Hash Tables and Hash Functions

4/4 points earned (100%)

Quiz passed!

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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?

- 12
- 10^{12}

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

- 2^{12}

1 / 1 points

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

Correct Response

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

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1 / 1 points

3.

You want to hash integers from 0 up to 1000000. What can be a good choice of p for the universal family?

- 1000003

Correct Response

This is a prime number bigger than 1000000.

- 1000002
- 999997

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1 / 1 points

4.

How can one build a universal family of hash functions for integers between -1000000 (minus one million) and 1000000 (one million)?

- First, add 1000000 to each integer. Then use the universal family for integers with $p = 1000003$.
- Take the universal family for integers with $p = 1000003$.
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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 Response