阅读下面这段代码，说出它的目的，每个成员函数的作用，最终的输出结果以及设计思路：

public class PinyinNet {

private ArrayList<String> mPyMap = ["a", "ai", "an", "ang", "ao",

...

"gu", "gua", "guai", "guan", "guang", "gui", "gun", "guo", ...

"o", "ou", ...

"xi", "xia", "xian", ...

];// 共412个合法的音节串，按字母序排列

public ArrayList<Integer> findValidSyllable(String str){

ArrayList<Integer> result = new ArrayList<Integer>();

if(str.length() == 0)

return result;

for(int i=0; i<mPyMap.size(); i++){

String syllable = mPyMap.get(i);

if(syllable.charAt(0) > str.charAt(0))

return result;

if(str.startsWith(syllable))

result.add(syllable.length() - 1);

}

return result;

}

public ArrayList<ArrayList<Integer> > preProcess(String inputStr){

ArrayList<ArrayList<Integer> > seg = new ArrayList<ArrayList<Integer> >();

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

seg.add(this.findValidSyllable(inputStr.substring(i)));

}

return seg;

}

private void printPyNet(String inputStr, ArrayList<Integer> pyNet, ArrayList<ArrayList<Integer> > seg){

String str = new String();

for(Integer item : pyNet){

int nStart = (item.intValue() >> 16) & 0x0000ffff;

int nIdx = item.shortValue();

int nEnd = nStart + seg.get(nStart).get(nIdx) + 1;

str = str.concat(inputStr.substring(nStart, nEnd));

str = str.concat("'");

}

System.out.println(str);

}

public void MainProc(String inputStr){

ArrayList<ArrayList<Integer> > seg = this.preProcess(inputStr);

int nStart = 0;

int nIdx = 0;

ArrayList<Integer> pyNet = new ArrayList<Integer>();

while(true){

if(nStart<seg.size() && seg.get(nStart).size() !=0 && nIdx<seg.get(nStart).size()){

pyNet.add(((nStart << 16)&0xffff0000) |(nIdx & 0x0000ffff));

int nStep = seg.get(nStart).get(nIdx) + 1;

nStart += nStep;

nIdx = 0;

if(nStart == inputStr.length()){

this.printPyNet(inputStr, pyNet, seg);

}

}else{

if(nStart == 0)

return;

Integer item = pyNet.remove(pyNet.size() - 1);

nStart = (item.intValue() >> 16) & 0x0000ffff;

nIdx = item.shortValue() + 1;

}

}

}

public static void main(String [] args){

PinyinNet pinyinNet = new PinyinNet();

pinyinNet.MainProc("xianguo");

}

}