1. Graph iterator

Use list to store graph, adjusting list --- google- 261

Slide window template

int findSubstring(string s){

vector<int> map(128,0);

int counter; // check whether the substring is valid

int begin=0, end=0; //two pointers, one point to tail and one head

int d; //the length of substring

for() { /\* initialize the hash map here \*/ }

while(end<s.size()){

if(map[s[end++]]-- ?){ /\* modify counter here \*/ }

while(/\* counter condition \*/){

/\* update d here if finding minimum\*/

//increase begin to make it invalid/valid again

if(map[s[begin++]]++ ?){ /\*modify counter here\*/ }

}

/\* update d here if finding maximum\*/

}

return d;

}

HashTable:

Get key: map.keySet()

GetValue map.values()

Contains: map.containsKey() map.containsValue();

Remove: map.remove() map.put(a, b) map.get()