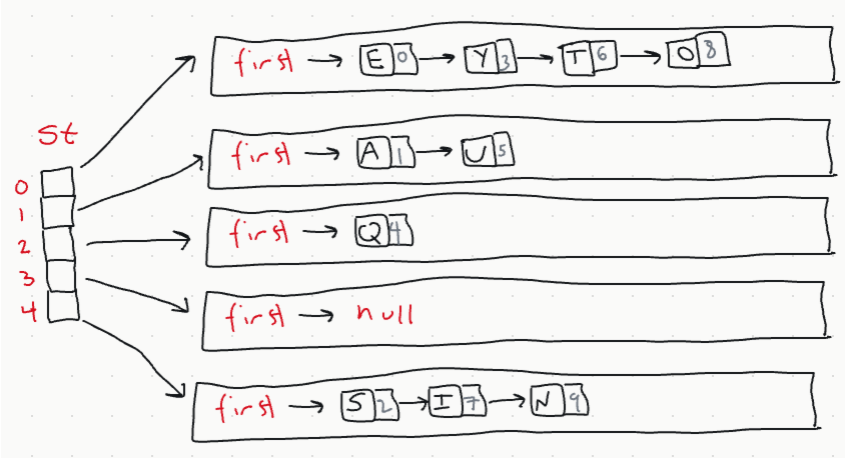

Figure 1: Separate Chaining Hash Table from keys `E A S Y Q U T I O N`.

Sergio E. Garcia Tapia
Algorithms by Sedgewick and Wayne (4th edition) [SW11]
January 03, 2025

3.4: Hash Tables

Exercise 1. Insert the keys `E A S Y Q U T I O N` in that order into an initially empty table of $m = 5$ lists, using separate chaining. Use the hash function `11 * k % m` to transform the kth letter of the alphabet into a table index.

Solution.

- E is the 5th letter, so $11 \cdot 5 \% 5 = 0$.
- A is the 1st letter, so $11 \cdot 1 \% 5 = 1$.
- S is the 19th letter, so $11 \cdot 19 \% 5 = 4$.
- Y is the 25th letter, so $11 \cdot 25 \% 5 = 0$.
- Q is the 17th letter, so $11 \cdot 17 \% e 5 = 2$.
- U is the 21st letter, so $11 \cdot 21 \% 5 = 1$.
- T is the 20th letter, so $11 \cdot 20 \% 5 = 0$.
- I is the 9th letter, so $11 \cdot 9 \% 5 = 4$.
- O is the 15th letter, so $11 \cdot 15 \% 5 = 0$.
- N is the 14th letter, so $11 \cdot 14 \% 5 = 4$.

See Figure 1.

References

[SW11] Robert Sedgewick and Kevin Wayne. *Algorithms*. 4th ed. Addison-Wesley, 2011. ISBN: 9780321573513.