Lovely Professional University

CSE330 : COMPETITIVE CODING APPROACHES-TECHNIQUES Max. Marks: 30

Instructions to be followed:

1. Calculate the time and space complexity of the algorithm (5 Marks)
2. Write a program in C/C++ as per the algorithm (10 Marks)
3. Display the screenshots of the output
4. Put all in the single pdf file and upload on the UMS.
5. All questions are compulsory. Each Question Carries 15 marks.
6. Apply Fermat method and Sieve of Atkins to solve the problems (if applicable)

Q1: Rajesh is on a secret mission. His boss gave him a slip with a key number of a locker written on that. Locker has many secret documents which should be protected from spies who are chasing Rajesh to get that key. So that the key number does not get miss used by spies he decided to encrypt the number and converted it into smallest number greater than or equal to key number that is a prime and a palindrome. Help Rajesh in finding this encrypted number.

Input Format

The first line of input contains a single integer T denoting the number of test cases. Then T test cases follow. The first and only line of each test case consists of N.

Constraints

$1 \leq T \leq 100$ $1 \leq N \leq 10^7$

Output Format

Corresponding to each test case, in a new line, print the smallest number greater than or equal to N that is a prime and a palindrome.

Sample Input 0

```
3
188
4
872
```

Sample Output 0

```
191
5
919
```

Q2 Given a positive integer n. Find whether a number is amazing or not. Print True if number is amazing else False. An amazing number is a natural number that is a product of two prime numbers.

Input Format

The first line of the input contains a single integer T, denoting the number of test cases. Then T test case follows, a single line of the input containing a positive integer N.

Constraints

1<=T<=100 1<=N<=100000

Output Format

Print 'True' if it is amazing, otherwise print 'False'.

Sample Input 0

```
2
6
8
```

Sample Output 0

```
True
False
```