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| **Problem Statement:**  You have to implement the concept of **Switch** in Java. The final task is to output the prime number, Fibonacci, String manipulations, factorial, palindrome, Armstrong number  You are given a class having main method. You’ve been provided with a starter code which contains sub-tasks as defined below:  **Sub task 1:** Create switch case in main method  **Sub task 2:** Provide each case 1: Check for a Prime number (A number divisible by only one and itself) 2: Print upto given N Fibonacci (Add first two numbers (0,1) which result to the next number so on) 3: Remove duplicate letters from String 4: Print Factorial (Multiply with same number subtracting one till it reach 1) 5: Check for Palindrome (Reverse of string should be same) 6: Check for Amstrong number (applying power as many digits as it contains and summing up the result)  **Sub task 3:** create different methods for each case and call these methods from the respective case and return the result from these methods  **Sub task 4:** Display the output return by these methods  **Note:**  1. Do not remove the predefined code else your code may not execute as expected.  2. You’ve to solve the problem using **Switch** ONLY. Solving through any alternate method other than the switch may lead to disqualification. |
| **Input Format:**  The first line of input contains a single integer **N** denoting the total cases to be executed.  The subsequent **N** lines contain an integer denoting case number*.*  The subsequent **N** lines contain an integer denoting *the input passed to the case number.*  **Output Format**  Output the result chosen for different cases |
| **Sample Input:**  3  2  1  1  11  5  8  **Sample Output:**  0,1,1,2,3,5,8  5 is a prime number  8 is not a prime number |
| **Test Case 1 :**  **Input:**  2  4  3  5  Alliswell  **Output:**  120  Aliswe  **Test Case 2:**  **Input:**  3  6  5  2  153  ABC  3  **Output:**  153 is a Amstrong Number  ABC is not a palindrome  0,1,1,2,3 |