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| **PolyHash in C++** | |
| #include <iostream>  #include <string>  using namespace std;  long long poly\_hash(const string& s) {  long long hash = 0;  long long p = 31;  const long long mod = 1000000007;  long long p\_power = 1;  for (int i = 0; i < s.length(); i++) {  hash = (hash + (s[i] - 'a' + 1) \* p\_power) % mod;  p\_power = (p\_power \* p) % mod;  }  return hash;  }  int main() {  string s = "abaasdasdasfasasfaba";  cout << "Hash value: " << poly\_hash(s) << endl;  return 0;  } | **String Details**  Length: 20 Characters: a b a a s d a s d a s f a s a s f a b a  We’ll use:   * p = 31 * mod = 1000000007   Hash formula:  hash = (hash + (s[i] - 'a' + 1) \* p\_power) % mod;  p\_power = (p\_power \* p) % mod;  **🧮 Dry Run Table**   | **i** | **s[i]** | **Val (s[i]-'a'+1)** | **p\_power** | **Contribution (mod 1e9+7)** | **Hash So Far** | | --- | --- | --- | --- | --- | --- | | 0 | a | 1 | 1 | 1 | 1 | | 1 | b | 2 | 31 | 62 | 63 | | 2 | a | 1 | 961 | 961 | 1024 | | 3 | a | 1 | 29791 | 29791 | 30815 | | 4 | s | 19 | 923521 | 17546899 | 17577714 | | 5 | d | 4 | 28629151 | 114516604 | 132094318 | | 6 | a | 1 | 887503681 | 887503681 | 196981992 | | 7 | s | 19 | 512613868 | 842901208 | 103882398 | | 8 | d | 4 | 891031477 | 3564125908 → 564125894 | 668008292 | | 9 | a | 1 | 62135468 | 62135468 | 730143760 | | 10 | s | 19 | 256572640 | 4874880160 → 874880132 | 605023885 | | 11 | f | 6 | 953752268 | 5722513608 → 722513601 | 327537479 | | 12 | a | 1 | 566320160 | 566320160 | 893857639 | | 13 | s | 19 | 566924949 | 10771573931 → 771573888 | 665431520 | | 14 | a | 1 | 574673514 | 574673514 | 240105027 | | 15 | s | 19 | 815124426 | 15487364094 → 487364703 | 727469730 | | 16 | f | 6 | 269857340 | 1619144040 → 619144033 | 346613756 | | 17 | a | 1 | 366577506 | 366577506 | 713191262 | | 18 | b | 2 | 363902559 | 727805118 | 441996373 | | 19 | a | 1 | 281979458 | 281979458 | **649975831** |   **✅ Final Hash Value**  Hash value: 649975831 |
| Hash value: 649975831 | |