**Opdracht 4**

**Met behulp van normaliseren kan een grote hoeveelheid aan gegevens efficiënter en overzichtelijker worden weergegeven. Normaliseren wordt onder andere gebruikt bij relationele databases. De gegevens die in dit document genormaliseerd worden, worden gebruikt voor de relationele database FLETNIX. De stappen en resultaten hiervan worden in dit document visueel gemaakt. De normaalvormen die gebruikt worden zijn de nulde, eerste, tweede en derde normaalvorm.**

*0NV*

Voor de Nulde Normaalvorm worden alle gegevens allemaal overgenomen in één grote tabel met herhalende groepen. In *Tabelreeks 1 – Nulde Normaalvorm* staan alle gegevens in een ongenormaliseerd overzicht.

**Overview movie awards per year**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Award** | **Year** | **Country** | **Category** | **Movie (movie\_id)** | **Person (person\_id)** | **Code** | **Description** |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Matrix (207992) | Zach Steanberg (550813) | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Insider (160492) | William Goldenberg (276884) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Insider (160492) | Paul Rubbel (950001) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Insider (160492) | David Rosenbloom (68042) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Sixt Sense (303564) | Andrew Mondshein (54796) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Sound Effects Editing | Fight Club (112290) | Ren Klyce (351397) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Sound Effects Editing | Fight Club (112290) | Richard Hymns (950002) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Sound Effect Editing | The Matrix (207992) | Dane Davis (950003) | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Sound Effect Editing | Star Wars: Episode I – The Phantom Menace (313474) | Ben Burtt (165453) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | Star Wars: Episode I – The Phantom Menace (313474) | John Knoll (351981) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | Star Wars: Episode I – The Phantom Menace (313474) | Rob Coleman (191712) | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | The Matrix (207992) | John Gaeta (950004) | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | The Matrix (207992) | Janed Sirrs (540853) | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | The Matrix (207992) | Steve Courtley (950005) | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | The Matrix (207992) | Jon Thum (950006) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix (207992) | David Lee (950007) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix (207992) | John Reitz (950008) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix (207992) | Gregg Rudloff (950009) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix (207992) | David Campbell (950010) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix (207992) | Dane Davis (950003) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | Star Wars: Episode I – The Phantom Menace (313474) | Ben Burtt (165453) | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Sound | Star Wars: Episode I – The Phantom Menace (313474) | Tom Bellfort (950012) | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Sound | American Beauty (13789) | Bob Beemer (950013) | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Cinematography | The Matrix (207992) | Bill Pope (950014) | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Cinematography | American Beauty (13789) | Conrad Hall (950015) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Production Design | The Matrix (207992) | Owen Paterson (464716) | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Production Design | Sleepy Hollow (304862) | Rick Heinrichs (303143) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Editing | The Matrix (207992) | Zach Staenberg (550813) | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Editing | American Beauty (13789) | Tariq Anwar (950016) | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Editing | American Beauty (13789) | Christopher Greenbury (283753) | W | Won |

*Tabelreeks 1 – Nulde Normaalvorm*

*1NV*

Om de bovenstaande tabel (*Tabelreeks 1 – Nulde Normaalvorm*) om te zetten naar de Eerste Normaalvorm, moeten de movie\_id en person\_id losgetrokken worden en in aparte kolommen worden gezet. Zo krijgen alle cellen een atomaire (enkelvoudige) waarde. De onderstaande tabel (*Tabelreeks 2 – Eerste Normaalvorm*) staat in de Eerste Normaalvorm.

**Overview movie awards per year**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Award** | **Year** | **Country** | **Category** | **Movie** | **Movie id** | **Person** | **Person Id** | **Code** | **Description** |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Matrix | 207992 | Zach Steanberg | 550813 | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Insider | 160492 | William Goldenberg | 276884 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Insider | 160492 | Paul Rubbel | 950001 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Insider | 160492 | David Rosenbloom | 68042 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Film Editing | The Sixt Sense | 303564 | Andrew Mondshein | 54796 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Sound Effects Editing | Fight Club | 112290 | Ren Klyce | 351397 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Sound Effects Editing | Fight Club | 112290 | Richard Hymns | 950002 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Sound Effect Editing | The Matrix | 207992 | Dane Davis | 950003 | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Sound Effect Editing | Star Wars: Episode I – The Phantom Menace | 313474 | Ben Burtt | 165453 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | Star Wars: Episode I – The Phantom Menace | 313474 | John Knoll | 351981 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | Star Wars: Episode I – The Phantom Menace | 313474 | Rob Coleman | 191712 | N | Nominated |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | The Matrix | 207992 | John Gaeta | 950004 | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | The Matrix | 207992 | Janed Sirrs | 540853 | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | The Matrix | 207992 | Steve Courtley | 950005 | W | Won |
| Academy Awards | 2000 | The Netherlands | Best Visual Effects | The Matrix | 207992 | Jon Thum | 950006 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix | 207992 | David Lee | 950007 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix | 207992 | John Reitz | 950008 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix | 207992 | Gregg Rudloff | 950009 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix | 207992 | David Campbell | 950010 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | The Matrix | 207992 | Dane Davis | 950003 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Sound | Star Wars: Episode I – The Phantom Menace | 313474 | Ben Burtt | 165453 | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Sound | Star Wars: Episode I – The Phantom Menace | 313474 | Tom Bellfort | 950012 | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Sound | American Beauty | 13789 | Bob Beemer | 950013 | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Cinematography | The Matrix | 207992 | Bill Pope | 950014 | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Cinematography | American Beauty | 13789 | Conrad Hall | 950015 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Production Design | The Matrix | 207992 | Owen Paterson | 464716 | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Production Design | Sleepy Hollow | 304862 | Rick Heinrichs | 303143 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Editing | The Matrix | 207992 | Zach Staenberg | 550813 | N | Nominated |
| BAFTA Awards | 2000 | New Zealand | Best Editing | American Beauty | 13789 | Tariq Anwar | 950016 | W | Won |
| BAFTA Awards | 2000 | New Zealand | Best Editing | American Beauty | 13789 | Christopher Greenbury | 283753 | W | Won |

*Tabelreeks 2 – Eerste Normaalvorm*

*2NV*

Met behulp van de Eerste Normaalvorm, kan de tabel *Tabelreeks 2 – Eerste Normaalvorm* omgezet worden naar een Tweede Normaalvorm. Om een tabel om te zetten naar een Tweede Normaalvorm, moeten alle niet-sleutel-attributen functioneel afhankelijk zijn van de gehele primaire sleutel. Functionele afhankelijkheid houdt in dat bij een waarde (A) slechts één andere waarde (P) kan horen.

**Movie**

|  |  |
| --- | --- |
| **Movie** | **Movie ID** |
| The Matrix | 207992 |
| The Insider | 160492 |
| The Sixt Sense | 303564 |
| Fight Club | 112290 |
| Star Wars: Episode I – The Phantom Menace | 313474 |
| American Beauty | 13789 |
| Sleepy Hollow | 304862 |

**Person**

|  |  |
| --- | --- |
| **Person** | **Person ID** |
| Zach Staenberg | 550813 |
| William Goldenberg | 276884 |
| Paul Rubell | 950001 |
| David Rosenbloom | 68042 |
| Andrew Mondshein | 54796 |
| Ren Klyce | 351397 |
| Richard Hymns | 950002 |
| Dane Davis | 950003 |
| Ben Burtt | 165453 |
| John Knoll | 351981 |
| Rob Coleman | 191712 |
| John Gaeta | 950004 |
| Janek Sirrs | 540853 |
| Steve Courtley | 950005 |
| Jon Thum | 950006 |
| David Lee | 950007 |
| John Reitz | 950008 |
| Gregg Rudloff | 950009 |
| David Campbell | 950010 |
| Tom Bellfort | 950012 |
| Bob Beemer | 950013 |
| Bill Pope | 950014 |
| Conrad Hall | 950015 |
| Owen Paterson | 464716 |
| Rick Heinrichs | 303143 |
| Tariq Anwar | 950016 |
| Christopher Greenbury | 283753 |

**Awardshow**

|  |  |  |
| --- | --- | --- |
| **Award** | **Year** | **Country** |
| Academy Awards | 2000 | The Netherlands |
| BAFTA Awards | 2000 | New Zealand |

**Overview awards per year**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Award** | **Year** | **Category** | **Movie ID** | **Person ID** | **Code** | **Description** |
| Academy Awards | 2000 | Best Film Editing | 207992 | 550813 | W | Won |
| Academy Awards | 2000 | Best Film Editing | 160492 | 276884 | N | Nominated |
| Academy Awards | 2000 | Best Film Editing | 160492 | 950001 | N | Nominated |
| Academy Awards | 2000 | Best Film Editing | 160492 | 68042 | N | Nominated |
| Academy Awards | 2000 | Best Film Editing | 303564 | 54796 | N | Nominated |
| Academy Awards | 2000 | Best Sound Effects Editing | 112290 | 351397 | N | Nominated |
| Academy Awards | 2000 | Best Sound Effects Editing | 112290 | 950002 | N | Nominated |
| Academy Awards | 2000 | Best Sound Effects Editing | 207992 | 950003 | W | Won |
| Academy Awards | 2000 | Best Sound Effects Editing | 313474 | 165453 | N | Nominated |
| Academy Awards | 2000 | Best Visual Effects | 313474 | 351981 | N | Nominated |
| Academy Awards | 2000 | Best Visual Effects | 313474 | 191712 | N | Nominated |
| Academy Awards | 2000 | Best Visual Effects | 207992 | 950004 | W | Won |
| Academy Awards | 2000 | Best Visual Effects | 207992 | 540853 | W | Won |
| Academy Awards | 2000 | Best Visual Effects | 207992 | 950005 | W | Won |
| Academy Awards | 2000 | Best Visual Effects | 207992 | 950006 | W | Won |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950007 | W | Won |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950008 | W | Won |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950009 | W | Won |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950010 | W | Won |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950003 | W | Won |
| BAFTA Awards | 2000 | Best Sound | 313474 | 165453 | N | Nominated |
| BAFTA Awards | 2000 | Best Sound | 313474 | 950012 | N | Nominated |
| BAFTA Awards | 2000 | Best Sound | 13789 | 950013 | N | Nominated |
| BAFTA Awards | 2000 | Best Cinematography | 207992 | 950014 | N | Nominated |
| BAFTA Awards | 2000 | Best Cinematography | 13789 | 950015 | W | Won |
| BAFTA Awards | 2000 | Best Production Design | 207992 | 464716 | N | Nominated |
| BAFTA Awards | 2000 | Best Production Design | 304862 | 303143 | W | Won |
| BAFTA Awards | 2000 | Best Editing | 207992 | 550813 | N | Nominated |
| BAFTA Awards | 2000 | Best Editing | 13789 | 950016 | W | Won |
| BAFTA Awards | 2000 | Best Editing | 13789 | 283753 | W | Won |

*Tabelreeks 3 – Tweede Normaalvorm*

*3NV*

Als laatst moeten de bovenstaande tabellen (*Tabelreeks 3 – Tweede Normaalvorm*) omgezet worden naar de Derde Normaalvorm. Dit kan alleen als de tabel in de Tweede Normaalvorm staat én alle attributen die niet tot een sleutel behoren niet afhangen van een niet-sleutelattribuut. De onderstaande tabel (*Tabelreeks 4 – Derde Normaalvorm*) is het resultaat.

**Movie**

|  |  |
| --- | --- |
| **Movie** | **Movie ID** |
| The Matrix | 207992 |
| The Insider | 160492 |
| The Sixt Sense | 303564 |
| Fight Club | 112290 |
| Star Wars: Episode I – The Phantom Menace | 313474 |
| American Beauty | 13789 |
| Sleepy Hollow | 304862 |

**Person**

|  |  |
| --- | --- |
| **Person** | **Person ID** |
| Zach Staenberg | 550813 |
| William Goldenberg | 276884 |
| Paul Rubell | 950001 |
| David Rosenbloom | 68042 |
| Andrew Mondshein | 54796 |
| Ren Klyce | 351397 |
| Richard Hymns | 950002 |
| Dane Davis | 950003 |
| Ben Burtt | 165453 |
| John Knoll | 351981 |
| Rob Coleman | 191712 |
| John Gaeta | 950004 |
| Janek Sirrs | 540853 |
| Steve Courtley | 950005 |
| Jon Thum | 950006 |
| David Lee | 950007 |
| John Reitz | 950008 |
| Gregg Rudloff | 950009 |
| David Campbell | 950010 |
| Tom Bellfort | 950012 |
| Bob Beemer | 950013 |
| Bill Pope | 950014 |
| Conrad Hall | 950015 |
| Owen Paterson | 464716 |
| Rick Heinrichs | 303143 |
| Tariq Anwar | 950016 |
| Christopher Greenbury | 283753 |

**Description**

|  |  |
| --- | --- |
| **Code** | **Description** |
| W | Won |
| N | Nominated |

**Awardshow**

|  |  |  |
| --- | --- | --- |
| **Award** | **Year** | **Country** |
| Academy Awards | 2000 | The Netherlands |
| BAFTA Awards | 2000 | New Zealand |

**Overview awards per year**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Award** | **Year** | **Category** | **Movie ID** | **Person ID** | **Code** |
| Academy Awards | 2000 | Best Film Editing | 207992 | 550813 | W |
| Academy Awards | 2000 | Best Film Editing | 160492 | 276884 | N |
| Academy Awards | 2000 | Best Film Editing | 160492 | 950001 | N |
| Academy Awards | 2000 | Best Film Editing | 160492 | 68042 | N |
| Academy Awards | 2000 | Best Film Editing | 303564 | 54796 | N |
| Academy Awards | 2000 | Best Sound Effects Editing | 112290 | 351397 | N |
| Academy Awards | 2000 | Best Sound Effects Editing | 112290 | 950002 | N |
| Academy Awards | 2000 | Best Sound Effects Editing | 207992 | 950003 | W |
| Academy Awards | 2000 | Best Sound Effects Editing | 313474 | 165453 | N |
| Academy Awards | 2000 | Best Visual Effects | 313474 | 351981 | N |
| Academy Awards | 2000 | Best Visual Effects | 313474 | 191712 | N |
| Academy Awards | 2000 | Best Visual Effects | 207992 | 950004 | W |
| Academy Awards | 2000 | Best Visual Effects | 207992 | 540853 | W |
| Academy Awards | 2000 | Best Visual Effects | 207992 | 950005 | W |
| Academy Awards | 2000 | Best Visual Effects | 207992 | 950006 | W |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950007 | W |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950008 | W |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950009 | W |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950010 | W |
| BAFTA Awards | 2000 | Best Sound | 207992 | 950003 | W |
| BAFTA Awards | 2000 | Best Sound | 313474 | 165453 | N |
| BAFTA Awards | 2000 | Best Sound | 313474 | 950012 | N |
| BAFTA Awards | 2000 | Best Sound | 13789 | 950013 | N |
| BAFTA Awards | 2000 | Best Cinematography | 207992 | 950014 | N |
| BAFTA Awards | 2000 | Best Cinematography | 13789 | 950015 | W |
| BAFTA Awards | 2000 | Best Production Design | 207992 | 464716 | N |
| BAFTA Awards | 2000 | Best Production Design | 304862 | 303143 | W |
| BAFTA Awards | 2000 | Best Editing | 207992 | 550813 | N |
| BAFTA Awards | 2000 | Best Editing | 13789 | 950016 | W |
| BAFTA Awards | 2000 | Best Editing | 13789 | 283753 | W |

*Tabelreeks 4 – Derde Normaalvorm*