Practice Arena

Practice problems aimed to improve your coding skills.

- PRACTICE-02_SCAN-PRINT
- PRACTICE-03_TYPES
- LAB-PRAC-02_SCAN-PRINT
- LAB-PRAC-01
- PRACTICE-04_COND
- BONUS-PRAC-02
- LAB-PRAC-03_TYPES
- PRACTICE-05_COND-LOOPS
- LAB-PRAC-04_COND
- LAB-PRAC-05_CONDLOOPS
- PRACTICE-07_LOOPS-ARR
- LAB-PRAC-06_LOOPS
- LAB-PRAC-07_LOOPS-ARR
- LABEXAM-PRAC-01_MIDSEM
- PRACTICE-09_PTR-MAT
- LAB-PRAC-08_ARR-STR
- PRACTICE-10_MAT-FUN
- LAB-PRAC-09_PTR-MAT
- LAB-PRAC-10_MAT-FUN
- PRACTICE-11_FUN-PTR
- LAB-PRAC-11_FUN-PTR
- LAB-PRAC-12_FUN-STRUC
- LABEXAM-PRAC-02_ENDSEM
  - Meanie Numbers
  - Rotate Then Rotate Code
  - The enigma that was Enigma
  - Save the Date
  - Pretty Patterns
  - Trivial Tic-Tac-Toe
  - How Mr C reads your code
  - Malloc Mystery
- LAB-PRAC-13_STRUC-NUM
- LAB-PRAC-14_SORT-MISC

Save the Date

LABEXAM-PRAC-02_ENDSEM

Save the Date [20 marks]

Problem Statement
Mr C wanted to go for a skiing trip with one of his clones. However, he got impatient and kept asking the clone on what date would they go for the trip. again and again at which he clone got irritated and gave Mr C the answer but in a funny way. The clone said "We will go on the trip on the k-th day of year y". The input will give you 2 strictly positive integers k and y, on two different lines.

In the output your have to print the day 1, 2, 3, ... 30, 31 on the first line, the month, 1, 2, 3, ..., 12 on the second line, and the final date in the dd.mm.yyyy format on the third line. Be careful that when you are printing the first two lines, you just have to print the numbers as numbers i.e. 5 is printed as 5. However, while printing the third line, the format must be followed i.e. 5 must be printed as 05 it is a day or a month and it must be printed as 0005 if it is a year. Also notice that there is a dot between day and month and another dot between month and year. There are no spaces.

You will have to take care of leap years while finding the date. Remember that a leap year is any year which is a multiple of 4 and is not a multiple of 100 or which is a multiple of 400. So, 2004 and 2000 are leap years, while 2100 is not a leap year. Also remember that Jan, Mar, May, Jul, Aug, Oct, Dec have 31 days in all years, April, June, September, November have 30 days in all years. February has 28 days in regular years and 29 days in leap years.

Problem-specific Words of Caution:

1. **Do not forget to submit your code**. You can submit multiple times. Your last submission will get graded.
2. Take very good care of following the format carefully when printing the third line of the output.
3. We will never give you an illegal date for example k = 367 (since a year has at most 366 days)
4. We will not compel you to use functions in this question.

General Grading Policy

1. **TOTAL MARKS OF THE EXAM** 20 + 40 + 40 + 70 = 170
2. **TOTAL DURATION OF THE EXAM** 3 hours 30 minutes
3. See below for question-specific details of how partial marking would be done by the autograder in this question
4. Your submissions will be inspected by the autograder as well as a human grader
5. Human graders will (among other things) allot marks for the following

    1. Neatly structured code that uses at least one function other than the main function to process the input. The questions will usually suggest how to use functions to process the input. Submissions that ignore these suggestions and use only the main function to solve the entire problem, will lose a small fraction of marks.

    2. Proper and meaningful variable names

    3. Nice looking and consistent indentation

    4. At least a couple of comments explaining to the human grader what are you doing, especially when the steps are not obvious

5. Comments, good indentation and meaningful variable names are very important for the human grader to understand what are you doing and why. If they cannot understand your code, do not expect them to give you (partial) marks either.

6. Solutions that indulge in hard-coding **will get a straight zero** even if they are passing some test cases. Hard-coding is a form of cheating strategy where someone write code of the form "if(input == A) printf(B)" without doing any calculations on A to obtain B. The values of A and B are either read from the evaluation/submission window or else guessed.
7. Be careful about extra/missing lines and extra/missing spaces if you do not want to lose autograder marks
8. Proportion of marks allotted to autograder (in particular, weightage to visible and hidden test cases) and human grader will be revealed when marks and grading rubrics are released
9. You are allowed to use the libraries stdio.h, math.h, string.h, stdlib.h **but not any other library**. Use of unpermitted libraries will carry a penalty. You may use any programming tools that we have discussed in lectures/tutorials or in lab questions such as arrays (1D, 2D, 3D, arrays of arrays etc), strings, loops, structures, functions, recursion, pointers, linked lists, stacks, queues, graphs, enumerations, flags, conditionals, global, static and shadowed variables.

EXAMPLE:
INPUT
2018
64

OUTPUT:
5
3
05.03.2018

Explanation: Since 2018 is not a leap year, there are only 28 days in February. Since there are 31 days in January, the 64th day is the 5st of March, written as “05.03.2018” (without quotes).

Grading Scheme:
Total marks: **[20 Points]**

There will be partial grading in this question. There are three lines in your output. The first two lines carry 25% weightage and the last line carries 50% weightage. There are 2 visible and 4 hidden test cases.

Please remember, however, that when you press Submit/Evaluate, you will get a green bar only if all parts of your answer are correct. Thus, if your answer is only partly correct, Prutor will say that you have not passed that test case completely, but when we do autograding afterwards, you will get partial marks.

Start Solving! (/editor/practice/6248)