Java实现朴素贝叶斯算法

**package** xxxx;

**import** java.io.BufferedReader;

**import** java.io.File;

**import** java.io.FileReader;

**import** java.util.ArrayList;

**public** **class** TestNB {

/\*\*data\_length

\* 算法的思想

\*/

**public** **static** ArrayList<JavaBean> *list* = **new** ArrayList<JavaBean>();;

**static** **int** *data\_length*=0;

**public** **static** **void** main(String[] args) {

// 1.读取数据，放入list容器中

File file = **new** File("D://test.txt");

*txt2String*(file);

//数据测试样本

*testData*(25,"Medium","Yes","Fair");

}

// 读取样本数据

**public** **static** **void** txt2String(File file) {

**try** {

BufferedReader br = **new** BufferedReader(**new** FileReader(file));// 构造一个BufferedReader类来读取文件

String s = **null**;

**while** ((s = br.readLine()) != **null**) {// 使用readLine方法，一次读一行

*data\_length*++;

*splitt*(s);

}

br.close();

} **catch** (Exception e) {

e.printStackTrace();

}

}

// 存入ArrayList中

**public** **static** **void** splitt(String str){

String strr = str.trim();

String[] abc = strr.split("[\\p{Space}]+");

**int** age=Integer.*parseInt*(abc[0]);

JavaBean bean=**new** JavaBean(age, abc[1], abc[2], abc[3], abc[4]);

*list*.add(bean);

}

// 训练样本，测试

**public** **static** **void** testData(**int** age,String a,String b,String c){

//训练样本

**int** number\_yes=0;

**int** bumber\_no=0;

// age情况 个数

**int** num\_age\_yes=0;

**int** num\_age\_no=0;

// income

**int** num\_income\_yes=0;

**int** num\_income\_no=0;

// student

**int** num\_student\_yes=0;

**int** num\_stdent\_no=0;

//credit

**int** num\_credit\_yes=0;

**int** num\_credit\_no=0;

//遍历List 获得数据

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

JavaBean bb=*list*.get(i);

**if**(bb.getBuys\_computer().equals("Yes")){ //Yes

number\_yes++;

**if**(bb.getIncome().equals(a)){//income

num\_income\_yes++;

}

**if**(bb.getStudent().equals(b)){//student

num\_student\_yes++;

}

**if**(bb.getCredit\_rating().equals(c)){//credit

num\_credit\_yes++;

}

**if**(bb.getAge()==age){//age

num\_age\_yes++;

}

}**else** {//No

bumber\_no++;

**if**(bb.getIncome().equals(a)){//income

num\_income\_no++;

}

**if**(bb.getStudent().equals(b)){//student

num\_stdent\_no++;

}

**if**(bb.getCredit\_rating().equals(c)){//credit

num\_credit\_no++;

}

**if**(bb.getAge()==age){//age

num\_age\_no++;

}

}

}

System.***out***.println("购买的历史个数:"+number\_yes);

System.***out***.println("不买的历史个数:"+bumber\_no);

System.***out***.println("购买+age:"+num\_age\_yes);

System.***out***.println("不买+age:"+num\_age\_no);

System.***out***.println("购买+income:"+num\_income\_yes);

System.***out***.println("不买+income:"+num\_income\_no);

System.***out***.println("购买+stundent:"+num\_student\_yes);

System.***out***.println("不买+student:"+num\_stdent\_no);

System.***out***.println("购买+credit:"+num\_credit\_yes);

System.***out***.println("不买+credit:"+num\_credit\_no);

//// 概率判断

**double** buy\_yes=number\_yes\*1.0/*data\_length*; // 买的概率

**double** buy\_no=bumber\_no\*1.0/*data\_length*; // 不买的概率

System.***out***.println("训练数据中买的概率:"+buy\_yes);

System.***out***.println("训练数据中不买的概率:"+buy\_no);

/// 未知用户的判断

**double** nb\_buy\_yes=(1.0\*num\_age\_yes/number\_yes)\*(1.0\*num\_income\_yes/number\_yes)\*(1.0\*num\_student\_yes/number\_yes)\*(1.0\*num\_credit\_yes/number\_yes)\*buy\_yes;

**double** nb\_buy\_no=(1.0\*num\_age\_no/bumber\_no)\*(1.0\*num\_income\_no/bumber\_no)\*(1.0\*num\_stdent\_no/bumber\_no)\*(1.0\*num\_credit\_no/bumber\_no)\*buy\_no;

System.***out***.println("新用户买的概率:"+nb\_buy\_yes);

System.***out***.println("新用户不买的概率:"+nb\_buy\_no);

**if**(nb\_buy\_yes>nb\_buy\_no){

System.***out***.println("新用户买的概率大");

}**else** {

System.***out***.println("新用户不买的概率大");

}

}

}

**package** xxxx;

/\*\*

\* 训练样本的属性 javaBean

\*

\*/

**public** **class** JavaBean {

**int** age;

String income;

String student;

String credit\_rating;

String buys\_computer;

**public** JavaBean(){

}

**public** JavaBean(**int** age,String income,String student,String credit\_rating,String buys\_computer){

**this**.age=age;

**this**.income=income;

**this**.student=student;

**this**.credit\_rating=credit\_rating;

**this**.buys\_computer=buys\_computer;

}

**public** **int** getAge() {

**return** age;

}

**public** **void** setAge(**int** age) {

**this**.age = age;

}

**public** String getIncome() {

**return** income;

}

**public** **void** setIncome(String income) {

**this**.income = income;

}

**public** String getStudent() {

**return** student;

}

**public** **void** setStudent(String student) {

**this**.student = student;

}

**public** String getCredit\_rating() {

**return** credit\_rating;

}

**public** **void** setCredit\_rating(String credit\_rating) {

**this**.credit\_rating = credit\_rating;

}

**public** String getBuys\_computer() {

**return** buys\_computer;

}

**public** **void** setBuys\_computer(String buys\_computer) {

**this**.buys\_computer = buys\_computer;

}

@Override

**public** String toString() {

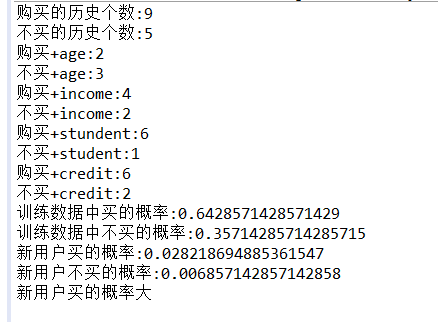
**return** "JavaBean [age=" + age + ", income=" + income + ", student="

+ student + ", credit\_rating=" + credit\_rating + ", buys\_computer="

+ buys\_computer + "]";

}

}



测试数据