

And here is a simple annotated suffix sorting code:

```
#include <iostream>
#include <string>
#include <algorithm>
#include <ctime>
using namespace std;
#define N 10000000

char str[N];
int H = 0, Bucket[N], nBucket[N], c;

struct Suffix{
    int idx; // Suffix starts at idx, i.e. it's str[ idx .. L-1 ]
    bool operator<(const Suffix& sfx) const
    // Compares two suffixes based on their first 2H symbols,
    // assuming we know the result for H symbols.
    {
        if(H == 0) return str[idx] < str[sfx.idx];
        else if(Bucket[idx] == Bucket[sfx.idx])
            return (Bucket[idx+H] < Bucket[sfx.idx+H]);
        else
            return (Bucket[idx] < Bucket[sfx.idx]);
    }
    bool operator==(const Suffix& sfx) const
    {
        return !(*this < sfx) && !(sfx < *this);
    }
} Pos[N];

int UpdateBuckets(int L)
{
    int start = 0, id = 0, c = 0;
    for(int i = 0; i < L; i++)
    {
        /*
           If Pos[i] is not equal to Pos[i-1], a new bucket has started.
        */
        if(i != 0 && !(Pos[i] == Pos[i-1]))
        {
            start = i;
            id++;
        }
        if(i != start) // if there is bucket with size larger than 1, we should continue ...
            c = 1;
        nBucket[Pos[i].idx] = id; // Bucket for suffix starting at Pos[i].idx is id ...
    }
    memcpy(Bucket, nBucket, 4 * L);
    return c;
}

void SuffixSort(int L)
{
    for(int i = 0; i < L; i++) Pos[i].idx = i;
    // H == 0, Sort based on first Character.
    sort(Pos, Pos + L);
    // Create initial buckets
    c = UpdateBuckets(L);
    for(H=1; c; H *= 2) {
        // Sort based on first 2*H symbols, assuming that we have sorted based on first H character
        sort(Pos, Pos+L);
        // Update Buckets based on first 2*H symbols
        c = UpdateBuckets(L);
    }
}
```

```
int main()
{
    cin >> str;
    int L = strlen(str) + 1;
    int cl = clock();
    SuffixSort(L);
    cerr << (clock() - cl) * 0.001 << endl;
    for(int i = 0; i < L; i++)
        cout << "" << str + Pos[i].idx << "" << endl;
    return 0;
}
```