Experiment no. 13

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Title: WAP for Baye's classification

code:

```
#include <bits/stdc++.h>

using namespace std;


map<string,int>class_attri_cnt;

vector<string>attributes;

map<string,map<string,map<string,int>>>attribute_yn_cnt;


 double calculateProbability(string Outlook,string Temp,string Humidity,string Wind,string playgame){

   for(auto it: attributes){

    //  cout << it << " ";

   }

    double yes_cnt = class_attri_cnt["Yes"];

    double no_cnt = class_attri_cnt["No"];

    double total = yes_cnt + no_cnt;


    double ans = class_attri_cnt[playgame]/total *
(attribute_yn_cnt[attributes[0]][Outlook][playgame])/(class_attri_cnt[playgame])
*(attribute_yn_cnt[attributes[1]][Temp][playgame])/(class_attri_cnt[playgame])*(attribute_yn_cnt[attri
butes[2]][Humidity][playgame])/(class_attri_cnt[playgame])*
(attribute_yn_cnt[attributes[3]][Wind][playgame])/(class_attri_cnt[playgame]);

    return ans;
```

```
};

int main(){
   ifstream input("info-gain.csv");

   string line, day, outlook, temp, humidity, wind, playGame;
     int j = 0;
   while(getline(input,line)){

      stringstream str(line);

      getline(str,day,',');
      getline(str,outlook,',');
      getline(str,temp,',');
      getline(str,humidity,',');
      getline(str,wind,',');
      getline(str,playGame,'.');

      if(j==0){
      j++;
      attributes.push_back(outlook);
      attributes.push_back(temp);
      attributes.push_back(humidity);
      attributes.push_back(wind);
```

```
    continue;
    }

   class_attri_cnt[playGame]++;

   attribute_yn_cnt[attributes[0]][outlook][playGame]++;
   attribute_yn_cnt[attributes[1]][temp][playGame]++;
   attribute_yn_cnt[attributes[2]][humidity][playGame]++;
   attribute_yn_cnt[attributes[3]][wind][playGame]++;

}

double yes_cnt = class_attri_cnt["Yes"];
double no_cnt = class_attri_cnt["No"];
double total = yes_cnt + no_cnt;

 cout << "Enter the unknown case" << endl;
 string Outlook, Temp, Humidity, Wind;
 cin >> Outlook >> Temp >> Humidity >> Wind;

 double p_yes = calculateProbability(Outlook, Temp, Humidity, Wind,"Yes");
 double p_no = calculateProbability(Outlook, Temp, Humidity, Wind,"No");

 //cout << p_yes << p_no << endl;
```

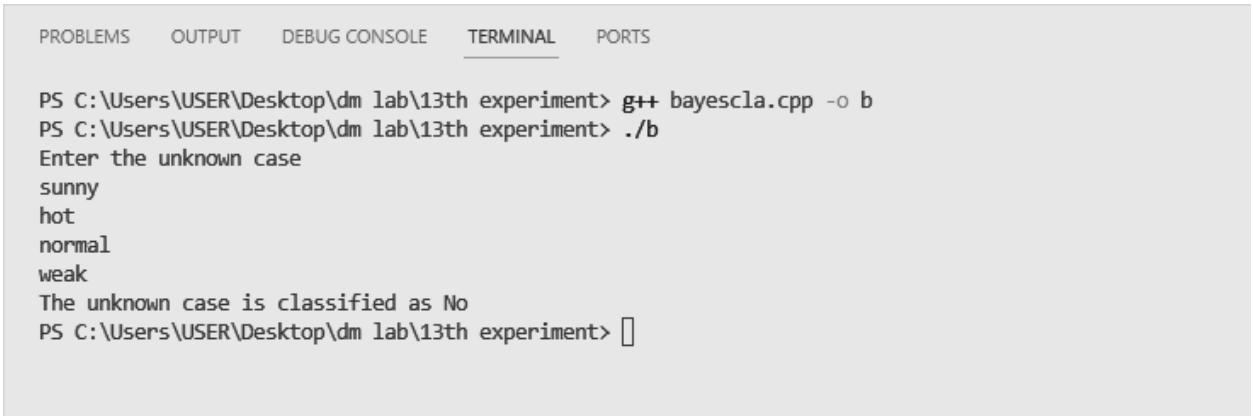
```
    if(p_yes > p_no ) {
      cout << "The unknown case is classified as Yes" ;
    }
    else cout<< "The unknown case is classified as No";
}
```

Result:

Input.csv:

A	B	C	D	E	F
day	outlook	temp	humidity	wind	playGame
1	Sunny	Hot	High	Weak	No.
2	Sunny	Hot	High	Strong	No.
3	Overcast	Hot	High	Weak	Yes.
4	Rain	Mild	High	Weak	Yes.
5	Rain	Cool	Normal	Weak	Yes.
6	Rain	Cool	Normal	Strong	No.
7	Overcast	Cool	Normal	Strong	Yes.
8	Sunny	Mild	High	Weak	No.
9	Sunny	Cool	Normal	Weak	Yes.
10	Rain	Mild	Normal	Weak	Yes.
11	Sunny	Mild	Normal	Strong	Yes.
12	Overcast	Mild	High	Strong	Yes.
13	Overcast	Hot	Normal	Weak	Yes.
14	Rain	Mild	High	Strong	No.

Output.csv:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\Users\USER\Desktop\dm lab\13th experiment> g++ bayescla.cpp -o b
PS C:\Users\USER\Desktop\dm lab\13th experiment> ./b
Enter the unknown case
sunny
hot
normal
weak
The unknown case is classified as No
PS C:\Users\USER\Desktop\dm lab\13th experiment>