honey.      |30 honey and 8 bees in the hive|
Time: 9.363. Bee num 11 fly to search some honey.      |30 honey and 8 bees in the hive|
Time: 9.363. Bee num 26 fly to search some honey.      |30 honey and 7 bees in the hive|
Time: 10.367. Bee num 1 add honey.      |Now 30 honey and 2 bees in the hive|
Time 10.369. The bear is awake 30 honey in the hive
Time: 10.370. Bee num 16 add honey.      |Now 30 honey and 3 bees in the hive|
Time: 10.371. Bear can't get 30 honey. He must heal after fighting with bees. Bees in hive 3
Time: 10.375. Bee num 21 add honey.      |Now 30 honey and 4 bees in the hive|
Time: 10.381. Bee num 6 add honey.      |Now 30 honey and 5 bees in the hive|
Time: 10.384. Bee num 11 add honey.      |Now 30 honey and 6 bees in the hive|
Time: 10.387. Bee num 26 add honey.      |Now 30 honey and 7 bees in the hive|
Time: 11.333. Bee num 12 fly to search some honey.      |30 honey and 7 bees in the hive|
Time: 11.336. Bee num 2 fly to search some honey.      |30 honey and 7 bees in the hive|
Time: 11.340. Bee num 17 fly to search some honey.      |30 honey and 7 bees in the hive|
Time: 11.344. Bee num 22 fly to search some honey.      |30 honey and 7 bees in the hive|
Time: 11.346. Bee num 27 fly to search some honey.      |30 honey and 7 bees in the hive|
Time: 11.363. Bee num 8 fly to search some honey.      |30 honey and 6 bees in the hive|
Time: 11.363. Bee num 13 fly to search some honey.      |30 honey and 6 bees in the hive|
Time: 11.363. Bee num 23 fly to search some honey.      |30 honey and 6 bees in the hive|
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