**import** java.io.\*;

**import** java.util.Scanner;

**public** **class** RuleGeneration {

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

String[] frequent\_item = **new** String[4];

String[] rules = **new** String[50];

InputStreamReader r=**new** InputStreamReader(System.***in***);

BufferedReader br=**new** BufferedReader(r);

**double** conf,sup;

//Read items

System.***out***.println("Enter the frequent itemsets");

**for**(**int** i=0;i<4;i++)

frequent\_item[i]=br.readLine();

//generate rules from frequent itemset

rules = *Generate\_subsets\_rules*(frequent\_item);

Scanner scan = **new** Scanner( System.***in*** );

//identify strong rules given cinfidence ans support

**for**(**int** k=0;k<rules.length;k++)

{

System.***out***.println("Enter the support and confidence of the rule "+rules[k]);

sup = scan.nextDouble();

conf=scan.nextDouble();

**if**(sup>=0.5 && conf>=0.6)

System.***out***.println(rules[k]+" is a strong rule");

**else**

System.***out***.println(rules[k]+" is not a strong rule");

}

}

**static** String[] Generate\_subsets\_rules(String[] frequent)

{

String[] rules= **new** String[50];

System.***out***.println("1-subset rules\n");

**int** k=0;

**for**(**int** i=0;i<4;i++)

{rules[k] =frequent[i]+"->"+"{";

**for**(**int** j=0;j<4;j++ )

**if**(i!=j)

rules[k]+=frequent[j]+",";

rules[k]+="}";

System.***out***.println(rules[k]);

k++;

}

System.***out***.println("2-subset rules\n");

**for**(**int** i=0;i<4;i++)

{

**for**(**int** j=i+1;j<4;j++)

{ rules[k]=frequent[i]+","+frequent[j];

rules[k]+="->"+"{";

**for**(**int** l=0;l<4;l++)

{ **if**((l!=i) && (l!=j))

{

rules[k]+=frequent[l]+",";

}

}

rules[k]+="}";

System.***out***.println(rules[k]);

k++;

}

}

System.***out***.println("3-subset rules\n");

**for**(**int** i=0;i<4;i++)

{ rules[k]="{";

**for**(**int** j=0;j<4;j++)

{

**if**(i!=j)

rules[k]+=frequent[j]+",";

}

rules[k]+="}"+"->"+frequent[i];

System.***out***.println(rules[k]);

k++;

}

**return** rules;

}

}