

**Syrian Arab Republic
Ministry of Higher Education
Syrian Virtual University
Master Web Science**



**الجمهورية العربية السورية
وزارة التعليم العالي
الجامعة الافتراضية السورية
ماجستير علوم الويب**

MWS_ADM-Project

محمد عامر شيخوني

Mohammad_amer_113345

حميد كنو عبید

Hamid_109490

تطبيق تقانات استكشاف المعارف

2019-2018

- تم تطبيق خوارزميات استكشاف المعارف والاستفادة منها عبر ربطها مع موقع الويب الخاص بوظيفة AWP المصمم عبر تقنية MVC-Entity Framework Code First وسنبين فيما يلي خطوات تنفيذ الخوارزميات ولقطات شاشة عن نتائج التنفيذ:

- يمكن لزائر الموقع ان يرى فقط نتائج الخدمتين التاليتين كون لا علاقة لهذه الخدمتين بمواصفات الزبون وهما:

1- Customers Who Bought This Item Also Bought :

عند طلب الموقع ستظهر الصفحة الرئيسية للموقع يظهر فيها قائمة الأفلام مصنفة حسب أصناف الأفلام

HW-ADM-AWP-DownloadMovies
Home
About
Contact
I am looking for..
Search
Register
Log in

مرحباً بك عزيزي الزائر
هذا الموقع عبارة عن تنفيذ لوظيفة مادة التنقيب في البيانات مدمجة مع وظيفة برمجة الويب في اختصاص ماستر علوم الويب في الجامعة الافتراضية السورية , والوظيفة عبارة عن تنفيذ تطبيق تقانات استكشاف المعارف في موقع لتنزيل (شراء) الافلام
إعداد الطالبين:
حميد كنو عبيد: hamid_109490 // محمد عامر شيخوني: mohammad_amer_113345
[Learn more »](#)

Movie
Actor

Movie By Alphabet
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

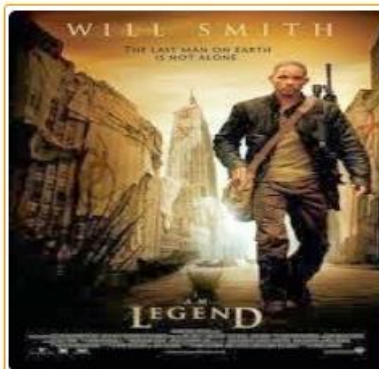


Name Film: Top Gun

Sight Film: Here is a hint about the selected movie \$

Director Film: Crowe, Cameron

[Learn more »](#)



Name Film: Jerk, The

Sight Film: Here is a hint about the selected movie \$

Director Film: Crowe, Cameron

[Learn more »](#)



Name Film: Big Chill

Sight Film: Here is a hint about the selected movie \$

Director Film: Crowe, Cameron

[Learn more »](#)

- عندما يقوم الزائر بالضغط على صورة الفيلم او اسمه ينتقل الى صفحة تفاصيل الفيلم حيث تظهر نتائج هذه الخدمة اسفل تفاصيل الفيلم المختار على الشكل التالي:

Movie Details



Average Ratings: ★★☆☆☆
 Film's Name: **Billy Elliot**
 Film's Price: **77 \$**
 Director by: **Crowe, Cameron**
 Film's Hint: **Here is a hint about the selected movie**
 Film's Actors:

- **Hall, Philip Baker**
- **Sweeney, D.B.**

Download Movie: [OrderMovie](#) 📄



Comment : **Mar7baaaa**

Comment by: **Hamid** , on : 16/10/40 06:42:03 م

Service-Customers Who Bought This Item Also Bought:



Film's Name: **Star wars**

Film's price: 343 \$

Film's Director: **Cruise, Tom**

[Learn more »](#)



Film's Name: **Matrix, The**

Film's price: 545 \$

Film's Director: **Cruise, Tom**

[Learn more »](#)



Film's Name: **A beautiful mind**

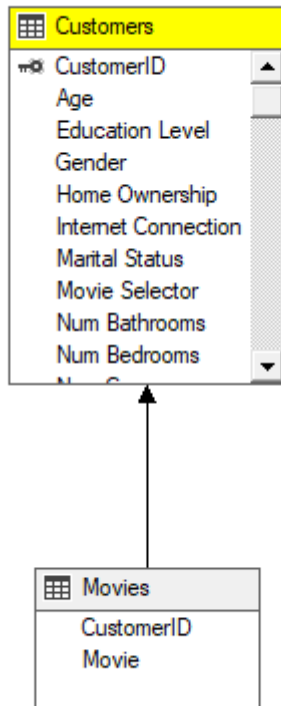
Film's price: 55 \$

Film's Director: **Cruise, Tom**

[Learn more »](#)

- سنبين فيما يلي تفاصيل تنفيذ هذه الخدمة:

1- استخدام الجدولين التاليين:



2- بارامترات الخوارزمية:

Algorithm Parameters

Parameters:

| Parameter | Value | Default | Range |
|-----------------------|-------|------------|-----------|
| MAXIMUM_ITEMSET_COUNT | | 200000 | [1,...) |
| MAXIMUM_ITEMSET_SIZE | | 3 | [0,500] |
| MAXIMUM_SUPPORT | | 1.0 | (0.0,...) |
| MINIMUM_IMPORTANCE | | -999999999 | (...,...) |
| MINIMUM_ITEMSET_SIZE | | 1 | [1,500] |
| MINIMUM_PROBABILITY | | 0.4 | [0.0,1.0] |
| MINIMUM_SUPPORT | 2 | 0.0 | [0.0,...) |

Description:

Specifies the maximum number of itemsets to produce. If no number is specified, the algorithm generates all possible itemsets.

Add Remove OK Cancel Help

3- القواعد المولدة:

CustomersMSAssociation.dmm [Design]

Mining Structure Mining Models Mining Model Viewer Mining Accuracy Chart Mining Model Prediction

Mining Model: CustomersMMAssociation Viewer: Microsoft Association Rules Viewer

Rules Itemsets Dependency Network

Minimum probability: 0.40 Filter Rule:

Minimum importance: 0.39 Show: Show attribute name and value

☐ Show long name Maximum rows: 2000

| Pr... | Importance | Rule |
|-------|------------|---|
| 1.000 | | Beethoven's 2nd = Existing, Analyze This = Existing -> Deep Impact = Existing |
| 1.000 | | White Oleander = Existing -> Dirty Dancing = Existing |
| 1.000 | | White Oleander = Existing -> Ghost = Existing |
| 1.000 | | White Oleander = Existing -> Wizard of Oz, The = Existing |
| 1.000 | | White Oleander = Existing -> Four Weddings and a Funeral = Existing |
| 1.000 | 1... | To Live = Existing, Cinema Paradiso: The New Version = Existing -> Casablanca = Existing |
| 1.000 | | White Oleander = Existing, Dirty Dancing = Existing -> West Side Story = Existing |
| 1.000 | | White Oleander = Existing, West Side Story = Existing -> Dirty Dancing = Existing |
| 1.000 | | To Live = Existing, Casablanca = Existing -> Cinema Paradiso: The New Version = Existing |
| 1.000 | | White Oleander = Existing, Ghost = Existing -> West Side Story = Existing |
| 1.000 | | White Oleander = Existing, West Side Story = Existing -> Ghost = Existing |
| 1.000 | | White Oleander = Existing, Wizard of Oz, The = Existing -> West Side Story = Existing |
| 1.000 | | White Oleander = Existing, West Side Story = Existing -> Wizard of Oz, The = Existing |
| 1.000 | | West Side Story = Existing, Four Weddings and a Funeral = Existing -> White Oleander = Existing |
| 1.000 | | White Oleander = Existing, Four Weddings and a Funeral = Existing -> West Side Story = Existing |
| 1.000 | | White Oleander = Existing, West Side Story = Existing -> Four Weddings and a Funeral = Existing |
| 1.000 | | White Oleander = Existing, Ghost = Existing -> Dirty Dancing = Existing |

: item sets -4

CustomersMSAssociation.dmm [Design]

Mining Structure Mining Models Mining Model Viewer Mining Accuracy Chart Mining Model Prediction

Mining Model: CustomersMMAssociation Viewer: Microsoft Association Rules Viewer

Rules Itemsets Dependency Network

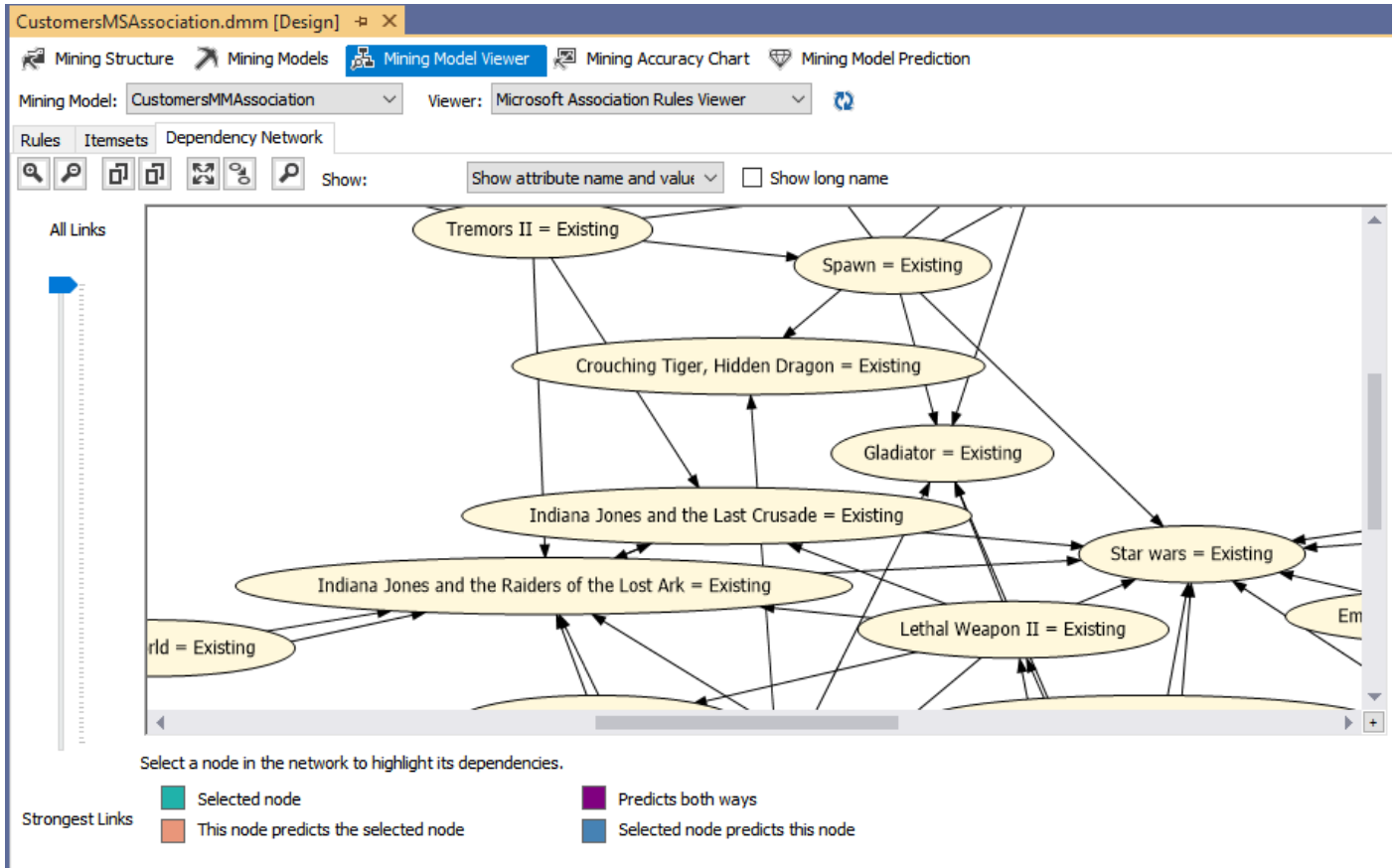
Minimum support: 2 Filter Itemset:

Minimum itemset size: 0 Show: Show attribute name and value

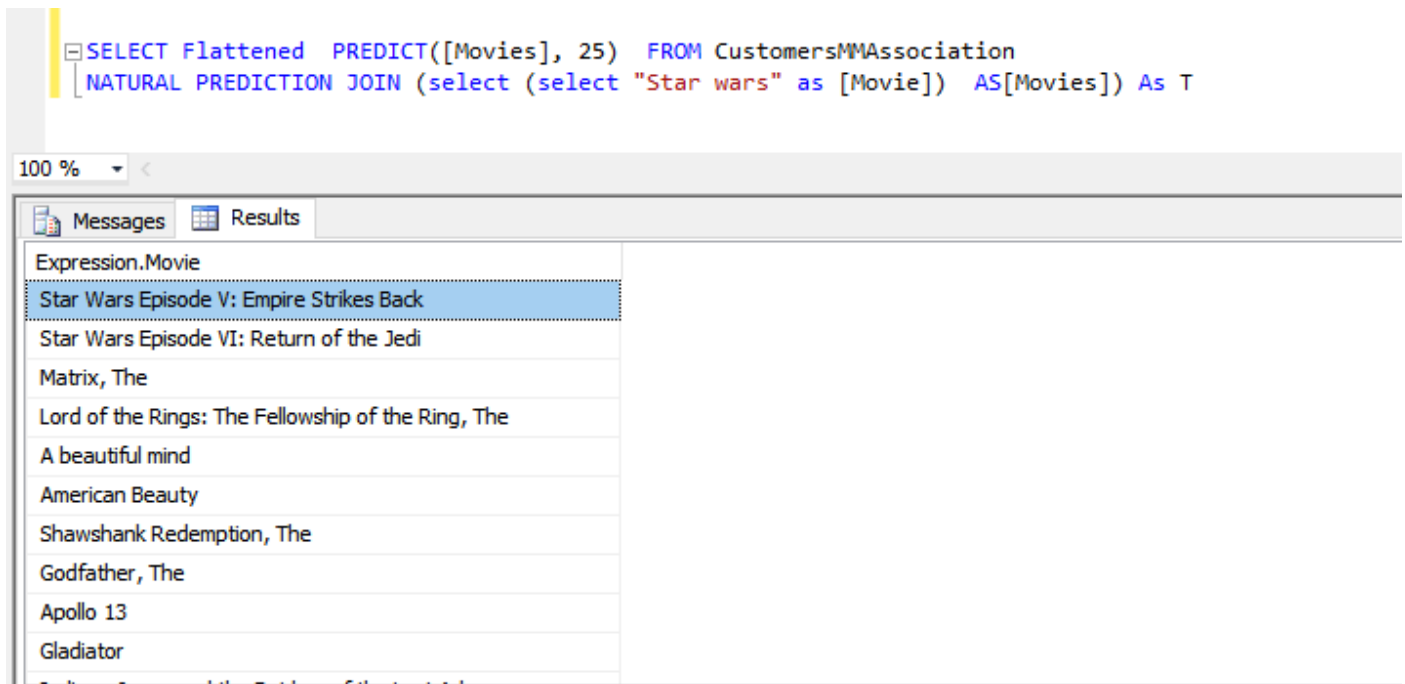
Maximum rows: 2000 ☐ Show long name

| Support | Size | Itemset |
|---------|------|---|
| 523 | 1 | Star wars = Existing |
| 466 | 1 | Matrix, The = Existing |
| 392 | 1 | Lord of the Rings: The Fellowship of the Ring, The... |
| 359 | 1 | A beautiful mind = Existing |
| 295 | 1 | Star Wars Episode V: Empire Strikes Back = Existing |
| 291 | 1 | American Beauty = Existing |
| 276 | 1 | Shawshank Redemption, The = Existing |
| 275 | 1 | Godfather, The = Existing |
| 263 | 1 | Star Wars Episode VI: Return of the Jedi = Existing |
| 256 | 1 | Apollo 13 = Existing |
| 253 | 1 | Gladiator = Existing |
| 240 | 1 | Indiana Jones and the Raiders of the Lost Ark = E... |
| 238 | 2 | Star Wars Episode VI: Return of the Jedi = Existin... |
| 237 | 1 | Saving Private Ryan = Existing |
| 237 | 1 | Blade Runner = Existing |

: Dependency Network -5



: SSMS مثال عن استعمال DMX في SSMS -6



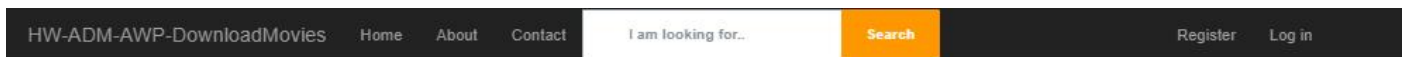
7- طريقة استعلام DMX في Visual studio :

```
AdomdConnection CON = new AdomdConnection("Data Source=ABOREDA; Initial catalog=MoviesDB");
CON.Open();
AdomdCommand COM = CON.CreateCommand();
string s = @"SELECT Flattened PREDICT([Movies], 25) FROM CustomersMMAssociation
            NATURAL PREDICTION JOIN (select (select '' + movie.Name.ToString() + '' as [Movie]) AS[Movies]) As T";

COM.CommandText = s;
List<string> listofNameMoviesRelated=new List<string>();
AdomdDataReader DR = COM.ExecuteReader();
while (DR.Read())
{
    if (DR[0] != null)
    {
        listofNameMoviesRelated.Add(DR[0].ToString());
    }
}
DR.Close();
CON.Close();
```

-2 Who are actor's friends :

تظهر هذه الخدمة في صفحة تفاصيل الممثل ، التي نستطيع الانتقال إليها بالضغط على اسم احد الممثلين المشتركين في الفلم من صفحة تفاصيل الفيلم:



Movie Details



Average Ratings: ★★★★★

Film's Name: **Billy Elliot**

Film's Price: **77 \$**

Director by: **Crowe, Cameron**

Film's Hint: **Here is a hint about the selected movie**

Film's Actors:

- **Hall, Philip Baker**
- **Sweeney, D.B.**

Download Movie: **OrderMovie** ➕



Comment :Mar7baaaa

Comment by: **Hamid** , on : 16/10/40 06:42:03 م

- عند الضغط على اسم احد الممثلين في الفلم السابق سوف تظهر لنا صفحة "رفاق ممثل" وتظهر الخدمة على الشكل التالي:

Actor's Details



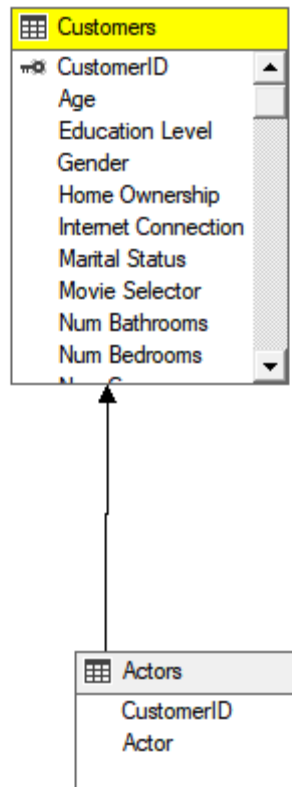
Actor's Name: Hall, Philip
Baker

Service-Who are actor's friends:

- | |
|--------------------|
| 1 - Falco, Edie |
| 2 - Elliott, Chris |
| 3 - Rains, Claude |
| 4 - Voight, Jon |
| 5 - Black, Jack |

- سنبين فيما يلي تفاصيل تنفيذ هذه الخدمة:

1- استخدام الجدولين التاليين:



2- بارامترات الخوارزمية:

Algorithm Parameters

Parameters:

| Parameter | Value | Default | Range |
|-----------------------|-------|------------|-----------|
| MAXIMUM_ITEMSET_COUNT | | 200000 | [1,...) |
| MAXIMUM_ITEMSET_SIZE | | 3 | [0,500] |
| MAXIMUM_SUPPORT | | 1.0 | (0.0,...) |
| MINIMUM_IMPORTANCE | | -999999999 | (...,...) |
| MINIMUM_ITEMSET_SIZE | | 1 | [1,500] |
| MINIMUM_PROBABILITY | | 0.4 | [0.0,1.0] |
| MINIMUM_SUPPORT | 2 | 0.0 | [0.0,...) |

Description:

Specifies the maximum number of itemsets to produce. If no number is specified, the algorithm generates all possible itemsets.

Buttons: Add, Remove, OK, Cancel, Help

3- القواعد المولدة:

CustomersMSAssoc...tors.dmm [Design] CustomersMSAssociation.dmm [Design]

Mining Structure Mining Models Mining Model Viewer Mining Accuracy Chart Mining Model Prediction

Mining Model: CustomersMMAssociationActors Viewer: Microsoft Association Rules Viewer

Rules Itemsets Dependency Network

Minimum probability: 0.40 Filter Rule: Show attribute name and value

Minimum importance: 0.23 Show: Show attribute name and value

☐ Show long name Maximum rows: 2000

| Pr... | Importance | Rule |
|-------|------------|---|
| 1.000 | 1... | Benson, Robby = Existing, Bancroft, Anne = Existing -> Diaz, Cameron = Existing |
| 1.000 | | Vincent, Frank = Existing -> Voight, Jon = Existing |
| 1.000 | | Vincent, Frank = Existing -> Van Damme, Jean-Claude = Existing |
| 1.000 | | Vincent, Frank = Existing -> von Sydow, Max = Existing |
| 1.000 | 1.... | Benson, Robby = Existing, Bancroft, Anne = Existing -> Chan, Jackie = Existing |
| 1.000 | | Vincent, Frank = Existing, Van Damme, Jean-Claude = Existing -> Voight, Jon = Existing |
| 1.000 | | Vincent, Frank = Existing, Voight, Jon = Existing -> Van Damme, Jean-Claude = Existing |
| 1.000 | | Benson, Robby = Existing, Bullock, Sandra = Existing -> Bancroft, Anne = Existing |
| 1.000 | | Vincent, Frank = Existing, von Sydow, Max = Existing -> Voight, Jon = Existing |
| 1.000 | | Vincent, Frank = Existing, Voight, Jon = Existing -> von Sydow, Max = Existing |
| 1.000 | | Benson, Robby = Existing, Affleck, Ben = Existing -> Bancroft, Anne = Existing |
| 1.000 | | Vincent, Frank = Existing, von Sydow, Max = Existing -> Van Damme, Jean-Claude = Existing |
| 1.000 | | Vincent, Frank = Existing, Van Damme, Jean-Claude = Existing -> von Sydow, Max = Existing |
| 1.000 | | Venora, Diane = Existing -> Vanessa Williams = Existing |
| 1.000 | | Unger, Deborah = Existing -> Sweeney, D.B. = Existing |
| 1.000 | | Unger, Deborah = Existing -> Chappelle, Dave = Existing |
| 1.000 | | Unger, Deborah = Existing -> Elizabeth, Shannon = Existing |
| 1.000 | | Unger, Deborah = Existing -> Liotta, Ray = Existing |

: item sets -4

CustomersMSAssoc...tors.dmm [Design] CustomersMSAssociation.dmm [Design]

Mining Structure Mining Models Mining Model Viewer Mining Accuracy Chart Mining Model Prediction

Mining Model: CustomersMMAssociationActors Viewer: Microsoft Association Rules Viewer

Rules Itemsets Dependency Network

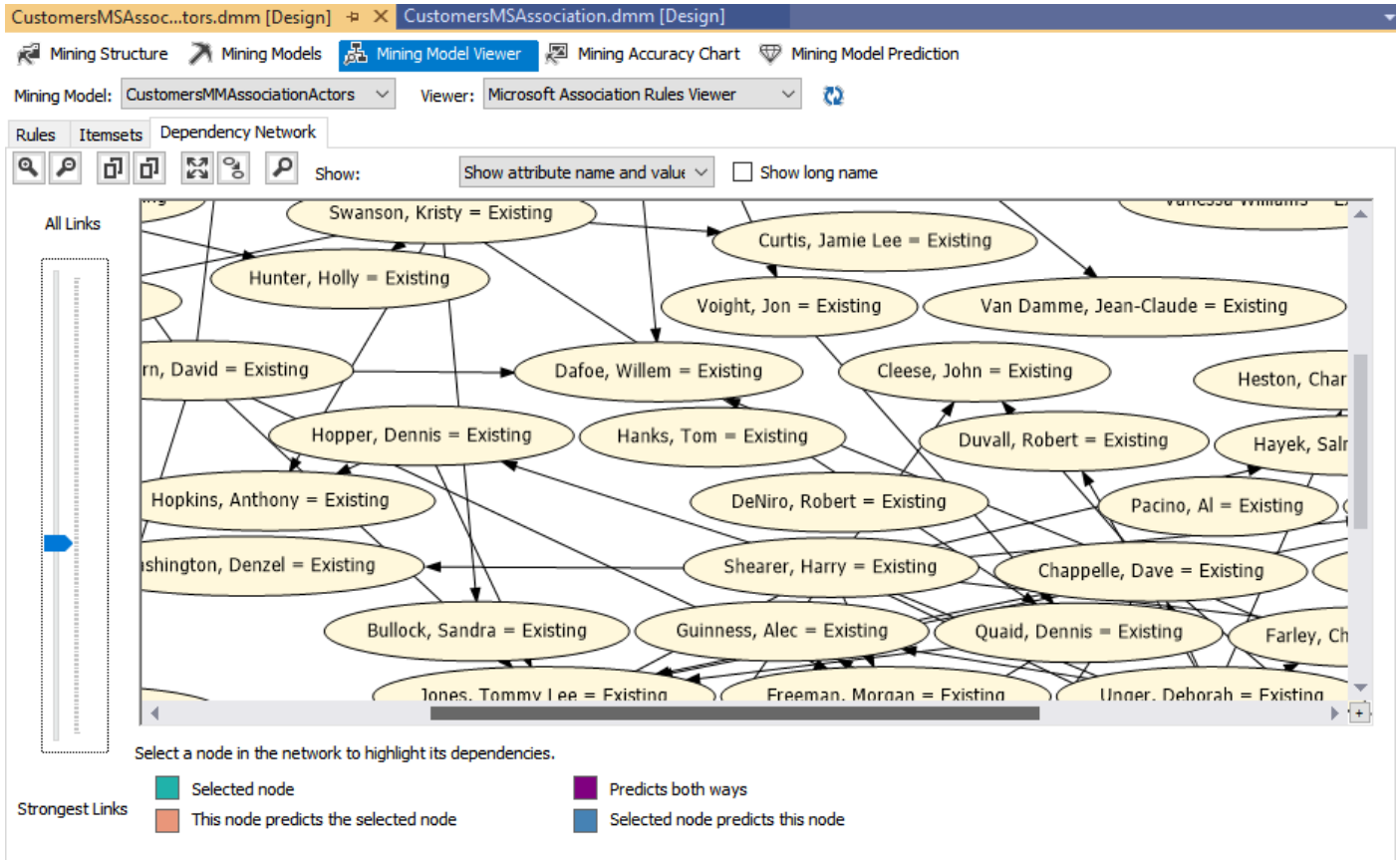
Minimum support: 2 Filter Itemset: Show attribute name and value

Minimum itemset size: 0 Show: Show attribute name and value

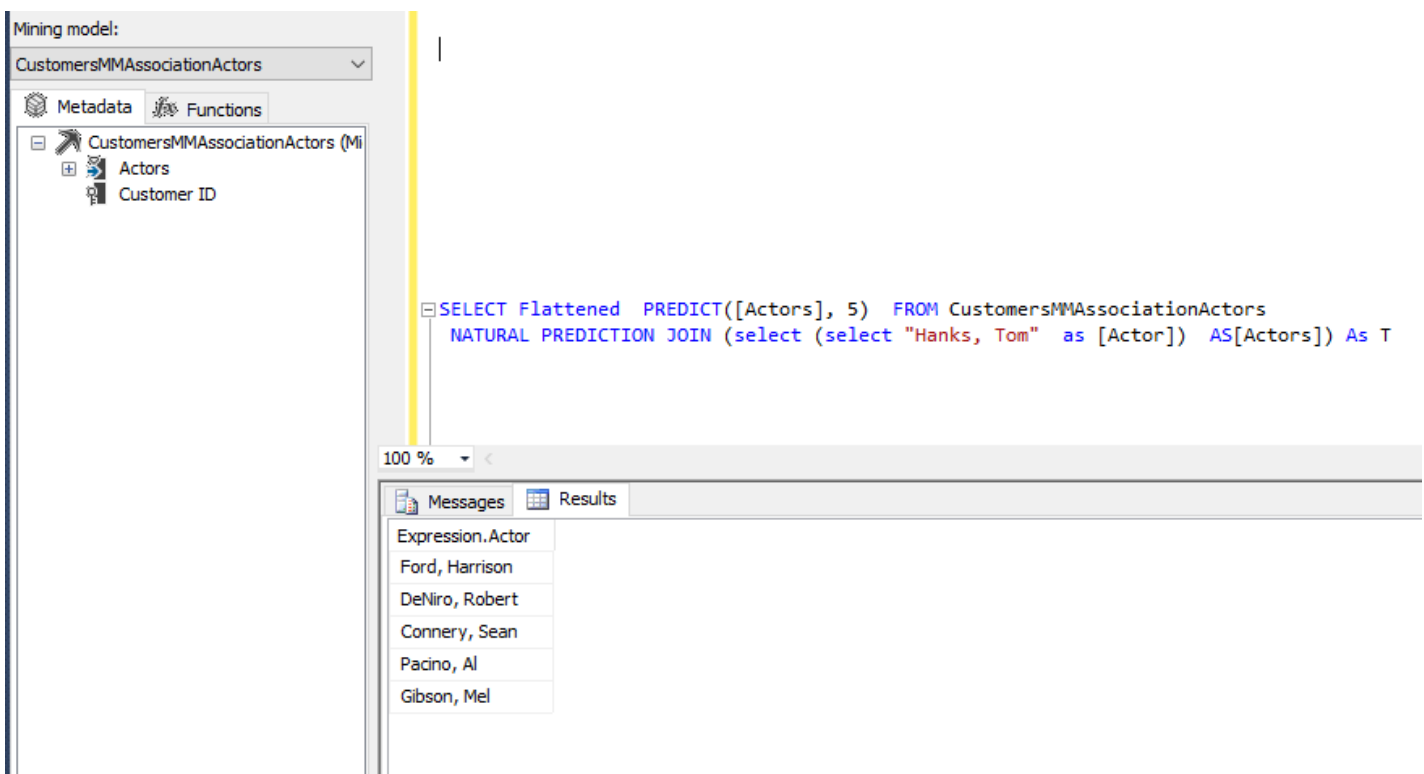
Maximum rows: 2000 ☐ Show long name

| Support | Size | Itemset |
|---------|------|-----------------------------------|
| 754 | 1 | Hanks, Tom = Existing |
| 597 | 1 | Ford, Harrison = Existing |
| 546 | 1 | DeNiro, Robert = Existing |
| 482 | 1 | Connery, Sean = Existing |
| 469 | 1 | Pacino, Al = Existing |
| 409 | 1 | Gibson, Mel = Existing |
| 381 | 1 | Cage, Nicolas = Existing |
| 376 | 1 | Roberts, Julia = Existing |
| 329 | 1 | Cruise, Tom = Existing |
| 318 | 1 | Foster, Jodie = Existing |
| 316 | 1 | Schwarzenegger, Arnold = Existing |
| 301 | 1 | Hackman, Gene = Existing |
| 301 | 1 | Ryan, Meg = Existing |
| 293 | 1 | Washington, Denzel = Existing |
| 290 | 1 | Cusack, John = Existing |
| 284 | 1 | Eastwood, Clint = Existing |
| 272 | 1 | Spacey, Kevin = Existing |

: Dependency Network -5



: مثال عن استعمال DMX في SSMS -6



7- طريقة استعلام DMX في Visual studio :

```
AdomdConnection CON = new AdomdConnection("Data Source=ABOREDA; Initial catalog=MoviesDB");
CON.Open();
AdomdCommand COM = CON.CreateCommand();
string s = @"SELECT Flattened PREDICT([Actors], 5) FROM CustomersMMAssociationActors
            NATURAL PREDICTION JOIN (select (select '' + actors.Name.ToString() + '' as [Actor]) AS[Actors]) As T";

COM.CommandText = s;
List<string> listofNameActorsRelated = new List<string>();
AdomdDataReader DR = COM.ExecuteReader();
while (DR.Read())
{
    if (DR[0] != null)
    {
        listofNameActorsRelated.Add(DR[0].ToString());
    }
}
DR.Close();
CON.Close();
```

- الخدمات السابقة متاحة لزائر الموقع والعضو المسجل في الموقع ، اما الخدمتين التاليتين فهما خاصة بعضو الموقع ، عند قيام الزائر بطلب صفحة التسجيل في الموقع من الـ Navbar سوف تظهر الصفحة التالية:

| | | | | | | | |
|---------------------------|------|-------|---------|--------------------|--------|----------|--------|
| HW-ADM-AWP-DownloadMovies | Home | About | Contact | I am looking for.. | Search | Register | Log in |
|---------------------------|------|-------|---------|--------------------|--------|----------|--------|

Register.

Create a new account.

| | |
|------------------|--------------------------|
| UserName | <input type="text"/> |
| Credit_ID | <input type="text"/> |
| Email | <input type="text"/> |
| Password | <input type="password"/> |
| Confirm password | <input type="password"/> |

| | |
|----------------|----------------------|
| Age | <input type="text"/> |
| EducationLevel | Bachelors Degree ▼ |
| Gender | NULL ▼ |
| HomeOwnerShaip | Own ▼ |
| MaritalStatus | Never Married ▼ |

| | |
|---|---|
| NumCars | <input type="text"/> |
| NumChildren | <input type="text"/> |
| Channel | <div> Cinemax TBS FLIX USA Hollywood </div> |
| Criteria | <div> Director Genre Friends Recommendation Previews Cost </div> |
| Hobbies | <div> Music & Radio Science & Technology Hunting & Guns Home Design/Improvement Computer Animation </div> |
| Technology | <div> Flat Screen TV Rear Projection TV Front Projection TV Laserdisk Digital Satellite </div> |
| InternetConnections | <input type="text" value="Dial-Up"/> |
| MovieSelector | <input type="text" value="Spouse/Partner"/> |
| NumBedrooms | <input type="text"/> |
| NumTVs | <input type="text"/> |
| PPV_Freq | <input type="text" value="Rarely"/> |
| Buying_Freq | <input type="text" value="Rarely"/> |
| Format | <input type="text" value="Laserdisk"/> |
| RentingFreq | <input type="text" value="Rarely"/> |
| ViewigFreq | <input type="text" value="Rarely"/> |
| TheaterFreq | <input type="text" value="Rarely"/> |
| TV_MovieFreq | <input type="text" value="Rarely"/> |
| TV_Signal | <input type="text" value="Cable"/> |
| <input type="button" value="Register"/> | |

- بعد ان يقوم الزائر للموقع بتعبئة الحقول السابقة بنجاح والضغط على زر تسجيل سوف يتنقل الى الصفحة الرئيسية للموقع وسوف تظهر نتائج الخدمات التاليتين :

: Who select the movie -3

سوف تظهر هذه الخدمة في الصفحة الرئيسية للموقع بعد ان يقوم المستخدم بتسجيل الدخول على الشكل التالي:

HW-ADM-AWP-DownloadMovies

Home

About

Contact

I am looking for..

Search

Hello Hamid!

Log off

إعداد الطالبين:

mohammad_amer_113345 محمد عامر شيخوني

hamid_109490 حميد كنو عبید

Learn more »

Movie

Actor

Movie By Alphabet

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Service-Who select the movie: Me

- سنبين فيما يلي تفاصيل تنفيذ هذه الخدمة:

1- استخدام جدول الزبائن فقط:

| Customers |
|---------------------|
| Age |
| Education Level |
| Gender |
| Home Ownership |
| Internet Connection |
| Marital Status |
| Movie Selector |
| Num Bathrooms |
| Num Bedrooms |
| Num Cars |
| Num Children |
| Num TVs |
| PPV Freq |
| Buying Freq |
| Format |
| Renting Freq |
| Viewing Freq |
| CustomerID |
| Theater Freq |

2- بارامترات الخوارزمية:

Algorithm Parameters

Parameters:

| Parameter | Value | Default | Range |
|---------------------------|-------|---------|-----------|
| COMPLEXITY_PENALTY | | | (0.0,1.0) |
| FORCE_REGRESSOR | | | |
| MAXIMUM_INPUT_ATTRIBUTES | | 255 | [0,65535] |
| MAXIMUM_OUTPUT_ATTRIBUTES | | 255 | [0,65535] |
| MINIMUM_SUPPORT | 2 | 10.0 | (0.0,...) |
| SCORE_METHOD | 1 | 4 | 1,3,4 |
| SPLIT_METHOD | 2 | 3 | [1,3] |

Description:

Inhibits the growth of the decision tree. Decreasing the value increases the likelihood of a split, while increasing the value decreases the likelihood. The default value is based on the number of attributes for a given model: The default is 0.5 if there is 1 to 9 attributes; the default is 0.9 if there are 10 to 99 attributes; and the default is 0.99 if there are 100 or more attributes.

Add Remove OK Cancel Help

3- عدد حالات الحقل **Movie Selector** والاحتمالية لكل حالة :

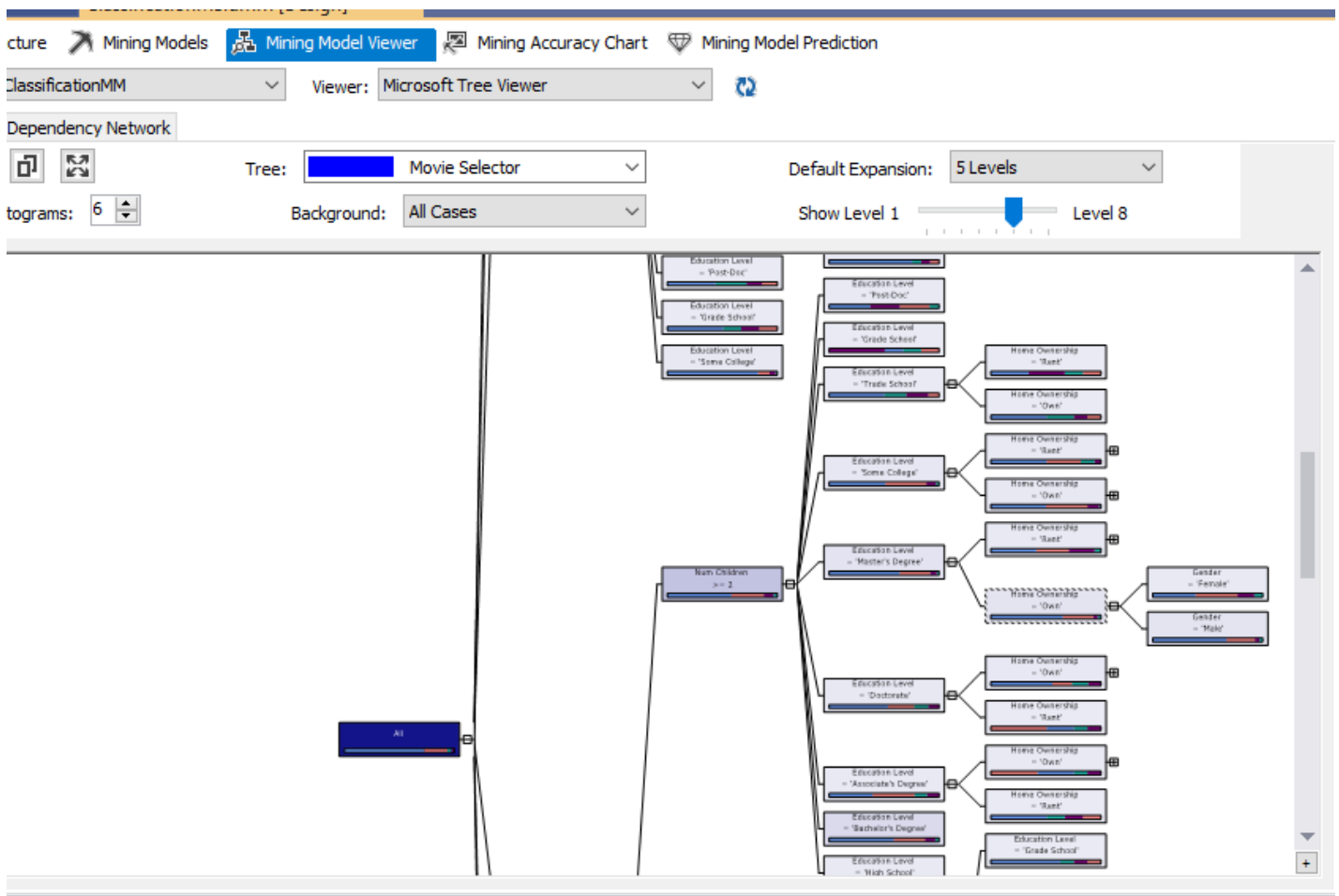
Mining Legend ClassificationMS.dmm [Design]*

High Low

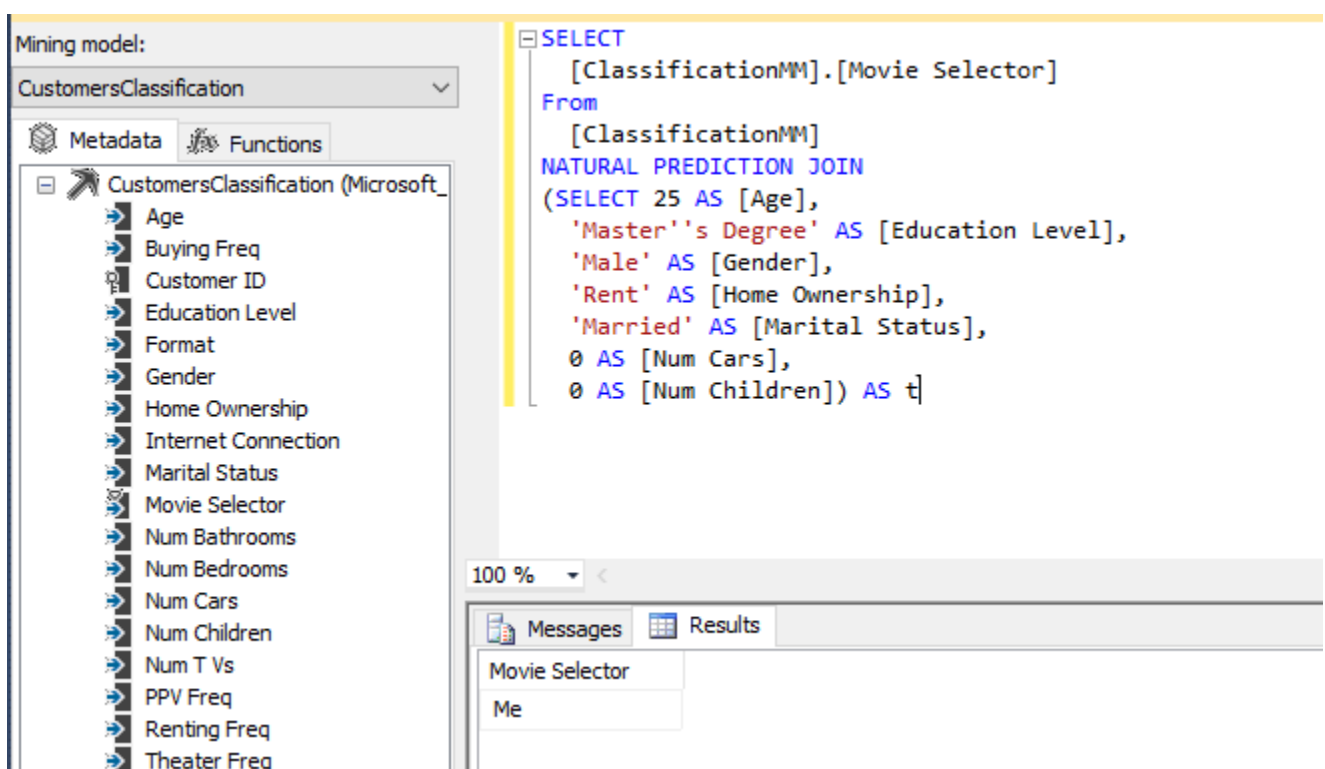
Total Cases: 2231

| Value | Cases | Probability | Histogram |
|--|-------|-------------|-----------|
| <input checked="" type="checkbox"/> Children | 68 | 3.09% | |
| <input checked="" type="checkbox"/> Me | 1607 | 71.95% | |
| <input checked="" type="checkbox"/> Missing | 0 | 0.00% | |
| <input checked="" type="checkbox"/> Other | 82 | 3.71% | |
| <input checked="" type="checkbox"/> Spouse/Partner | 474 | 21.25% | |

4- شجرة القرار:



5- مثال عن استعلام DMX في SSMS :



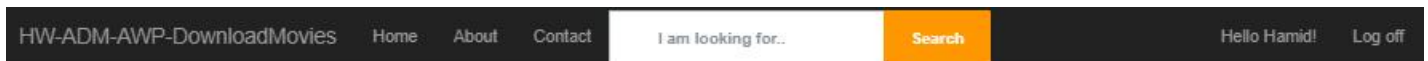
7- طريقة استعمال DMX في Visual studio :

```
string s = @"SELECT [ClassificationMM].[Movie Selector]
From [ClassificationMM]
NATURAL PREDICTION JOIN
(SELECT '"' + user.Age + @'" AS[Age],
'" +user.EducationLevel+ @'" AS[Education Level],
'" +user.Gender+ @'" AS[Gender],
'" +user.HomeOwnerShaip+ @'" AS[Home Ownership],
'" +user.MaritalStatus+ @'" AS[Marital Status],
'" +user.NumCars + @'" AS[Num Cars],
'" +user.NumChildren + @'" AS[Num Children]) AS t";

com.CommandText = s;
AdomdDataReader dr = com.ExecuteReader();
if (dr.Read())
{
    if (dr[0] != null)
        ViewBag.ResultClassification = dr[0].ToString();
}
dr.Close();
con.Close();
```


4- Get Personalized Recommendations :

تظهر هذه الخدمة ايضاً عندما يقوم المستخدم بتسجيل الدخول وتظهر في الصفحة الرئيسية حيث تظهر اسفل الخدمة السابقة على الشكل:



Service-Who select the movie: Me

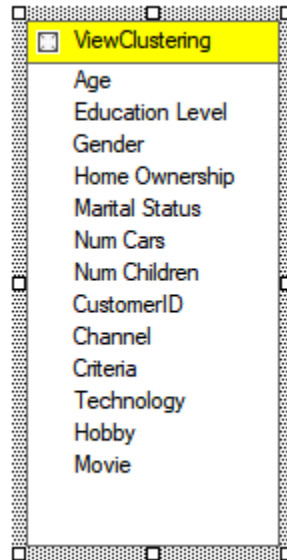
Service-Get Personalized Recommendations:

| | | |
|--|--|--|
|  <p>Film's Name: Star wars Film's price: 343 \$ Film's Director: Cruise, Tom Learn more »</p> |  <p>Film's Name: A beautiful mind Film's price: 55 \$ Film's Director: Cruise, Tom Learn more »</p> |  <p>Film's Name: Animal House Film's price: 80 \$ Film's Director: Crowe, Cameron Learn more »</p> |
|--|--|--|

- سنبين فيما يلي تفاصيل تنفيذ هذه الخدمة:

1- استخدام جداول الزبائن والهوايات و القنوات والمعايير في تشكيل View:

من المصاعب التي عاينناها هو عدم قدرتنا على اخذ كافة الجداول والواصفات بعين الاعتبار وذلك لان عملية العنقدة استغرقت الوقت الكثير ولم تنتهي لكي تعنقد اكثر من ثلاثة ملايين سجل ولذلك اخذنا عدد من واصفات الزبون المهمة وجدول الهوايات والعنقدة على اساسها .



2- بارامترات الخوارزمية:

Algorithm Parameters

Parameters:

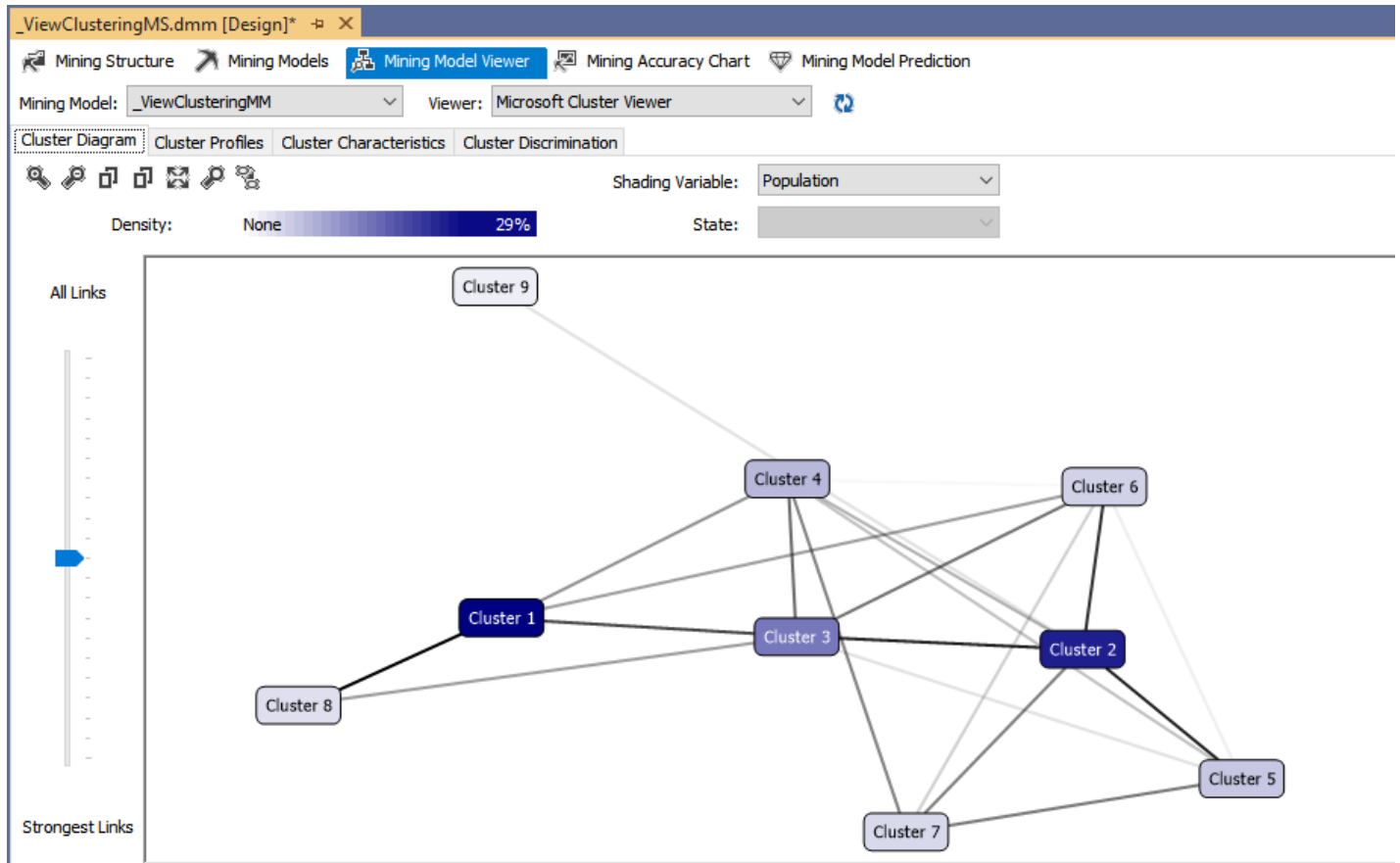
| Parameter | Value | Default | Range |
|--------------------------|-------|---------|-------------|
| CLUSTER_COUNT | 9 | 10 | [0,...) |
| CLUSTER_SEED | | 0 | [0,...) |
| CLUSTERING_METHOD | | 1 | 1,2,3,4 |
| MAXIMUM_INPUT_ATTRIBUTES | | 255 | [0,65535] |
| MAXIMUM_STATES | 5000 | 100 | 0,[2,65535] |
| MINIMUM_SUPPORT | | 1 | (0,...) |
| MODELLING_CARDINALITY | | 10 | [1,50] |
| SAMPLE_SIZE | | 50000 | 0,[100,...) |
| STOPPING_TOLERANCE | | 10 | (0,...) |

Description:

Specifies the approximate number of clusters to be built by the algorithm. If the approximate number of clusters cannot be built from the data, the algorithm builds as many clusters as possible. Setting the CLUSTER_COUNT parameter to 0 causes the algorithm to use heuristics to best determine the number of clusters to build. The default is 10.

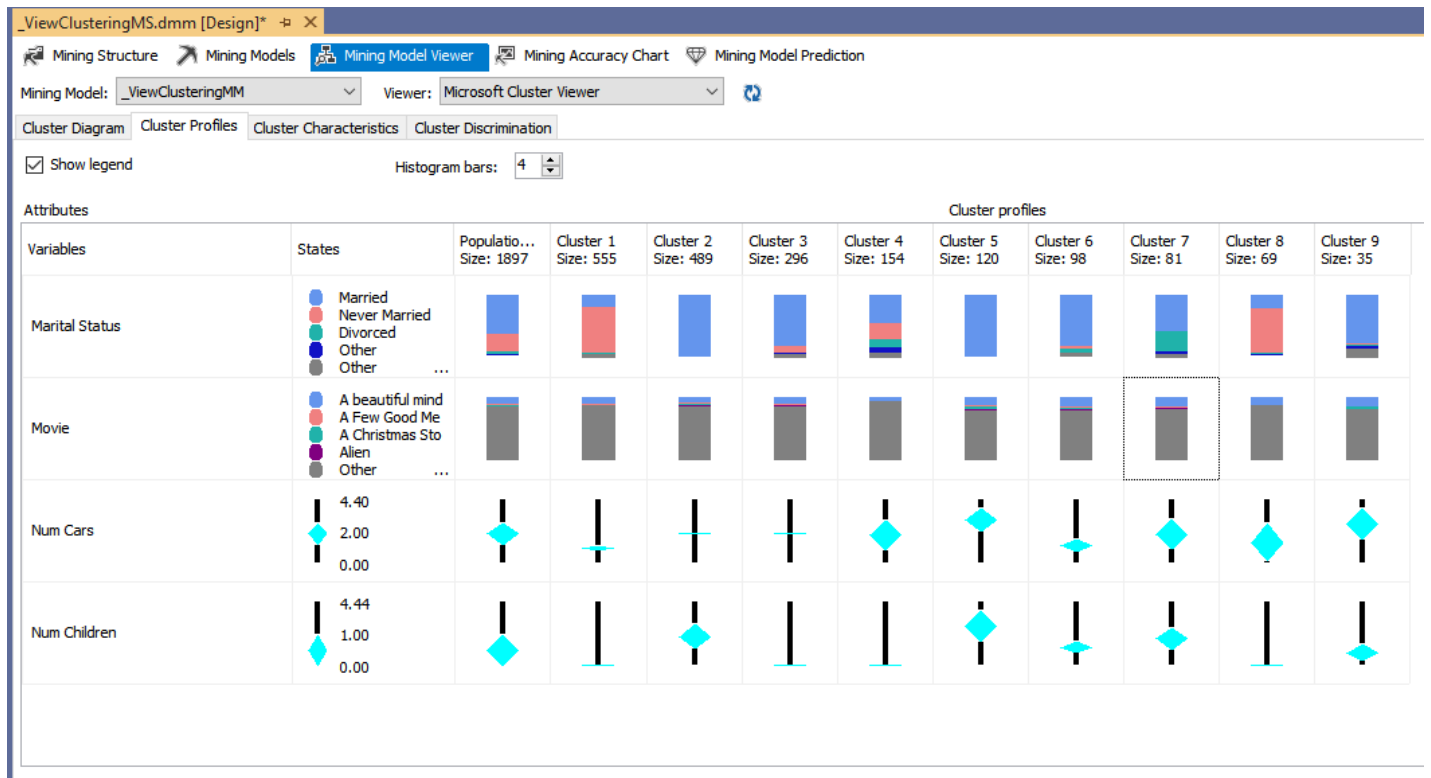
Add Remove OK Cancel Help

: Cluster Diagram – 3

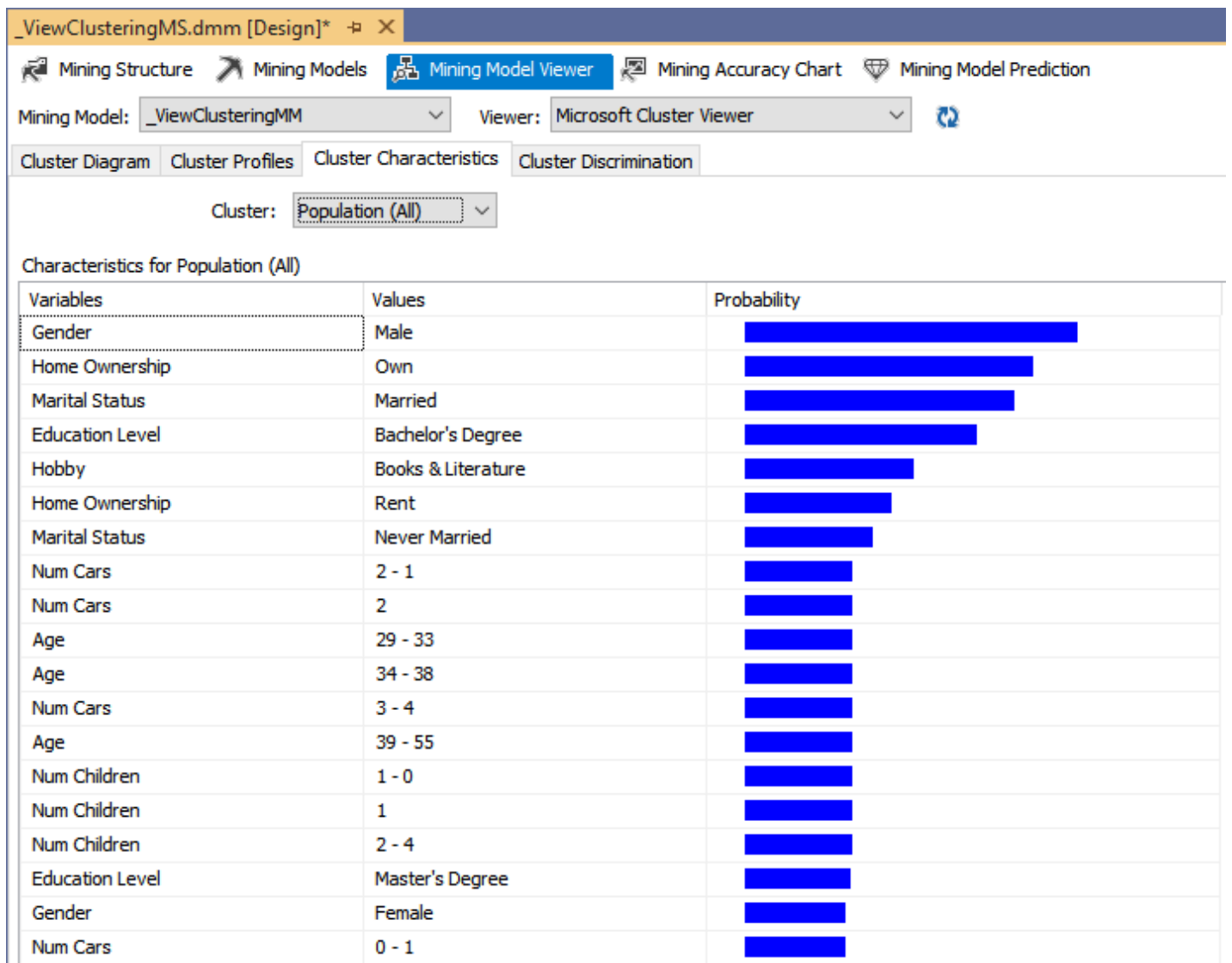


: Cluster Profiles -4

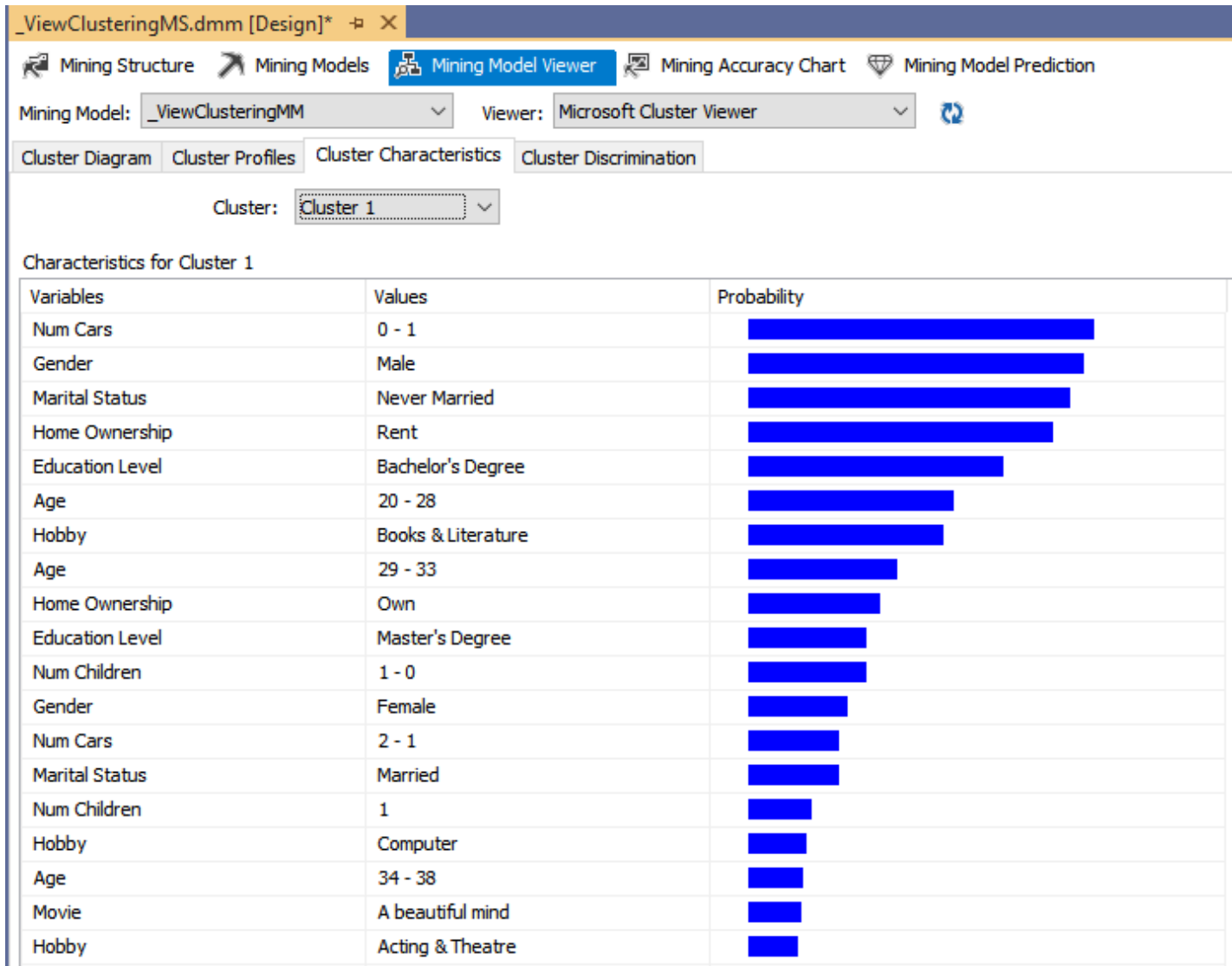




: Cluster Characteristics -5

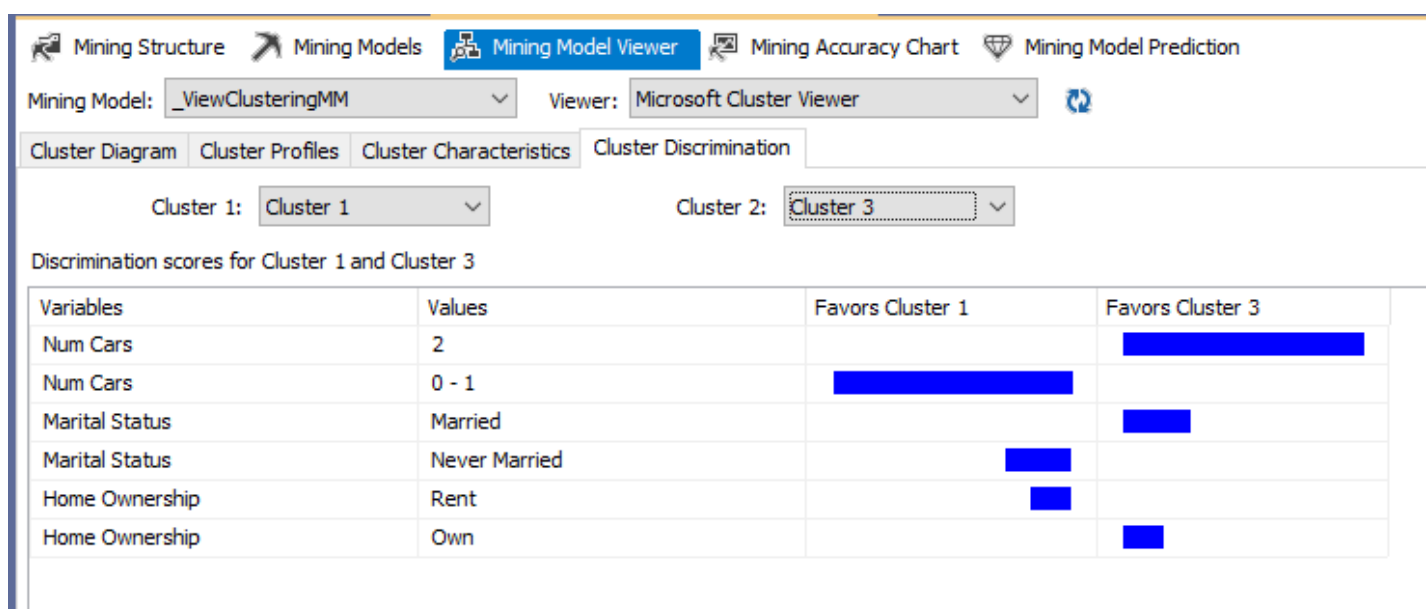


- العنقود الاول:



: Cluster Discrimination -5

مثال:



5- مثال عن استعلام DMX في SSMS :

- أما عن طريقة الاستعلام : لكي نتمكن من ارجاع كافة الافلام الموجودة في العنقود فقد قمنا بالاستعلام مرتين ، حيث يكون خرج الاستعلام الاول هو دخل للاستعلام الثاني كما يلي :

1- نستعلم عن رقم العنقود بناءً على مواصفات الزبون:

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the 'Mining model' pane shows the '_ViewClusteringMM' model. The 'Metadata' tab is selected, listing various attributes: Age, Customer ID, Education Level, Gender, Hobby, Home Ownership, Marital Status, Movie, Num Cars, and Num Children. The main query editor on the right contains the following DMX query:

```
SELECT Cluster() From [_ViewClusteringMM]
NATURAL PREDICTION JOIN
(SELECT 25 AS [Age],
'Bachelor's Degree' AS [Education Level],
'Male' AS [Gender],
'Hunting & Guns' AS [Hobby],
'Rent' AS [Home Ownership],
'Married' AS [Marital Status],
0 AS [Num Cars],
4 AS [Num Children]) AS t;
```

Below the query editor, the 'Results' pane shows the output of the query. It displays a single row with the column header '\$CLUSTER' and the value 'Cluster 7'.

- كما نلاحظ رقم العنقود الموافق لمواصفات الزبون هو : **Cluster 7** .

2- نستعلم عن الافلام الموجودة في العنقود رقم 7 :

Mining model:
_ViewClusteringMM

Metadata Functions

_ViewClusteringMM (Microsoft_Clus

- Age
- Customer ID
- Education Level
- Gender
- Hobby
- Home Ownership
- Marital Status
- Movie
- Num Cars
- Num Children

```
SELECT [Movie]
FROM [_ViewClusteringMM].CASES
WHERE IsInNode('7')
```

100 %

Messages Results

| Movie |
|-----------------------|
| A.I.: Artificial I... |
| Being John Mal... |
| Casablanca |
| Monsters Inc. |
| Animal House |
| Casablanca |
| About A Boy |
| Duplicity |
| Adventures of ... |
| Beauty and the... |

6- طريقة استعلام DMX في Visual studio :

```
s = @"SELECT Cluster() From [_ViewClusteringMM] NATURAL PREDICTION JOIN
(SELECT '' + user.Age + @'' AS[Age],
'' + user.EducationLevel + @'' AS[Education Level],
'' + user.Gender + @'' AS[Gender],
'' + user.Hobbies + @'' AS[Hobby],
'' + user.HomeOwnerShaip + @'' AS[Home Ownership],
'' + user.MaritalStatus + @'' AS[Marital Status],
'' + user.NumCars + @'' AS[Num Cars],
'' + user.NumChildren + @'' AS[Num Children]) AS t";
com.CommandText = s;
dr = com.ExecuteReader();
string numberCluster = ""; ;
if (dr.Read())
{if (dr[0] != null) { numberCluster = dr[0].ToString().Substring(dr[0].ToString().Length - 1);}}
dr.Close();
con.Close();
con.Open();
com.Connection = con;
s = "SELECT[Movie] FROM [_ViewClusteringMM].CASES WHERE IsInNode('' + numberCluster+ '') order by Movie";
com.CommandText = s;
dr = com.ExecuteReader();
List<string> listofNameMoviesClustering = new List<string>();
while (dr.Read())
{
    if (dr[0] != null)
    {
        if(!listofNameMoviesClustering.Contains(dr[0].ToString()))
        {
            listofNameMoviesClustering.Add(dr[0].ToString());
        }
    }
}
dr.Close();
con.Close();
```

- وشكراً -