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BAIS3210 Assignment 1

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# 0NF

*PayrollStatement* (

StartDate, EndDate, EmployeeNumber, EmployeeName, Department, Address, City, Province, PostalCode,

CurrentRegularEarnings, YTDRegularEarnings, CurrentOvertimeEarnings, YTDOvertimeEarnings, CurrentOvertime2Earnings, YTDOvertime2Earnings, CurrentTotalEarnings, YTDTotalEarnings,

CurrentIncomeTax, YTDIncomeTax, CurrentCPP, YTDCPP, CurrentEI, YTDEI, CurrentPensionPlan, YTDPensionPlan, CurrentAlbertaHealthCare, YTDAlbertaHealthCare, CurrentTotalDeductions, YTDTotalDeductions, NetPay,

CurrentPensionPlan, YTDPensionPlan, CurrentBlueCross, YTDBlueCross, CurrentDental, YTDDental, CurrentLifeInsurance, YTDLifeInsurance, CurrentDisability, YTDDisability

)

Assumptions:

* Each employee can only have one pay statement per pay period.
* The pay period is only determined by the end date.
* Each employee number uniquely identifies an employee.

## Data Model

Payroll Statement

# 1NF

*PayrollStatement* (

StartDate, EndDate, EmployeeNumber

CurrentRegularEarnings, YTDRegularEarnings, CurrentOvertimeEarnings, YTDOvertimeEarnings, CurrentOvertime2Earnings, YTDOvertime2Earnings, CurrentTotalEarnings, YTDTotalEarnings,

CurrentIncomeTax, YTDIncomeTax, CurrentCPP, YTDCPP, CurrentEI, YTDEI, CurrentPensionPlan, YTDPensionPlan, CurrentAlbertaHealthCare, YTDAlbertaHealthCare, CurrentTotalDeductions, YTDTotalDeductions, NetPay,

CurrentPensionPlan, YTDPensionPlan, CurrentBlueCross, YTDBlueCross, CurrentDental, YTDDental, CurrentLifeInsurance, YTDLifeInsurance, CurrentDisability, YTDDisability

)

*Employee* (

EmployeeNumber, EmployeeName, Department, Address1, Address2, Address3, City, Province, PostalCode

)

Assumptions:

* Employees will never change departments or addresses.
* 3 lines will be sufficient to store the address

## Data Model

Payroll Statement

Employee

# 2NF

*PayrollStatement* (

StartDate, EndDate, EmployeeNumber

CurrentRegularEarnings, YTDRegularEarnings, CurrentOvertimeEarnings, YTDOvertimeEarnings, CurrentOvertime2Earnings, YTDOvertime2Earnings, CurrentTotalEarnings, YTDTotalEarnings,

CurrentIncomeTax, YTDIncomeTax, CurrentCPP, YTDCPP, CurrentEI, YTDEI, CurrentPensionPlan, YTDPensionPlan, CurrentAlbertaHealthCare, YTDAlbertaHealthCare, CurrentTotalDeductions, YTDTotalDeductions, NetPay,

CurrentPensionPlan, YTDPensionPlan, CurrentBlueCross, YTDBlueCross, CurrentDental, YTDDental, CurrentLifeInsurance, YTDLifeInsurance, CurrentDisability, YTDDisability

)

*Employee* (

EmployeeNumber, EmployeeName, Department, Address1, Address2, Address3, City, Province, PostalCode

)

Assumptions:

* No partial dependencies here, nothing to do.

## Data Model

Payroll Statement

Employee

# 3NF

*Employee* (

EmployeeNumber, EmployeeName, Department, Address1, Address2, Address3, City, Province, PostalCode

)

*PayrollStatement* (

StartDate, EndDate, EmployeeNumber

NetPay,

)

*Earnings* (

EndDate, EmployeeNumber, Type, CurrentAmount, YTDAmount,

)

*Deductions* (  
EndDate, EmployeeNumber, Type, CurrentAmount, YTDAmount,

)

*Benefits* (

EndDate, EmployeeNumber, Type, CurrentAmount, YTDAmount,

)

Assumptions:

* I suppose this isn’t strictly a 3NF step but leaving everything in one big table is too ugly. I’m assuming the “…” in the document means that those sections are likely to expand in the future.
* The small amount of data that could be saved by not storing net pay isn’t worth the data retrieval costs.

## Data Model

Deductions

Earnings

Benefits

Payroll Statement

Employee

## Data Dictionary

|  |  |  |
| --- | --- | --- |
| Employee | | |
| <<PK>> | EmployeeNumber | Number {EmployeeNumber > 1 and EmployeeNumber < 1000000, Identity (10, 10)} |
|  | EmployeeName | Character {size = 50} |
|  | Department | Character {size = 50} |
|  | Address1 | Character {size = 50} |
|  | Address2 | Character {size = 50} |
|  | Address3 | Character {size = 50} |
|  | City | Character {size = 50} |
|  | Province | Character {size = 2} |
|  | PostalCode | Character {size = 7, format = A1A 1A1} |

|  |  |  |
| --- | --- | --- |
| PayrollStatement | | |
|  | StartDate | Date time |
| <<PK>> | EndDate | Date time |
| <<PK>> | EmployeeNumber | Number {EmployeeNumber > 1 and EmployeeNumber < 1000000} |
|  | NetPay | Money |

|  |  |  |
| --- | --- | --- |
| Earnings | | |
| <<PK>> | EndDate | Date time |
| <<PK>> | EmployeeNumber | Number {EmployeeNumber > 1 and EmployeeNumber < 1000000} |
| <<PK>> | Type | Enum {Regular, Overtime, Overtime2, Total} |
|  | CurrentAmount | Money |
|  | YTDAmount | Money |

|  |  |  |
| --- | --- | --- |
| Deductions | | |
| <<PK>> | EndDate | Date time |
| <<PK>> | EmployeeNumber | Number {EmployeeNumber > 1 and EmployeeNumber < 1000000} |
| <<PK>> | Type | Enum {Income Tax, CPP, EI, Pension Plan, Alberta Health Care, and Total} |
|  | CurrentAmount | Money |
|  | YTDAmount | Money |

|  |  |  |
| --- | --- | --- |
| Benefits | | |
| <<PK>> | EndDate | Date time |
| <<PK>> | EmployeeNumber | Number {EmployeeNumber > 1 and EmployeeNumber < 1000000} |
| <<PK>> | Type | Enum {Pension Plan, Blue Cross, Dental, Life Insurance, and Disability} |
|  | CurrentAmount | Money |
|  | YTDAmount | Money |

# Scripts

Create database and procedures: 

Test procedures: 