Introduction to Python – Homework 3

Q1) Write a program to detect “leap years” (闰年). When the user enters a year (like 2009, or 1989), the program should print out “That is a leap year” or “Nope, not a leap year”.

This is the logic (逻辑) for detecting a leap year:

1. If the year divides by 4, but not by 100, it is a leap year
2. If the year divides by 4, and by 100, and by 400, it is a leap year
3. If the year divides by 4, and by 100, and not by 400, it is not a leap year
4. If the year doesn’t divide by 4, it is not a leap year

This means that 1880, 2000, and 2400 are leap years, but 1800, 1900, and 2300 are not.

**The program should look like this when it runs:**

Enter a year: 2000

That is a leap year

Enter a number: 1900

Nope, not a leap year

Hint: You will need to use if/else to solve this problem. If you want to check if a number divides by 4, 100, or 400, remember Python has the “%” operator! You can use it like this:

>>> 100 % 4

0 # 100 divides by 4, so the answer is zero!

>>> 101 % 4

1 # 101 does not divide by for, so the answer is \*not\* zero!

This means 100 divides evenly by four (because the result is 0), while 101 does not. This will help you to write your leap year program! So, you can write if/else statements like this one:

if year % 4 == 0:

print(“The year divides evenly by four…so do something…”)