Chris Harms

DBMS HW 4

* 1. No Normal Form
  2. Not a relation, has multi-valued attributes
  3. There are anomalies, there’s modification anomalies with the book data, since it shows up repeatedly in multiple rows. There are rows that if they were deleted, the record of a book would also be deleted completely, so there’s deletion anomalies, and update anomalies since there’s a lot of repeated data.
  4. Grey is misspelled, and the 2 different city locations for wall & vintage could be due to the update anomaly.
  5. AID identifies ALname, AFname, AInst. BNbr identifies BName. BNbr & AID identifies, BPublish, PubCity, BPrice.
  6. 1 NF =

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **AID** | ALname | AFname | AInst | **BNbr** | BName | BPublish | PubCity | BPrice | AuthBRoyalty |
| 10 | Gold | Josh | Sleepy Hollow U | 106 | JavaScript & html 5 | Wall & Vintage | Chicago, IL | 62.75 | 6.28 |
| 10 | Gold | Josh | Sleepy hollow u | 102 | Quick mobile apps | Gray brothers | Boston, ma | 49.95 | 2.50 |
| 24 | Shippen | Mary | Green lawns u | 104 | Innovative data management | Smith and sons | Dallas, tx | 158.65 | 15.87 |
| 24 | Shippen | Mary | Green lawns u | 106 | Java script and html 5 | Wall & vintage | Indianapolis, IN | 62.75 | 6 |
| 32 | Oswan | Jan | Middlestate college | 126 | Networks and data centers | Grey brothers | Boston, nh | 250 | 12.50 |
| 32 | Oswan | Jan | Middlestate college | 180 | Server infrastructure | Gray brothers | Boston, ma | 122.85 | 12.30 |
| 32 | Oswan | Jan | Middlestate college | 102 | Quick mobile apps | Gray brothers | Boston, ma | 45 | 2.25 |

2 NF =

|  |  |  |  |
| --- | --- | --- | --- |
| AID | ALname | AFname | AInst |
| 10 | Gold | Josh | Sleepy hollow u |
| 24 | Shippen | Mary | Green lawns u |
| 32 | Jan | Oswan | Middlestate college |

|  |  |  |
| --- | --- | --- |
| BNbr | BName | BPublish |
| 106 | JavaScript & html 5 | Wall & vintage |
| 102 | Quick Mobile Apps | Gray brothers |
| 104 | Innovative management | Smith and sons |
| 126 | Networks & data centers | Grey brothers |
| 180 | Server infrastructure | Gray Brothers |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| AID | BNbr | PubCity | BPrice | AuthBRoyalty |
| 10 | 106 | Chicago, IL | 62.75 | 6.28 |
| 10 | 102 | Boston, MA | 49.95 | 2.50 |
| 24 | 104 | Dallas, TX | 158.65 | 15.87 |
| 24 | 106 | Indianapolis, IN | 62.75 | 6.00 |
| 32 | 126 | Boston, NH | 250 | 12.50 |
| 32 | 180 | Boston, MA | 122.85 | 12.30 |
| 32 | 102 | Boston, MA | 45 | 2.25 |

Already in 3 NF I think

* 1. 1. UserID, ComputerID and SoftwareID identify UserAuthDateStarts, UserAuthDateEnds, and UserAuthPass 2. SoftwareID & ComputerID identify SoftwareExpDate, and SoftWarePrice 3. computerID and VendorID identify PurchasePrice 4. VendorID identifies vendorname, vendorphone, vendorsupportid, vendorsupportphone, vendorsupportname 5. Softwareid identifies softwarename, softwarevendor 6. Userid identifies username.
  2. 1. Is a full dependency, 2. Is a partial dep, 3. Is a partial dep, 4. Is a partial, 5. Is a partial, 6. Is a transitive
  3. No, dependency 4 can be broken up into separate dependencies
  4. Break off vendorsupportid, vendorsupportphone, and vendorsupport name into separate relation, and keep vendorsupport id behind in original relation as a foreign key.
  5. Routeid identifies routestartpoint, routeendpoint, drivingtime, scheduledate, scheduledep, schedulearr. Driverid identifies driverfname, driverlname, driverhired, driverdob. Vehicleid identifies vehiclemake, vehiclemode, vehiclecap. Driverid and vehicleid identify dcstartdate, and dcenddate
  6. 1st normal form, the table satisfies the atomicity requirement
  7. 2nd NF =

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| RouteID | RouteStartPoint | RouteEndPoint | DrivingTime | ScheduleDate | ScheduleDep | ScheduleArr |
| 28 | Grand Avenue | Madison Street | 38 | 9/12/2015 | 8:30 | 9:18 |
|  |  |  |  | 9/12/2015 | 9:30 | 10:12 |
|  |  |  |  | 9/12/2015 | 10:30 | 11:08 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DriverID | DriverFName | DriverLName | DriverHireD | DriverDOB |
| 8273 | Mary | Smith | 5/2/2007 | 3/23/1974 |
| 7234 | John | Jones | 10/12/2011 | 12/15/1991 |
| 2343 | Pat | Moore | 2/24/1982 | 1/19/1958 |

|  |  |  |  |
| --- | --- | --- | --- |
| VehicleID | VehicleMake | VehicleMode | VehicleCap |
| 1123 | GreatTrucks | CityCoach | 58 |
| 5673 | GreatTrucks | CityCoach | 62 |
| 4323 | PowerTransport | MidiBus | 32 |

|  |  |  |  |
| --- | --- | --- | --- |
| DriverId | VehicleID | DCStartDate | DCEndDate |
| 8273 | 1123 | 6/10/2015 | 6/9/2016 |
| 7234 | 5673 | 4/12/2015 | 4/11/2016 |
| 2343 | 4323 | 8/20/2015 | 8/19/2016 |

3rd NF = Route\_Table

|  |  |  |
| --- | --- | --- |
| RouteID | RouteStartPoint | RouteEndPoint |
| 28 | Grand Avenue | Madison Street |

Schedule\_Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| RouteID | DriverID | ScheduleDate | ScheduleDep | ScheduleArr | DrivingTime |
| 28 | 8273 | 9/12/2015 | 8:30 | 9:18 | 38 |
| 28 | 7234 | 9/12/2015 | 9:30 | 10:12 | 32 |
| 28 | 2343 | 9/12/2015 | 10:30 | 11:08 | 28 |

Vehicle\_Table

|  |  |  |  |
| --- | --- | --- | --- |
| VehicleID | VehicleMake | VehicleMode | VehicleCap |
| 1123 | GreatTrucks | CityCoach | 58 |
| 5673 | GreatTrucks | CityCoach | 62 |
| 4323 | PowerTransport | MidiBus | 32 |

Certificate\_Table

|  |  |  |  |
| --- | --- | --- | --- |
| DriverId | VehicleID | DCStartDate | DCEndDate |
| 8273 | 1123 | 6/10/2015 | 6/9/2016 |
| 7234 | 5673 | 4/12/2015 | 4/11/2016 |
| 2343 | 4323 | 8/20/2015 | 8/19/2016 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DriverID | DriverFName | DriverLName | DriverHireD | DriverDOB |
| 8273 | Mary | Smith | 5/2/2007 | 3/23/1974 |
| 7234 | John | Jones | 10/12/2011 | 12/15/1991 |
| 2343 | Pat | Moore | 2/24/1982 | 1/19/1958 |

Driver\_Table

* 1. A screenshot of a sign

     Description automatically generated