DATABASE DESIGN

DOCUMENTATION FOR THE LEAVE EXPENSE HANDLING APPLICATION PROJECT

NOTE: This Document contains the Revised database design of the Leave Expense Handling Application .thus it's the second version of its kind. it should be accompanied by the corresponding MSSQL database with the tables and a diagram representing the relationship among the tables

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Some changes has been incorporated from the last version such as the universal Creation and Updating tracking fields shown below

Attribute Name	Data Type	Description
CreatedBy	uniqueidentifier	Used to track the user performing the creation of the record
CreatedTimestamp	timestamp	Used to track the time when the creation of the record was performed
LastUpdatedBy	uniqueidentifier	Used to track the user performing the update of the record
LastUpdatedTimestamp	smalldatetime	Used to track the time when the last update of the record was performed

Note: These fields are added or all the entities we are about to discuss so it is to be assumed that they are appended on each table below

ENTITIES AND THEIR ATTRIBUTES

Employee: (previously referred to as traveler) used to store information about the employee applying for leave

Attribute Name	Data Type	Description
ID	uniqueidentifier	Unique Identifier for each Record
FullName	Varchar(50)	Used to store the full name of the employee
DepartmentId	uniqueidentifier	Refers to the department record in the Department

Department : a look up table to store departments to which employees belong to

Attribute Name	Data Type	Description
ID	uniqueidentifier	Unique Identifier for each Record
Name	Varchar(50)	Used to store the full name of the Department

Travel :used to store the travel data ,such as the period ,means of travel and links to dependencies such as Employee Id and so on

Attribute Name	Data Type	Description
ID	uniqueidentifier	Unique Identifier for each Record
EmployeeID	uniqueidentifier	Refers to the employee applying for or settling a leave
Reason	Varchar(150)	Used to store the Purpose of the field Leave
Destination	Varchar(150)	Used to store the Destination of the field Leave

MeansID	uniqueidentifier	Refers to the Means record
IsSettled	Bit	Stores weather a travel has been settled
SettlmentID	uniqueidentifier	Refers to the Settled record
ApprovalStatus	Varchar(50)	Stores the status of the Leave applied ,canceled ,approved
ApprovedBy	Varchar(50)	Stores the credential of the party in charge of approving a leave application
Supervisor	Varchar(50)	Stores the supervisor /Manager of the department from which the advance or settlement relates to
DepartureDay	Date	Retains the day which the employee left the town of the specific context (expectation or the report)
ReturnDay	Date	Stores the date on which the employee returned to work station (expectation or the report)
FullDayStart	Date	Stores the date when the user stayed or expected to stay on a full day basis starts
FullDayEnd	Date	Stores the date when the user stayed or expected to stay on a full day basis ends
IsSettlment	Bit	Used to recite if the travel record is that of an advance form or a settlement form

Means: serves as a lookup table used to sore means of transportation to the field trip

Attribute Name	Data Type	Description
ID	uniqueidentifier	Unique Identifier for each Record
Name	Varchar(50)	Used to store the full name of the Department

ExpenseType: is used to store the Expense listing both on the advance and the settlement form .starting from the usual (meals and incidentals) up to the less usual expense types (which are listed under the "other costs" entry) this helps to keep track of the expense types and their orders in the listing and increase the perceived intelligence of the application

Attribute Name	Data Type	Description
ID	uniqueidentifier	Unique Identifier for each Record
FullName	Varchar(50)	Used to store the full name of the employee
Name	uniqueidentifier	Refers to the department record in the Department
Order	Int	The order of the expense in the expense listing
IsRecieptRequired	Bit	Tells if the expense to be recorded requires a receipt to be verified

Expense : sores the expenses type recorded associated with a travel .that of the advance or the settlement

Attribute Name	Data Type	Description
ID	uniqueidentifier	Unique Identifier for each Record
TravelID	uniqueidentifier	Refers to the associated travel Record
ExpenseTypeID	uniqueidentifier	Refers to the associated Expense Type Record
AdvanceAmount	Float	The amount of the referred expense type associated to the travel on the advance form
SettlmentAmount	Float	The amount of the referred expense type associated to the travel on the settlement form
RecieptNo	BigINT	Stores the receipt number of the expense (if It Is required)

Settlement :the small yet almost the meat of the entities is this it basically stores the settled travels by storing advance and settlement support which is mainly stored or traversed by the travel records.

Attribute Name	Data Type	Description
ID	uniqueidentifier	Unique Identifier for each Record
AdvanceID	uniqueidentifier	Refers to the associated advance travel Record
SettlmentID	uniqueidentifier	Refers to the associated settlement Record
SettlmentDate	Date	Stores the date that the travel was settled

THE RELATIONSHIPS

The associations necessary to present and maintain the information were also revised. So now they are based on a new narrative statement of the work process stated as which was restructured as a result of the new and removed entries

An **Employee** *BELONGING TO* a **DEPARTMENT** *WENT ON* [applied for] **TRAVEL** *VIA* **means** *SPENT* **Expenses** *OF TYPE* **Expense Type** *SETTLED ON* **settlement** *WITH A SETTLEMENT* **Expense** of *EXPENSE OF TYPE* **Expense Type**

From the above statement we can drive the entities (the ones in **Bold**) and the relationships (the ones in *italics*).but the last two relationships are redundant in the sense that their only difference is the direction or path but they exist between the same entities .thus it assumed to be a polymorphic nature

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So here goes

No.	Relationship Name	Multiplicity	Entities
1.	Belongs To	1----------*	Employee ->Department
2.	Went On	1----------*	Employee->Travel
3.	Via	*----------1	Travel->Means
4.	Spent	1----------*	Travel->Expense
5.	Of Type	1----------1	Expense->Expense Type
6.	Settled On	*----------1	Travel->Settlement

Note: Relationships 2 and 7 contain two relationships each they are represented as on only for comprehensibility purposes due to the fact that the relationship describes an association between the same entities at deferent times i.e. the tables are somewhat polymorphic