**Find longest substring without repeating characters**

package com.java2novice.algos;

import java.util.HashSet;

import java.util.Set;

public class MyLongestSubstr {

    private Set<String> subStrList = new HashSet<String>();

    private int finalSubStrSize = 0;

    public Set<String> getLongestSubstr(String input){

        //reset instance variables

        subStrList.clear();

        finalSubStrSize = 0;

        // have a boolean flag on each character ascii value

        boolean[] flag = new boolean[256];

        int j = 0;

        char[] inputCharArr = input.toCharArray();

        for (int i = 0; i < inputCharArr.length; i++) {

            char c = inputCharArr[i];

            if (flag[c]) {

                extractSubString(inputCharArr,j,i);

                for (int k = j; k < i; k++) {

                    if (inputCharArr[k] == c) {

                        j = k + 1;

                        break;

                    }

                    flag[inputCharArr[k]] = false;

                }

            } else {

                flag[c] = true;

            }

        }

        extractSubString(inputCharArr,j,inputCharArr.length);

        return subStrList;

    }

    private String extractSubString(char[] inputArr, int start, int end){

        StringBuilder sb = new StringBuilder();

        for(int i=start;i<end;i++){

            sb.append(inputArr[i]);

        }

        String subStr = sb.toString();

        if(subStr.length() > finalSubStrSize){

            finalSubStrSize = subStr.length();

            subStrList.clear();

            subStrList.add(subStr);

        } else if(subStr.length() == finalSubStrSize){

            subStrList.add(subStr);

        }

        return sb.toString();

    }

    public static void main(String a[]){

        MyLongestSubstr mls = new MyLongestSubstr();

        System.out.println(mls.getLongestSubstr("java2novice"));

        System.out.println(mls.getLongestSubstr("java\_language\_is\_sweet"));

        System.out.println(mls.getLongestSubstr("java\_java\_java\_java"));

        System.out.println(mls.getLongestSubstr("abcabcbb"));

    }

}

|  |
| --- |
| Output: |
| [a2novice]  [uage\_is]  [\_jav, va\_j]  [cab, abc, bca] |