Impact of Hash Collisions

- **False Positives:** Collisions can cause the algorithm to report a match where there is none. When the hash values match, the algorithm performs a direct comparison to confirm the match, but this extra step can lead to inefficiency.
- **Performance degradation:** If collisions are frequent, the number of direct comparisons increase, which can degrade the performance of the algorithm.

To handle collisions:

1. **Verify Matches:** After finding substrings with matching hash values, perform a direct comparison to ensure that the substring actually matches the pattern.
2. **Choose a good hash function:** Use a hash function with a low probability of collisions. Polynomial rolling hash functions are commonly used in practice.
3. **Use large modulus:** Choose a large prime modulus to reduce the likelihood of collisions.