1. In this problem, your input is a floating point number, representing today's temperature in Celsius. You need to print today's temperature in Fahrenheit.
2. In this problem you are given a floating point number. This represents the speed of your car in miles per hour (mph). You need to output the speed in feet per second (fps).
3. In this problem, there are 2 input lines. The first input line represents birthday of userA in MM DD YYYY format. The second input line represents birthday of userB in the same format. It is guaranteed that userB is younger to userA. You need to output the age difference between the 2 users. Print "User B is younger to user A by YY year(s) MM month(s) and DD day(s)". Use the following conversion rules:
    - 1 year = 12 months
    - 1 month = 30 days
4. In this problem, you are given a floating point number as input. (Remember, the number can be positive or negative). You need to output the floor, ceil, and round of the input value. For your convenience the definition of the above functions are mentioned here:

    *floor(x) – Largest integer that is no larger than x*

    *ceil(x) – Smallest integer that is no smaller than x*

    *round(x) – The nearest integer to x*
5. Given 4 integers as input, output the minimum value. You cannot use loop for this task.
6. Given 3 integers as input, output the integers in ascending order. You cannot use loop for this task.
7. In this problem you can only use if-else statement(s). You cannot use switches. Your input is 3 floating point numbers. Assuming these as lengths of 3 lines, you have to answer – can these 3 lines form a triangle? If so, you have to further tell – would it be any of the following?
    - Equilateral triangle
    - Bilateral triangle
    - Right angle triangle
8. In this problem, you can use printf("Hello World!") statement in you code no more than 3 times. You cannot use any other printf() statements (or other output routines.) Your input will be an integer between 1 and 3. Based on the input, your program should print "Hello World!" as many times. This problem must be solved using switch statement.
9. In this problem, your input is 2 integers. You need to output the absolute value of their difference. You cannot use if-else or switch statements here. However, you can use the ternary operator ( ? : ).

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10. In this problem, you are given x, y coordinates of 3 points. The coordinates are floating point numbers. You have to tell if a circle can be drawn through these points. If not, you should print "No circle can be formed". Otherwise, you need to print the equation of the circle in the following format:

    x^2 + y^2 + 2gx + 2fy + c = 0.

Be careful about the output format. You should not print extraneous + or – signs. You should not print extra terms (terms with 0 coefficients). An invalid output example is:

x^2 + y^2 + 2*-10x + 0y + -32 = 0.

Instead, it should be written as: x^2 + y^2 – 20x -32 = 0

11. In this problem your input is a year. You have to tell whether it is a leap year or not. Note that, a year is a leap year if it is divisible by 4, unless it is divisible by 100 – in which case it will be a leap year only if it is divisible by 400.
12. In this problem, you are given the price of some commodity. For first 100 units, the rate is 0.5 Taka / unit. For the next 100 units, it is 0.8 taka / unit. Then onward, the price is 1.2 taka/unit. Your input is an integer representing the number of units bought by the customer. You must output a floating point number representing the total price. You must solve this problem using switch statement(s). If-else or ternary operator is not allowed in this problem.
13. Given integer input n, find and print the prime factors of n. You cannot use arrays for this problem.
14. Given integer input a and b (a <= b), find the gcd of a and b.
15. Given integer input n, find the number of bits that is set in the binary representation of n
16. Solve the problem in link:

    http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=3&page=show_problem&problem=36
17. Given integer input n, find the prime factorization of n. For example, when n = 50, your program should print 2^1 5^2
18. Given integer input n, find floor of $\log_2 n$. (Hint: observe the relation of floor($\log_2 n$) with the highest bit position that is set in n.)
19. In this problem, you are given multiple integers until the end of file. Each integer n will be in the range 2 <= n <= 10000. For each input, you have to identify whether it is a prime number or not. Use the Sieve of Eratosthenes (http://en.wikipedia.org/wiki/Sieve_of_Eratosthenes) method for prime detection.
20. In this problem, your input is a string. The string does not contain any space or tab characters. You need to detect whether the string is a palindrome or not. A palindrome is a word that reads the same forward as well as backward. Some examples are: madam, mom, dad. The input string will be at most 127 characters long. Obviously, you would need an array to hold the string. Other than that, you cannot use any other arrays for any computations. You can use some extra variables (not arrays) as needed for your detection logic.

21. Shape printing. For n=4 output will be like following

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1 2 3 4 4 3 2 1
1 2 3       3 2 1
1 2           2 1
1               1
1 2           2 1
1 2 3       3 2 1
1 2 3 4 4 3 2 1
```

22. Given an integer n, find its square root.
23. Finding if a number has pair wise repeated digits. (e.g: 328328 – yes;  1221- no;  5757290290- yes)
24. Print all ASCII characters.
25. Sum up to n Fibonacci numbers.
26. In this problem, you are given a large integer. The integer may have up to 128 decimal digits. You have to detect whether the integer is divisible by 3 or not. Write necessary code for it.
27. Solve the problem described in the following link:

    http://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=484
28. In this problem, you are given n integers. You are further given 2 integers p and q, where 0 <= p <= q < n. Your task is to sort part of the array between index positions p and q (inclusive) in descending order. The other parts of the array should not be changed. Use selection sort or bubble sort for sorting the part of the array as specified.
29. Write necessary code to multiply 2 matrices.
30. In this problem, you are given n integers in sorted order. The sort order may be ascending or descending. This is not known. Your job is to print out the unique integers in the array.
31. In this problem, your input is a string of length no more than 127 characters. You need to identify the longest chain of the same letter. For example, look at the following input and output.

    Input: aasdsaddddaa

    Output: d repeats 4 times

    Input: assaaaerty

    Output: a repeats 3 times
32. Write necessary code to identify whether a given n x n tic-tac-toe board has a win for X or O.
33. Write a recursive implementation of GCD (Greatest Common Divisor): *int gcd(int a, int b)*
34. Write a recursive implementation of power function: int pow(int a, int b). Use the following rules for recursion:

    a^(2x) = a^x * a^x

    a^(2x+1) = a * a^(2x)

35. Using recursion, implement a function that returns the sum of first n Fibonacci numbers. The prototype of the function should be: int SumFib(int n). You cannot write any other functions except SumFib.
36. You have a global variable char str[127+1]. Write a recursive function that can print the string stored in str in reverse. You cannot use any other global variables.