

Documentazione

Il progetto è stato realizzato da:

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Il software realizzato utilizza l'algoritmo Apriori per scoprire pattern frequenti e pattern emergenti elaborando dati estratti da tabelle di database utilizzando il servizio MySQL

I dati di input dell'algoritmo sono:

- una collezione D di transazioni
- Ogni transazione è un vettore di coppie attributo-valore (item)
- Un minimo supporto minS

Lo scopo è identificare gli insiemi di item (itemset o pattern) che occorrono con una frequenza minima ($\geq \text{minS}$) in D

L'algoritmo ha applicazione nella market basket analysis per scoprire ad esempio i prodotti che compaiono spesso in uno stesso scontrino

Scoperta di pattern frequenti

I dati che ho in input sono i seguenti

1. Tabella che contiene transazioni *target*
2. Tabella che contiene transazioni di *background*
3. Un valore minimo di supporto $0 < \text{supporto} \leq 1$
4. Un valore minimo di grow rate $\text{grow rate} \geq 1$

- Il valore di supporto in una tabella è così calcolato :

$$s(x_1, x_2.. x_h) = \frac{p(x_1, x_2.. x_h)}{D}$$

In cui il valore del numeratore è pari al numero di osservazioni in cui si osserva $x_1, x_2.. x_k$ mentre D è il numero totale di transazioni

- Il grow rate sulle tabelle target e background è così calcolato :

$$gr(x_1, x_2.. x_h) = \frac{s_{Target}(x_1, x_2.. x_h)}{s_{Background}(x_1, x_2.. x_h)}$$

Una volta calcolati questi valori dalle due tabelle *target* e *background* il programma esegue due passi per la scoperta di pattern frequenti:

1. Scoprire pattern di lunghezza k a partire da *pattern frequenti* di lunghezza k-1
2. Testare i pattern candidati in *Target*

Scoperta di pattern emergenti

I pattern frequenti sono calcolati subito dopo i pattern emergenti, calcolando il grow rate in Target rispetto a Background.

Infine sono selezionati solo i pattern con grow rate superiore alla soglia fissata.

Guida di Installazione

Requisiti server

Per utilizzare il server è necessario:

- Installare MySQL sul proprio computer
- Eseguire lo script sql (mysqlScript.sql) presente nel percorso "../server/sql"
- Installare JRE 8
- Installare Maven [\(Download di Maven\)](#).
- *Nota: La porta 3306 è preimpostata nel programma per accedere al database*

Requisiti client ed estensione

- Server in ascolto
- Installare JRE 8
- Installare Maven [\(Download di Maven\)](#).

Guida utente

Compilazione e avvio del server

1. Eseguire nella cartella /server il comando da terminale `mvn clean compile assembly:single`
2. Il file jar eseguibile si trova nella cartella /target
3. Avviare il server eseguendo il comando da terminale `java -jar epServer-1.0-jar-with-dependencies.jar`
4. Il server sarà automaticamente in ascolto sulla porta 8080

```
simone@simox-pc:~/epminer_2021/server$ mvn clean compile assembly:single
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by com.google.inject.internal.cglib.core.$ReflectUtils$1 (file:/usr/share/maven/lib/guice.jar) to method java.lang.ClassLoader.defineClass
(java.lang.String,byte[],int,int,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of com.google.inject.internal.cglib.core.$ReflectUtils$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
[INFO] Scanning for projects...
[INFO]
[INFO]               server:epServer
[INFO]
[INFO]
[INFO]
[INFO] maven-clean-plugin:2.5:clean @ epServer
[INFO] Deleting /home/simone/epminer_2021/server/target
[INFO]
[INFO] maven-resources-plugin:2.6:resources @ epServer
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory /home/simone/epminer_2021/server/src/main/resources
[INFO]
[INFO] maven-compiler-plugin:3.1:compile @ epServer
[INFO] Changes detected - recompiling the module!
[WARNING] File encoding has not been set, using platform encoding UTF-8, i.e. build is platform dependent!
[INFO] Compiling 26 source files to /home/simone/epminer_2021/server/target/classes
[INFO]
[INFO] maven-assembly-plugin:2.2-beta-5:single @ epServer
[INFO] META-INF/MANIFEST.MF already added, skipping
[INFO] META-INF/ already added, skipping
[INFO] com/ already added, skipping
[INFO] Building jar: /home/simone/epminer_2021/server/target/epServer-1.0-jar-with-dependencies.jar
[INFO] META-INF/MANIFEST.MF already added, skipping
[INFO] META-INF/ already added, skipping
[INFO] com/ already added, skipping
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 4.167 s
[INFO] Finished at: 2021-10-10T14:09:33+02:00
[INFO]
simone@simox-pc:~/epminer_2021/server$
```

```
simone@simox-pc:~/epminer_2021/server/target$ java -jar epServer-1.0-jar-with-dependencies.jar
Started: ServerSocket[addr=0.0.0.0/0.0.0.0,localport=8080]

```

Compilazione e avvio del client

1. Eseguire nella cartella /client il comando da terminale `mvn package`
2. Il file jar eseguibile si trova nella cartella /target
3. Avviare il client tramite il comando `java -jar epClient-1.0.jar` specificando l'host (localhost) e la porta (porta di default del server: 8080)

```
simone@simox-pc:~/epminer_2021/client$ mvn package
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by com.google.inject.internal.cglib.core.$ReflectUtils$1 (file:/usr/share/maven/lib/guice.jar) to method java.lang.ClassLoader.defineClass
(java.lang.String,byte[],int,int,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of com.google.inject.internal.cglib.core.$ReflectUtils$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
[INFO] Scanning for projects...
[INFO]
[INFO] map:epClient
[INFO]
[INFO]
[INFO]
[INFO] maven-resources-plugin:2.6:resources @ epClient
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory /home/simone/epminer_2021/client/src/main/resources
[INFO]
[INFO] maven-compiler-plugin:3.1:compile @ epClient
[INFO] Changes detected - recompiling the module!
[WARNING] File encoding has not been set, using platform encoding UTF-8, i.e. build is platform dependent!
[INFO] compiling 2 source files to /home/simone/epminer_2021/client/target/classes
[WARNING] /home/simone/epminer_2021/client/src/main/java/keyboardinput/Keyboard.java: Some input files use or override a deprecated API.
[WARNING] /home/simone/epminer_2021/client/src/main/java/keyboardinput/Keyboard.java: Recompile with -Xlint:deprecation for details.
[INFO]
[INFO] maven-resources-plugin:2.6:testResources @ epClient
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory /home/simone/epminer_2021/client/src/test/resources
[INFO]
[INFO] maven-compiler-plugin:3.1:testCompile @ epClient
[INFO] No sources to compile
[INFO]
[INFO] maven-surefire-plugin:2.12.4:test @ epClient
[INFO] No tests to run.
[INFO]
[INFO] maven-jar-plugin:3.1.0:jar @ epClient
[INFO] Building jar: /home/simone/epminer_2021/client/target/epClient-1.0.jar
[INFO] BUILD SUCCESS
[INFO] Total time: 2.644 s
[INFO] Finished at: 2021-10-10T14:08:26+02:00
[INFO]
simone@simox-pc:~/epminer_2021/client$
```

```
simone@simox-pc:~/epminer_2021/client/target$ java -jar epClient-1.0.jar localhost 8080
addr = localhost/127.0.0.1
port=8080
Socket[addr=localhost/127.0.0.1,port=8080,localport=43362]
Scegli una opzione:
1:Nuova scoperta
2: Risultati in archivio

```

Appena un client si connette, il server accetta la richiesta:

```
simone@simox-pc:~/epminer_2021/server/target$ java -jar epServer-1.0-jar-with-dependencies.jar
Started: ServerSocket[addr=0.0.0.0/0.0.0.0,localport=8080]
Socket[addr=/127.0.0.1,port=43362,localport=8080]

```

Compilazione e avvio dell'estensione

1. Eseguire nella cartella /estensione il comando da terminale `mvn package`
2. Il file jar eseguibile si trova nella cartella /target
3. Avviare il programma tramite il comando `java -jar epGui-1.0.jar`

```

simone@simox-pc:~/epminer_2021/estensione$ mvn package
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by com.google.inject.internal.cglib.core.$ReflectUtils$1 (file:/usr/share/maven/lib/guice.jar) to method java.lang.ClassLoader.defineClass
(java.lang.String,byte[],int,int,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of com.google.inject.internal.cglib.core.$ReflectUtils$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
[INFO] Scanning for projects...
[INFO]
[INFO]      gui:epGui
[INFO]
[INFO]
[INFO]      maven-resources-plugin:2.6:resources
[INFO]                                     @ epGui
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory /home/simone/epminer_2021/estensione/src/main/resources
[INFO]
[INFO]      maven-compiler-plugin:3.1:compile
[INFO]                                     @ epGui
[INFO] Changes detected - recompiling the module!
[WARNING] File encoding has not been set, using platform encoding UTF-8, i.e. build is platform dependent!
[INFO] Compiling 3 source files to /home/simone/epminer_2021/estensione/target/classes
[INFO]
[INFO]      maven-resources-plugin:2.6:testResources
[INFO]                                     @ epGui
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory /home/simone/epminer_2021/estensione/src/test/resources
[INFO]
[INFO]      maven-compiler-plugin:3.1:testCompile
[INFO]                                     @ epGui
[INFO] No sources to compile
[INFO]
[INFO]      maven-surefire-plugin:2.12.4:test
[INFO]                                     @ epGui
[INFO] No tests to run.
[INFO]
[INFO]      maven-jar-plugin:3.1.0:jar
[INFO]                                     @ epGui
[INFO] Building jar: /home/simone/epminer_2021/estensione/target/epGui-1.0.jar
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 2.003 s
[INFO] Finished at: 2021-10-10T14:10:33+02:00
[INFO]
simone@simox-pc:~/epminer_2021/estensione$

```

dato che il file jar è un file eseguibile, basta fare doppio click.

Guida utilizzo client

Appena avviato il client, il programma chiede se eseguire una nuova (1) scoperta oppure prendere delle computazioni già presenti in archivio (2)

```

simone@simox-pc:~/epminer_2021/client/target$ java -jar epClient-1.0.jar localhost 8080
addr = localhost/127.0.0.1
port=8080
Socket[addr=localhost/127.0.0.1,port=8080,localport=43362]
Scegli una opzione:
1:Nuova scoperta
2: Risultati in archivio

```

Digitando 1 e selezionando una nuova scoperta sulle tabelle, il programma chiede di inserire un valore di minimo supporto (maggiore di zero e minore o uguale a uno), per poi chiedere in input un valore minimo di grow rate (maggiore di zero)

```

simone@simox-pc:~/epminer_2021/client/target$ java -jar epClient-1.0.jar localhost 8080
addr = localhost/127.0.0.1
port=8080
Socket[addr=localhost/127.0.0.1,port=8080,localport=43362]
Scegli una opzione:
1:Nuova scoperta
2: Risultati in archivio
1
Inserire valore minimo supporto (minsup>0 e minsup<=1):
0.3
Inserire valore minimo grow rate (minGr>0):

```

Dopodiché viene richiesto in input il nome della tabella target (playtennisTarget) ed il nome della tabella di background (playtennisBackground)

```

simone@simox-pc:~/epminer_2021/client/target$ java -jar epClient-1.0.jar localhost 8080
addr = localhost/127.0.0.1
port=8080
Socket[addr=localhost/127.0.0.1,port=8080,localport=35280]
Scegli una opzione:
1:Nuova scoperta
2: Risultati in archivio
1
Inserire valore minimo supporto (minsup>0 e minsup<=1):
0.3
Inserire valore minimo grow rate (minGr>0):
1
Tabella target:
playtennistarget
Tabella background:
playtennisbackground

```

In output avrò i prima i Pattern Emergenti e poi i Pattern Frequenti

```

simone@simox-pc:~/epminer_2021/client/target$ java -jar epClient-1.0.jar localhost 8080
addr = localhost/127.0.0.1
port=8080
Socket[addr=localhost/127.0.0.1,port=8080,localport=35284]
Scegli una opzione:
1:Nuova scoperta
2: Risultati in archivio
1
Inserire valore minimo supporto (minsup>0 e minsup<=1):
0.3
Inserire valore minimo grow rate (minGr>0):
1
Tabella target:
playtennisTarget
Tabella background:
playtennisBackground

Frequent patterns
(outlook=rain)[0.375]
(outlook=sunny)[0.375]
temperature in [0.0,6.06[[0.375]
temperature in [24.24,30.300098[[0.375]
(umidity=normal)[0.375]
(wind=strong)[0.375]
(outlook=sunny) AND (umidity=high)[0.375]
(outlook=sunny) AND (play=no)[0.375]
temperature in [0.0,6.06[ AND (umidity=normal)[0.375]
temperature in [24.24,30.300098[ AND (umidity=high)[0.375]
(umidity=high) AND (outlook=sunny)[0.375]
(umidity=high) AND temperature in [24.24,30.300098[[0.375]
(umidity=high) AND (play=no)[0.375]
(umidity=normal) AND temperature in [0.0,6.06[[0.375]
(wind=weak) AND (play=yes)[0.375]
(play=no) AND (outlook=sunny)[0.375]
(play=no) AND (umidity=high)[0.375]
(play=yes) AND (wind=weak)[0.375]
(outlook=sunny) AND (umidity=high) AND (play=no)[0.375]
(outlook=sunny) AND (play=no) AND (umidity=high)[0.375]
(umidity=high) AND (outlook=sunny) AND (play=no)[0.375]
(umidity=high) AND (play=no) AND (outlook=sunny)[0.375]
(play=no) AND (outlook=sunny) AND (umidity=high)[0.375]
(play=no) AND (umidity=high) AND (outlook=sunny)[0.375]

```



```

Emerging patterns
(outlook=rain)[0.375] [1.125]
(outlook=sunny)[0.375] [1.125]
(wind=weak)[0.625] [1.25]
(umidity=high)[0.625] [1.875]
temperature in [0.0,6.06][0.375] [2.25]
temperature in [24.24,30.300098][0.375] [2.25]
temperature in [0.0,6.06[ AND (umidity=normal)[0.375] [2.25]
(umidity=high) AND (play=no)[0.375] [2.25]
(umidity=normal) AND temperature in [0.0,6.06][0.375] [2.25]
(play=no) AND (umidity=high)[0.375] [2.25]
(play=no)[0.5] [3.0]
(outlook=sunny) AND (umidity=high)[0.375] [Infinity]
(outlook=sunny) AND (play=no)[0.375] [Infinity]
temperature in [24.24,30.300098[ AND (umidity=high)[0.375] [Infinity]
(umidity=high) AND (outlook=sunny)[0.375] [Infinity]
(umidity=high) AND temperature in [24.24,30.300098][0.375] [Infinity]
(play=no) AND (outlook=sunny)[0.375] [Infinity]
(outlook=sunny) AND (umidity=high) AND (play=no)[0.375] [Infinity]
(outlook=sunny) AND (play=no) AND (umidity=high)[0.375] [Infinity]
(umidity=high) AND (outlook=sunny) AND (play=no)[0.375] [Infinity]
(umidity=high) AND (play=no) AND (outlook=sunny)[0.375] [Infinity]
(play=no) AND (outlook=sunny) AND (umidity=high)[0.375] [Infinity]
(play=no) AND (umidity=high) AND (outlook=sunny)[0.375] [Infinity]
(umidity=high) AND (wind=weak)[0.5] [Infinity]
(wind=weak) AND (umidity=high)[0.5] [Infinity]

```

Selezionando l'opzione 2 (risultati in archivio), i passi del programma sono gli stessi precedenti ma stavolta i risultati dati in output sono caricati da file presenti nella memoria secondaria

```

(wind=weak) AND (umidity=high)[0.5] [Infinity]

Vuoi ripetere?(s/n)
s
Scegli una opzione:
1:Nuova scoperta
2: Risultati in archivio
2
Inserire valore minimo supporto (minsup>0 e minsup<=1):

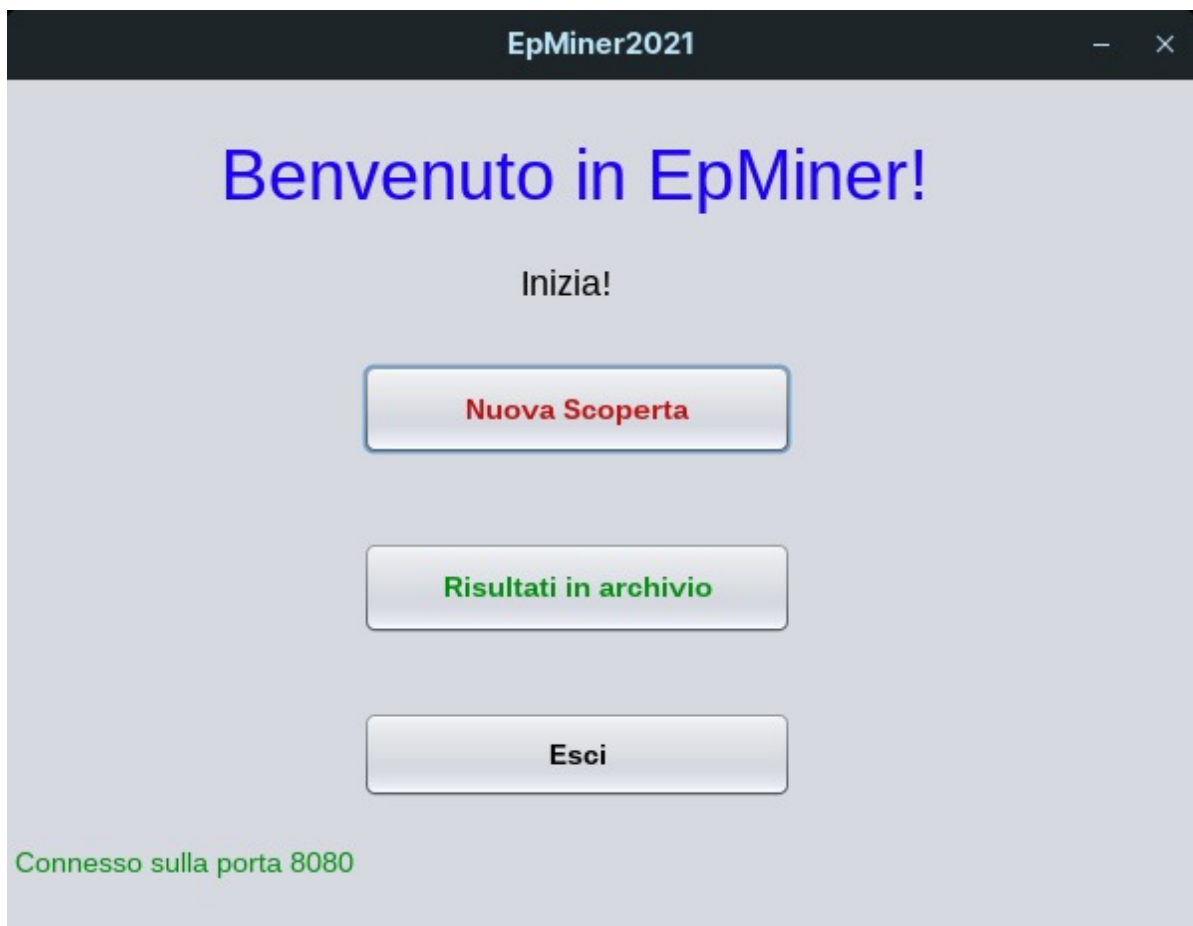
```

In entrambi i casi il programma chiede all'utente se vuole continuare per altre computazioni

Selezionando n (no) , il client termina l'esecuzione e viene chiuso

Guida utilizzo estensione

La finestra principale presenta tre bottoni: uno per avviare una nuova scoperta, uno per prendere dei risultati in archivio e l'ultimo per uscire dal programma. Il client stavolta si connette in automatico alla porta di default del server



Cliccando sia su *Nuova scoperta* che su *Risultati in archivio* la finestra mostra una nuova schermata in cui è possibile inserire i valori di minimo supporto e di grow rate. Se i valori sono errati e non soddisfano l'intervallo richiesto, una serie di alert compaiono a video inoltre i due input sono resettati.

Tramite due spinner è possibile selezionare le tabelle target e background già presenti

The image shows a window titled "EpMiner2021 - Nuovo EP". It contains two input fields at the top: "Valore di minimo supporto" with the value "0.3" and "Valore minimo di Grow Rate" with the value "1". Below these are two dropdown menus: "Tabella Target" set to "playtennisTarget" and "Tabella Background" set to "playtennisBackground". At the bottom center is a button labeled "VAI!".

Tramite il bottone in basso, i dati inseriti, se sono corretti, sono inviati al server, altrimenti compare un messaggio di errore

The screenshot shows a software window titled "EpMiner2021 - Nuovo EP". Inside the window, there are several input fields and labels: "Valore di minimo supporto" with a text box containing "0.2", "Valore minimo di Grow Rate" with an empty text box, "Tabella Target" with a dropdown menu, and "Tabella Background" with a dropdown menu. At the bottom of the window is a large button labeled "VAI!". An error dialog box is overlaid on the window. The dialog box has a title bar "Errore" and a close button. It contains a red octagonal warning icon with a white exclamation mark, followed by the text "Inserire un valore di grow rate". There is an "OK" button at the bottom right of the dialog box.

Appena la computazione termina, si apre una finestra di dialogo che mostra i pattern frequenti, i pattern emergenti inoltre i dati inseriti dall'utente e inviati al server

EP: mingr: 1.0 minsup: 0.3

min Supporto: 0.3

min Grow rate: 1.0

Tabella Target: playtennisTarget

Tabella Background: playtennisBackground

Pattern Frequenti:

(outlook=rain)[0.375]
(outlook=sunny)[0.375]
temperature in [0.0,6.06[[0.375]
temperature in [24.24,30.300098[[0.375]
(umidity=normal)[0.375]
(wind=strong)[0.375]
(outlook=sunny) AND (umidity=high)[0.375]
(outlook=sunny) AND (play=no)[0.375]
temperature in [0.0,6.06[AND (umidity=normal)[0.375]
temperature in [24.24,30.300098[AND (umidity=high)[0.375]
(umidity=high) AND (outlook=sunny)[0.375]

Pattern Emergenti:

(outlook=rain)[0.375] [1.125]
(outlook=sunny)[0.375] [1.125]
(wind=weak)[0.625] [1.25]
(umidity=high)[0.625] [1.875]
temperature in [0.0,6.06[[0.375] [2.25]
temperature in [24.24,30.300098[[0.375] [2.25]
temperature in [0.0,6.06[AND (umidity=normal)[0.375] [2.25]
(umidity=high) AND (play=no)[0.375] [2.25]
(umidity=normal) AND temperature in [0.0,6.06[[0.375] [2.25]
(play=no) AND (umidity=high)[0.375] [2.25]

Nuova Computazione

Tramite il bottone in basso è possibile avviare una nuova computazione, ritornando alla finestra principale

Esempi di test

Caso Test 1:

Opzione:Nuova scoperta

Valore di minimo supporto:0.2

Valore minimo di Grow Rate:4

Tabella Target:playtennisTarget

Tabella Background:playtennisBackground

Risultati:

Frequent patterns

(outlook=overcast)[0.25]

temperature in [12.12,18.18[[0.25]

(outlook=overcast) AND (play=yes)[0.25]

(outlook=rain) AND temperature in [0.0,6.06[[0.25]

(outlook=rain) AND (umidity=normal)[0.25]

(outlook=rain) AND (wind=weak)[0.25]

(outlook=rain) AND (play=yes)[0.25]

(outlook=sunny) AND temperature in [24.24,30.300098][0.25]
(outlook=sunny) AND (wind=weak)[0.25]
temperature in [0.0,6.06[AND (outlook=rain)[0.25]
temperature in [0.0,6.06[AND (wind=strong)[0.25]
temperature in [0.0,6.06[AND (play=yes)[0.25]
temperature in [12.12,18.18[AND (umidity=high)[0.25]
temperature in [12.12,18.18[AND (wind=weak)[0.25]
temperature in [24.24,30.300098[AND (outlook=sunny)[0.25]
temperature in [24.24,30.300098[AND (wind=weak)[0.25]
temperature in [24.24,30.300098[AND (play=no)[0.25]
(umidity=high) AND temperature in [12.12,18.18[[0.25]
(umidity=high) AND (play=yes)[0.25]
(umidity=normal) AND (outlook=rain)[0.25]
(umidity=normal) AND (wind=strong)[0.25]
(umidity=normal) AND (play=yes)[0.25]
(wind=strong) AND temperature in [0.0,6.06[[0.25]
(wind=strong) AND (umidity=normal)[0.25]
(wind=strong) AND (play=no)[0.25]
(wind=weak) AND (outlook=rain)[0.25]
(wind=weak) AND (outlook=sunny)[0.25]
(wind=weak) AND temperature in [12.12,18.18[[0.25]
(wind=weak) AND temperature in [24.24,30.300098[[0.25]
(wind=weak) AND (play=no)[0.25]
(play=no) AND temperature in [24.24,30.300098[[0.25]
(play=no) AND (wind=strong)[0.25]
(play=no) AND (wind=weak)[0.25]
(play=yes) AND (outlook=overcast)[0.25]
(play=yes) AND (outlook=rain)[0.25]
(play=yes) AND temperature in [0.0,6.06[[0.25]
(play=yes) AND (umidity=high)[0.25]
(play=yes) AND (umidity=normal)[0.25]
(outlook=rain) AND temperature in [0.0,6.06[AND (umidity=normal)[0.25]
(outlook=rain) AND (umidity=normal) AND temperature in [0.0,6.06[[0.25]
(outlook=rain) AND (wind=weak) AND (play=yes)[0.25]
(outlook=rain) AND (play=yes) AND (wind=weak)[0.25]
(outlook=sunny) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25]
(outlook=sunny) AND temperature in [24.24,30.300098[AND (play=no)[0.25]
(outlook=sunny) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25]
(outlook=sunny) AND (umidity=high) AND (wind=weak)[0.25]
(outlook=sunny) AND (wind=weak) AND (umidity=high)[0.25]
(outlook=sunny) AND (wind=weak) AND (play=no)[0.25]
(outlook=sunny) AND (play=no) AND temperature in [24.24,30.300098[[0.25]
(outlook=sunny) AND (play=no) AND (wind=weak)[0.25]
temperature in [0.0,6.06[AND (outlook=rain) AND (umidity=normal)[0.25]
temperature in [0.0,6.06[AND (umidity=normal) AND (outlook=rain)[0.25]
temperature in [0.0,6.06[AND (umidity=normal) AND (wind=strong)[0.25]
temperature in [0.0,6.06[AND (umidity=normal) AND (play=yes)[0.25]
temperature in [0.0,6.06[AND (wind=strong) AND (umidity=normal)[0.25]
temperature in [0.0,6.06[AND (play=yes) AND (umidity=normal)[0.25]
temperature in [12.12,18.18[AND (umidity=high) AND (wind=weak)[0.25]
temperature in [12.12,18.18[AND (wind=weak) AND (umidity=high)[0.25]
temperature in [24.24,30.300098[AND (outlook=sunny) AND (umidity=high)[0.25]

temperature in [24.24,30.300098[AND (outlook=sunny) AND (play=no)[0.25]
temperature in [24.24,30.300098[AND (umidity=high) AND (outlook=sunny)[0.25]
temperature in [24.24,30.300098[AND (umidity=high) AND (wind=weak)[0.25]
temperature in [24.24,30.300098[AND (umidity=high) AND (play=no)[0.25]
temperature in [24.24,30.300098[AND (wind=weak) AND (umidity=high)[0.25]
temperature in [24.24,30.300098[AND (play=no) AND (outlook=sunny)[0.25]
temperature in [24.24,30.300098[AND (play=no) AND (umidity=high)[0.25]
(umidity=high) AND (outlook=sunny) AND temperature in [24.24,30.300098[[0.25]
(umidity=high) AND (outlook=sunny) AND (wind=weak)[0.25]
(umidity=high) AND temperature in [12.12,18.18[AND (wind=weak)[0.25]
(umidity=high) AND temperature in [24.24,30.300098[AND (outlook=sunny)[0.25]
(umidity=high) AND temperature in [24.24,30.300098[AND (wind=weak)[0.25]
(umidity=high) AND temperature in [24.24,30.300098[AND (play=no)[0.25]
(umidity=high) AND (wind=weak) AND (outlook=sunny)[0.25]
(umidity=high) AND (wind=weak) AND temperature in [12.12,18.18[[0.25]
(umidity=high) AND (wind=weak) AND temperature in [24.24,30.300098[[0.25]
(umidity=high) AND (wind=weak) AND (play=no)[0.25]
(umidity=high) AND (wind=weak) AND (play=yes)[0.25]
(umidity=high) AND (play=no) AND temperature in [24.24,30.300098[[0.25]
(umidity=high) AND (play=no) AND (wind=weak)[0.25]
(umidity=high) AND (play=yes) AND (wind=weak)[0.25]
(umidity=normal) AND (outlook=rain) AND temperature in [0.0,6.06[[0.25]
(umidity=normal) AND temperature in [0.0,6.06[AND (outlook=rain)[0.25]
(umidity=normal) AND temperature in [0.0,6.06[AND (wind=strong)[0.25]
(umidity=normal) AND temperature in [0.0,6.06[AND (play=yes)[0.25]
(umidity=normal) AND (wind=strong) AND temperature in [0.0,6.06[[0.25]
(umidity=normal) AND (play=yes) AND temperature in [0.0,6.06[[0.25]
(wind=strong) AND temperature in [0.0,6.06[AND (umidity=normal)[0.25]
(wind=strong) AND (umidity=normal) AND temperature in [0.0,6.06[[0.25]
(wind=weak) AND (outlook=rain) AND (play=yes)[0.25]
(wind=weak) AND (outlook=sunny) AND (umidity=high)[0.25]
(wind=weak) AND (outlook=sunny) AND (play=no)[0.25]
(wind=weak) AND temperature in [12.12,18.18[AND (umidity=high)[0.25]
(wind=weak) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25]
(wind=weak) AND (umidity=high) AND (outlook=sunny)[0.25]
(wind=weak) AND (umidity=high) AND temperature in [12.12,18.18[[0.25]
(wind=weak) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25]
(wind=weak) AND (umidity=high) AND (play=no)[0.25]
(wind=weak) AND (umidity=high) AND (play=yes)[0.25]
(wind=weak) AND (play=no) AND (outlook=sunny)[0.25]
(wind=weak) AND (play=no) AND (umidity=high)[0.25]
(wind=weak) AND (play=yes) AND (outlook=rain)[0.25]
(wind=weak) AND (play=yes) AND (umidity=high)[0.25]
(play=no) AND (outlook=sunny) AND temperature in [24.24,30.300098[[0.25]
(play=no) AND (outlook=sunny) AND (wind=weak)[0.25]
(play=no) AND temperature in [24.24,30.300098[AND (outlook=sunny)[0.25]
(play=no) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25]
(play=no) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25]
(play=no) AND (umidity=high) AND (wind=weak)[0.25]
(play=no) AND (wind=weak) AND (outlook=sunny)[0.25]
(play=no) AND (wind=weak) AND (umidity=high)[0.25]
(play=yes) AND (outlook=rain) AND (wind=weak)[0.25]

(play=yes) AND temperature in [0.0,6.06[AND (umidity=normal)][0.25]
(play=yes) AND (umidity=high) AND (wind=weak)[0.25]
(play=yes) AND (umidity=normal) AND temperature in [0.0,6.06[[0.25]
(play=yes) AND (wind=weak) AND (outlook=rain)[0.25]
(play=yes) AND (wind=weak) AND (umidity=high)[0.25]
(outlook=sunny) AND temperature in [24.24,30.300098[AND (umidity=high) AND (play=no)[0.25]
(outlook=sunny) AND temperature in [24.24,30.300098[AND (play=no) AND (umidity=high)[0.25]
(outlook=sunny) AND (umidity=high) AND temperature in [24.24,30.300098[AND (play=no)[0.25]
(outlook=sunny) AND (umidity=high) AND (wind=weak) AND (play=no)[0.25]
(outlook=sunny) AND (umidity=high) AND (play=no) AND temperature in [24.24,30.300098[[0.25]
(outlook=sunny) AND (umidity=high) AND (play=no) AND (wind=weak)[0.25]
(outlook=sunny) AND (wind=weak) AND (umidity=high) AND (play=no)[0.25]
(outlook=sunny) AND (wind=weak) AND (play=no) AND (umidity=high)[0.25]
(outlook=sunny) AND (play=no) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25]
(outlook=sunny) AND (play=no) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25]
(outlook=sunny) AND (play=no) AND (umidity=high) AND (wind=weak)[0.25]
(outlook=sunny) AND (play=no) AND (wind=weak) AND (umidity=high)[0.25]
temperature in [24.24,30.300098[AND (outlook=sunny) AND (umidity=high) AND (play=no)[0.25]
temperature in [24.24,30.300098[AND (outlook=sunny) AND (play=no) AND (umidity=high)[0.25]
temperature in [24.24,30.300098[AND (umidity=high) AND (outlook=sunny) AND (play=no)[0.25]
temperature in [24.24,30.300098[AND (umidity=high) AND (play=no) AND (outlook=sunny)[0.25]
temperature in [24.24,30.300098[AND (play=no) AND (outlook=sunny) AND (umidity=high)[0.25]
temperature in [24.24,30.300098[AND (play=no) AND (umidity=high) AND (outlook=sunny)[0.25]
(umidity=high) AND (outlook=sunny) AND temperature in [24.24,30.300098[AND (play=no)[0.25]
(umidity=high) AND (outlook=sunny) AND (wind=weak) AND (play=no)[0.25]
(umidity=high) AND (outlook=sunny) AND (play=no) AND temperature in [24.24,30.300098[[0.25]
(umidity=high) AND (outlook=sunny) AND (play=no) AND (wind=weak)[0.25]
(umidity=high) AND temperature in [24.24,30.300098[AND (outlook=sunny) AND (play=no)[0.25]
(umidity=high) AND temperature in [24.24,30.300098[AND (play=no) AND (outlook=sunny)[0.25]
(umidity=high) AND (wind=weak) AND (outlook=sunny) AND (play=no)[0.25]
(umidity=high) AND (wind=weak) AND (play=no) AND (outlook=sunny)[0.25]
(umidity=high) AND (play=no) AND (outlook=sunny) AND temperature in [24.24,30.300098[[0.25]
(umidity=high) AND (play=no) AND (outlook=sunny) AND (wind=weak)[0.25]
(umidity=high) AND (play=no) AND temperature in [24.24,30.300098[AND (outlook=sunny)[0.25]
(umidity=high) AND (play=no) AND (wind=weak) AND (outlook=sunny)[0.25]
(wind=weak) AND (outlook=sunny) AND (umidity=high) AND (play=no)[0.25]
(wind=weak) AND (outlook=sunny) AND (play=no) AND (umidity=high)[0.25]
(wind=weak) AND (umidity=high) AND (outlook=sunny) AND (play=no)[0.25]
(wind=weak) AND (umidity=high) AND (play=no) AND (outlook=sunny)[0.25]
(wind=weak) AND (play=no) AND (outlook=sunny) AND (umidity=high)[0.25]
(wind=weak) AND (play=no) AND (umidity=high) AND (outlook=sunny)[0.25]
(play=no) AND (outlook=sunny) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25]
(play=no) AND (outlook=sunny) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25]
(play=no) AND (outlook=sunny) AND (umidity=high) AND (wind=weak)[0.25]
(play=no) AND (outlook=sunny) AND (wind=weak) AND (umidity=high)[0.25]
(play=no) AND temperature in [24.24,30.300098[AND (outlook=sunny) AND (umidity=high)[0.25]
(play=no) AND temperature in [24.24,30.300098[AND (umidity=high) AND (outlook=sunny)[0.25]
(play=no) AND (umidity=high) AND (outlook=sunny) AND temperature in [24.24,30.300098[[0.25]
(play=no) AND (umidity=high) AND (outlook=sunny) AND (wind=weak)[0.25]
(play=no) AND (umidity=high) AND temperature in [24.24,30.300098[AND (outlook=sunny)[0.25]
(play=no) AND (umidity=high) AND (wind=weak) AND (outlook=sunny)[0.25]
(play=no) AND (wind=weak) AND (outlook=sunny) AND (umidity=high)[0.25]

(play=no) AND (wind=weak) AND (umidity=high) AND (outlook=sunny)[0.25]
(outlook=rain)[0.375]
(outlook=sunny)[0.375]
temperature in [0.0,6.06[[0.375]
temperature in [24.24,30.300098[[0.375]
(umidity=normal)[0.375]
(wind=strong)[0.375]
(outlook=sunny) AND (umidity=high)[0.375]
(outlook=sunny) AND (play=no)[0.375]
temperature in [0.0,6.06[AND (umidity=normal)[0.375]
temperature in [24.24,30.300098[AND (umidity=high)[0.375]
(umidity=high) AND (outlook=sunny)[0.375]
(umidity=high) AND temperature in [24.24,30.300098[[0.375]
(umidity=high) AND (play=no)[0.375]
(umidity=normal) AND temperature in [0.0,6.06[[0.375]
(wind=weak) AND (play=yes)[0.375]
(play=no) AND (outlook=sunny)[0.375]
(play=no) AND (umidity=high)[0.375]
(play=yes) AND (wind=weak)[0.375]
(outlook=sunny) AND (umidity=high) AND (play=no)[0.375]
(outlook=sunny) AND (play=no) AND (umidity=high)[0.375]
(umidity=high) AND (outlook=sunny) AND (play=no)[0.375]
(umidity=high) AND (play=no) AND (outlook=sunny)[0.375]
(play=no) AND (outlook=sunny) AND (umidity=high)[0.375]
(play=no) AND (umidity=high) AND (outlook=sunny)[0.375]
(play=no)[0.5]
(play=yes)[0.5]
(umidity=high) AND (wind=weak)[0.5]
(wind=weak) AND (umidity=high)[0.5]
(umidity=high)[0.625]
(wind=weak)[0.625]

Emerging patterns

(outlook=rain) AND temperature in [0.0,6.06[[0.25] [Infinity]
(outlook=sunny) AND temperature in [24.24,30.300098[[0.25] [Infinity]
temperature in [0.0,6.06[AND (outlook=rain)[0.25] [Infinity]
temperature in [0.0,6.06[AND (wind=strong)[0.25] [Infinity]
temperature in [12.12,18.18[AND (wind=weak)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (outlook=sunny)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (play=no)[0.25] [Infinity]
(wind=strong) AND temperature in [0.0,6.06[[0.25] [Infinity]
(wind=weak) AND temperature in [12.12,18.18[[0.25] [Infinity]
(wind=weak) AND (play=no)[0.25] [Infinity]
(play=no) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(play=no) AND (wind=weak)[0.25] [Infinity]
(outlook=rain) AND temperature in [0.0,6.06[AND (umidity=normal)[0.25] [Infinity]
(outlook=rain) AND (umidity=normal) AND temperature in [0.0,6.06[[0.25] [Infinity]
(outlook=sunny) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25] [Infinity]
(outlook=sunny) AND temperature in [24.24,30.300098[AND (play=no)[0.25] [Infinity]
(outlook=sunny) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(outlook=sunny) AND (umidity=high) AND (wind=weak)[0.25] [Infinity]
(outlook=sunny) AND (wind=weak) AND (umidity=high)[0.25] [Infinity]

(outlook=sunny) AND (wind=weak) AND (play=no)[0.25] [Infinity]
(outlook=sunny) AND (play=no) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(outlook=sunny) AND (play=no) AND (wind=weak)[0.25] [Infinity]
temperature in [0.0,6.06[AND (outlook=rain) AND (umidity=normal)[0.25] [Infinity]
temperature in [0.0,6.06[AND (umidity=normal) AND (outlook=rain)[0.25] [Infinity]
temperature in [0.0,6.06[AND (umidity=normal) AND (wind=strong)[0.25] [Infinity]
temperature in [0.0,6.06[AND (wind=strong) AND (umidity=normal)[0.25] [Infinity]
temperature in [12.12,18.18[AND (umidity=high) AND (wind=weak)[0.25] [Infinity]
temperature in [12.12,18.18[AND (wind=weak) AND (umidity=high)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (outlook=sunny) AND (umidity=high)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (outlook=sunny) AND (play=no)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (umidity=high) AND (outlook=sunny)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (umidity=high) AND (wind=weak)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (umidity=high) AND (play=no)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (wind=weak) AND (umidity=high)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (play=no) AND (outlook=sunny)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (play=no) AND (umidity=high)[0.25] [Infinity]
(umidity=high) AND (outlook=sunny) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(umidity=high) AND (outlook=sunny) AND (wind=weak)[0.25] [Infinity]
(umidity=high) AND temperature in [12.12,18.18[AND (wind=weak)[0.25] [Infinity]
(umidity=high) AND temperature in [24.24,30.300098[AND (outlook=sunny)[0.25] [Infinity]
(umidity=high) AND temperature in [24.24,30.300098[AND (wind=weak)[0.25] [Infinity]
(umidity=high) AND temperature in [24.24,30.300098[AND (play=no)[0.25] [Infinity]
(umidity=high) AND (wind=weak) AND (outlook=sunny)[0.25] [Infinity]
(umidity=high) AND (wind=weak) AND temperature in [12.12,18.18[[0.25] [Infinity]
(umidity=high) AND (wind=weak) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(umidity=high) AND (wind=weak) AND (play=no)[0.25] [Infinity]
(umidity=high) AND (wind=weak) AND (play=yes)[0.25] [Infinity]
(umidity=high) AND (play=no) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(umidity=high) AND (play=no) AND (wind=weak)[0.25] [Infinity]
(umidity=high) AND (play=yes) AND (wind=weak)[0.25] [Infinity]
(umidity=normal) AND (outlook=rain) AND temperature in [0.0,6.06[[0.25] [Infinity]
(umidity=normal) AND temperature in [0.0,6.06[AND (outlook=rain)[0.25] [Infinity]
(umidity=normal) AND temperature in [0.0,6.06[AND (wind=strong)[0.25] [Infinity]
(umidity=normal) AND (wind=strong) AND temperature in [0.0,6.06[[0.25] [Infinity]
(wind=strong) AND temperature in [0.0,6.06[AND (umidity=normal)[0.25] [Infinity]
(wind=strong) AND (umidity=normal) AND temperature in [0.0,6.06[[0.25] [Infinity]
(wind=weak) AND (outlook=sunny) AND (umidity=high)[0.25] [Infinity]
(wind=weak) AND (outlook=sunny) AND (play=no)[0.25] [Infinity]
(wind=weak) AND temperature in [12.12,18.18[AND (umidity=high)[0.25] [Infinity]
(wind=weak) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25] [Infinity]
(wind=weak) AND (umidity=high) AND (outlook=sunny)[0.25] [Infinity]
(wind=weak) AND (umidity=high) AND temperature in [12.12,18.18[[0.25] [Infinity]
(wind=weak) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(wind=weak) AND (umidity=high) AND (play=no)[0.25] [Infinity]
(wind=weak) AND (umidity=high) AND (play=yes)[0.25] [Infinity]
(wind=weak) AND (play=no) AND (outlook=sunny)[0.25] [Infinity]
(wind=weak) AND (play=no) AND (umidity=high)[0.25] [Infinity]
(wind=weak) AND (play=yes) AND (umidity=high)[0.25] [Infinity]
(play=no) AND (outlook=sunny) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(play=no) AND (outlook=sunny) AND (wind=weak)[0.25] [Infinity]
(play=no) AND temperature in [24.24,30.300098[AND (outlook=sunny)[0.25] [Infinity]

(play=no) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25] [Infinity]
(play=no) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25] [Infinity]
(play=no) AND (umidity=high) AND (wind=weak)[0.25] [Infinity]
(play=no) AND (wind=weak) AND (outlook=sunny)[0.25] [Infinity]
(play=no) AND (wind=weak) AND (umidity=high)[0.25] [Infinity]
(play=yes) AND (umidity=high) AND (wind=weak)[0.25] [Infinity]
(play=yes) AND (wind=weak) AND (umidity=high)[0.25] [Infinity]
(outlook=sunny) AND temperature in [24.24,30.300098[AND (umidity=high) AND (play=no)[0.25]
[Infinity]
(outlook=sunny) AND temperature in [24.24,30.300098[AND (play=no) AND (umidity=high)[0.25]
[Infinity]
(outlook=sunny) AND (umidity=high) AND temperature in [24.24,30.300098[AND (play=no)[0.25]
[Infinity]
(outlook=sunny) AND (umidity=high) AND (wind=weak) AND (play=no)[0.25] [Infinity]
(outlook=sunny) AND (umidity=high) AND (play=no) AND temperature in [24.24,30.300098[[0.25]
[Infinity]
(outlook=sunny) AND (umidity=high) AND (play=no) AND (wind=weak)[0.25] [Infinity]
(outlook=sunny) AND (wind=weak) AND (umidity=high) AND (play=no)[0.25] [Infinity]
(outlook=sunny) AND (wind=weak) AND (play=no) AND (umidity=high)[0.25] [Infinity]
(outlook=sunny) AND (play=no) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25]
[Infinity]
(outlook=sunny) AND (play=no) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25]
[Infinity]
(outlook=sunny) AND (play=no) AND (umidity=high) AND (wind=weak)[0.25] [Infinity]
(outlook=sunny) AND (play=no) AND (wind=weak) AND (umidity=high)[0.25] [Infinity]
temperature in [24.24,30.300098[AND (outlook=sunny) AND (umidity=high) AND (play=no)[0.25]
[Infinity]
temperature in [24.24,30.300098[AND (outlook=sunny) AND (play=no) AND (umidity=high)[0.25]
[Infinity]
temperature in [24.24,30.300098[AND (umidity=high) AND (outlook=sunny) AND (play=no)[0.25]
[Infinity]
temperature in [24.24,30.300098[AND (umidity=high) AND (play=no) AND (outlook=sunny)[0.25]
[Infinity]
temperature in [24.24,30.300098[AND (play=no) AND (outlook=sunny) AND (umidity=high)[0.25]
[Infinity]
temperature in [24.24,30.300098[AND (play=no) AND (umidity=high) AND (outlook=sunny)[0.25]
[Infinity]
(umidity=high) AND (outlook=sunny) AND temperature in [24.24,30.300098[AND (play=no)[0.25]
[Infinity]
(umidity=high) AND (outlook=sunny) AND (wind=weak) AND (play=no)[0.25] [Infinity]
(umidity=high) AND (outlook=sunny) AND (play=no) AND temperature in [24.24,30.300098[[0.25]
[Infinity]
(umidity=high) AND (outlook=sunny) AND (play=no) AND (wind=weak)[0.25] [Infinity]
(umidity=high) AND temperature in [24.24,30.300098[AND (outlook=sunny) AND (play=no)[0.25]
[Infinity]
(umidity=high) AND temperature in [24.24,30.300098[AND (play=no) AND (outlook=sunny)[0.25]
[Infinity]
(umidity=high) AND (wind=weak) AND (outlook=sunny) AND (play=no)[0.25] [Infinity]
(umidity=high) AND (wind=weak) AND (play=no) AND (outlook=sunny)[0.25] [Infinity]
(umidity=high) AND (play=no) AND (outlook=sunny) AND temperature in [24.24,30.300098[[0.25]
[Infinity]
(umidity=high) AND (play=no) AND (outlook=sunny) AND (wind=weak)[0.25] [Infinity]

(umidity=high) AND (play=no) AND temperature in [24.24,30.300098[AND (outlook=sunny)[0.25] [Infinity]

(umidity=high) AND (play=no) AND (wind=weak) AND (outlook=sunny)[0.25] [Infinity]

(wind=weak) AND (outlook=sunny) AND (umidity=high) AND (play=no)[0.25] [Infinity]

(wind=weak) AND (outlook=sunny) AND (play=no) AND (umidity=high)[0.25] [Infinity]

(wind=weak) AND (umidity=high) AND (outlook=sunny) AND (play=no)[0.25] [Infinity]

(wind=weak) AND (umidity=high) AND (play=no) AND (outlook=sunny)[0.25] [Infinity]

(wind=weak) AND (play=no) AND (outlook=sunny) AND (umidity=high)[0.25] [Infinity]

(wind=weak) AND (play=no) AND (umidity=high) AND (outlook=sunny)[0.25] [Infinity]

(play=no) AND (outlook=sunny) AND temperature in [24.24,30.300098[AND (umidity=high)[0.25] [Infinity]

(play=no) AND (outlook=sunny) AND (umidity=high) AND temperature in [24.24,30.300098[[0.25] [Infinity]

(play=no) AND (outlook=sunny) AND (umidity=high) AND (wind=weak)[0.25] [Infinity]

(play=no) AND (outlook=sunny) AND (wind=weak) AND (umidity=high)[0.25] [Infinity]

(play=no) AND temperature in [24.24,30.300098[AND (outlook=sunny) AND (umidity=high)[0.25] [Infinity]

(play=no) AND temperature in [24.24,30.300098[AND (umidity=high) AND (outlook=sunny)[0.25] [Infinity]

(play=no) AND (umidity=high) AND (outlook=sunny) AND temperature in [24.24,30.300098[[0.25] [Infinity]

(play=no) AND (umidity=high) AND (outlook=sunny) AND (wind=weak)[0.25] [Infinity]

(play=no) AND (umidity=high) AND temperature in [24.24,30.300098[AND (outlook=sunny)[0.25] [Infinity]

(play=no) AND (umidity=high) AND (wind=weak) AND (outlook=sunny)[0.25] [Infinity]

(play=no) AND (wind=weak) AND (outlook=sunny) AND (umidity=high)[0.25] [Infinity]

(play=no) AND (wind=weak) AND (umidity=high) AND (outlook=sunny)[0.25] [Infinity]

(outlook=sunny) AND (umidity=high)[0.375] [Infinity]

(outlook=sunny) AND (play=no)[0.375] [Infinity]

temperature in [24.24,30.300098[AND (umidity=high)[0.375] [Infinity]

(umidity=high) AND (outlook=sunny)[0.375] [Infinity]

(umidity=high) AND temperature in [24.24,30.300098[[0.375] [Infinity]

(play=no) AND (outlook=sunny)[0.375] [Infinity]

(outlook=sunny) AND (umidity=high) AND (play=no)[0.375] [Infinity]

(outlook=sunny) AND (play=no) AND (umidity=high)[0.375] [Infinity]

(umidity=high) AND (outlook=sunny) AND (play=no)[0.375] [Infinity]

(umidity=high) AND (play=no) AND (outlook=sunny)[0.375] [Infinity]

(play=no) AND (outlook=sunny) AND (umidity=high)[0.375] [Infinity]

(play=no) AND (umidity=high) AND (outlook=sunny)[0.375] [Infinity]

(umidity=high) AND (wind=weak)[0.5] [Infinity]

(wind=weak) AND (umidity=high)[0.5] [Infinity]

Caso Test 2:

Opzione:Nuova scoperta

Valore di minimo supporto:0.9

Valore minimo di Grow Rate:6

Tabella Target:playtennisTarget

Tabella Background:playtennisBackground

Risultati:

Frequent patterns

Emerging patterns

data.EmptySetException

Caso Test 3:

Opzione:Risultati in archivio

Valore di minimo supporto:0.5

Valore minimo di Grow Rate:0.5

Tabella Target:playtennisTarget

Tabella Background:playtennisBackground

Risultati:

Frequent patterns

java.io.FileNotFoundException: FP_playtennis_minSup0.5.dat (Impossibile trovare il file specificato)

La computazione deve essere già stata effettuata in precedenza, altrimenti non viene trovata, come in questo caso.