

Competitive coding questions

1. Rajesh's boss has given him one task for creating a system where he will enter a number and get an output based on some conditions. Assume the input is **X**. It should be an integer. His program will check some conditions and give him some output. The conditions are described below:

Case 1: If the first and last digit is prime

If the first digit of **X** is **a**, and last digit is **b**. The output will be $= a^b$

Case 2: If the first digit is prime but last digit is not prime

If the first digit of **X** is **a**, and last digit is **b**, then the output will be $= a^n$, where **n** is the nearest prime number of **b** and $n > b$

Case 3: If the first digit is not prime but last digit is prime

If the first digit of **X** is **a**, and the last digit is **b**, then the output will be $= n^b$, where **n** is the nearest prime number of **a**, and $n > a$

(Note: **Treat 1 and 0 as non-prime numbers**)

Case 4: If the input is a single digit and prime

If the input **X** is a single digit, the output will be $= X^x$

Case 5: If the input is a single digit and non-prime

If the input **X** is a single digit but not prime, the output will be $= n^n$

Where **n** is the nearest but greater prime number of **X**

Sample input/output

Case 1:

Input: 2637

Output: 128

Explanation: In the input both 2 and 7 are prime. Hence, $2^7=128$

Case 2:

Input: 3634

Output: 243

Explanation: In the input 3 is prime, but 4 is not prime.

Nearest but greater prime number of 4 is 5

Hence, $3^5=243$

Case 3:

Input: 4267

Output: 78125

Explanation: In the input 4 is not prime but 7 is prime.

Nearest but greater prime number of 4 is 5

Hence, $5^7=78125$

Case 4:

Input: 3

Output: 27

Explanation: 3 is prime

Hence, $3^3=27$

Case 5:

Input: 4

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Output: 3125

Explanation: 4 is not prime. The nearest but greater prime number is 5

Hence, $5^5=3125$

2. User input will be two strings. The output will be a list of characters which are present in both the strings. It should not be case sensitive. And all the output characters will be in lowercase.

Case 1

Input1: "Robert"

Input2: "Corel"

Output: ['r', 'o', 'e']

Case 2

Input1: "Camel"

Input2: "Strup"

Output: No characters are common.

3. User input will be an integer number. The output will be the quantity of 1s in its binary equivalent.

Case1

Input: 13

Output: 3

Explanation: The binary equivalent of 13 is 1101. And it has three 1s. Hence the output is 3

4. There will be two inputs. First input is **X** and second input is **Y**. The program will return all the integers between **X** and **Y** excluding them, whose binary equivalent's digit sum is prime.

(Note: Assume 1 and 0 as non-prime)

Input

Input1: 1

Input2: 10

Output:

3

5

6

7

9

Explanation:

Binary equivalent of 3 is: 11, digit sum is $1+1=2$, 2 is prime

Binary equivalent of 5 is: 101, digit sum is $1+0+1=2$, 2 is prime

Binary equivalent of 6 is: 110, digit sum is $1+1+0=2$, 2 is prime

Binary equivalent of 7 is: 111, digit sum is $1+1+1=3$, 3 is prime

Binary equivalent of 9 is: 1001, digit sum is $1+0+0+1=2$, 2 is prime

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5. Abdul got placed in a reputed IT company. To check his ability in coding his boss assigned him one simple task which he has to execute by his coding and analytical skill. There is a circle with diameter 7cm. He needs to imagine that the circle is drawn in a graph sheet. And write a code which can check if any random coordinate is inside the circle or not. First input will be the centre of the circle in the graph sheet, and the second input will be a coordinate. If the coordinate presents inside the circle the program will print "INSIDE", if not, it will print "OUT", and if the point is in the perimeter, then it will print "ON".