

BIS 420 PROGRAMMING FOR DATA SCIENCE

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The (so-called) Birthday Paradox:

1. Write a function called `has_duplicates` that takes a list and returns `True` if there is any element that appears more than once. It should not modify the original list.
2. If there are 23 students in your class, what are the chances that two of you have the same birthday? You can estimate this probability by generating random samples of 23 birthdays and checking for matches. Hint: you can generate random birthdays with the `randint` function in the `random` module.

You can read about this problem at http://en.wikipedia.org/wiki/Birthday_paradox, and you can download my solution from <http://thinkpython.com/code/birthday.py>.

```
/usr/local/bin/python3 "/Users/prajaktapohare/Library/CloudStorage/OneDrive-ILStateUniversity/BIS420/Week 10/BIS420_PrajaktaPohare_Ch10_10.8.py"
• → ~ /usr/local/bin/python3 "/Users/prajaktapohare/Library/CloudStorage/OneDrive-ILStateUniversity/BIS420/Week 10/BIS420_PrajaktaPohare_Ch10_10.8.py"
After 1000 simulations
with 23 students
there were 516 simulations with at least one match
*****I*****
False
True
○ → ~
```