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| **String Compression in C++** | |
| #include <iostream>  #include <string>  using namespace std;  string compression1(string str) {  if (str.empty()) return ""; // Handle edge case  string s;  s += str[0]; // Append the first character directly  for (int i = 1; i < str.length(); i++) {  char curr = str[i];  char prev = str[i - 1];  if (curr != prev) {  s += curr; // Append only if current character is different from previous  }  }  return s;  }  string compression2(string str) {  if (str.empty()) return ""; // Handle edge case  string s;  s += str[0]; // Append the first character directly  int count = 1;  for (int i = 1; i < str.length(); i++) {  char curr = str[i];  char prev = str[i - 1];  if (curr == prev) {  count++; // Increment count for consecutive characters  } else {  if (count > 1) {  s += to\_string(count); // Append count if it's greater than 1  count = 1; // Reset count  }  s += curr; // Append current character  }  }  if (count > 1) {  s += to\_string(count); // Append the final count if needed  }  return s;  }  int main() {  string str = "wwwwaaadexxxxxx";  cout << compression1(str) << endl;  cout << compression2(str) << endl;  return 0;  } | ****Step-by-Step Dry Run:**** compression2("wwwwaaadexxxxxx")  | **i** | **curr** | **prev** | **count** | **Output so far** | **Action** | | --- | --- | --- | --- | --- | --- | | 1 | w | w | 2 | w | same, count++ | | 2 | w | w | 3 | w | same, count++ | | 3 | w | w | 4 | w | same, count++ | | 4 | a | w | 1 | w4a | append 4, then a | | 5 | a | a | 2 | w4a | same, count++ | | 6 | a | a | 3 | w4a | same, count++ | | 7 | d | a | 1 | w4a3d | append 3, then d | | 8 | e | d | 1 | w4a3de | different, append e | | 9 | x | e | 1 | w4a3dex | append x | | 10 | x | x | 2 | w4a3dex | same, count++ | | 11 | x | x | 3 | w4a3dex | same, count++ | | 12 | x | x | 4 | w4a3dex | same, count++ | | 13 | x | x | 5 | w4a3dex | same, count++ | | 14 | x | x | 6 | w4a3dex | same, count++ | | end |  |  |  | w4a3dex6 | append 6 |  🖨️ ****Final Output**** wadex  w4a3dex6 |
| wadex  w4a3dex6 | |