Congratulations! You passed!
TO PASS 75% or higher

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Hash Tables and Hash Functions

LATEST SUBMISSION GRADE
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1. **What is the size of the array needed to store integer keys with up to 12 digits using direct addressing?** — 1 / 1 point

   - 12
   - 10^{12}
   - 2^{12}

   Correct
   This is the number of all integers with up to 12 digits.

2. **What is the maximum possible chain length for a hash function $h(x) = x \bmod 1000$ used with a hash table of size 1000 for a universe of all integers with at most 12 digits?** — 1 / 1 point

   - 10^{9}
   - 1
   - 10^{12}

   Correct
   When the values of the last 3 digits are fixed, there are 10^{9} numbers with at most 12 digits.

3. **You want to hash integers from 0 up to 1000000. What can be a good choice of p for the universal family?** — 1 / 1 point

   - 999997
   - 1000003
   - 1000002

   Correct
   This is a prime number bigger than 1000000.

4. **How can one build a universal family of hash functions for integers between -1000000 (minus one million) and 1000000 (one million)?** — 1 / 1 point

   - Take the universal family for integers with $p = 1000003$.
   - First, add 1000000 to each integer. Then use the universal family for integers with $p = 1000003$.
   - First, add 1000000 to each integer and get the range of integers between 0 and 2000000. Then use the universal family for integers with $p = 2000003$.

   Correct