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Data Model | Beginner

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Introductions

- Take 5 Minutes
- Turn to a Person Near You
- Introduce Yourself



Agenda

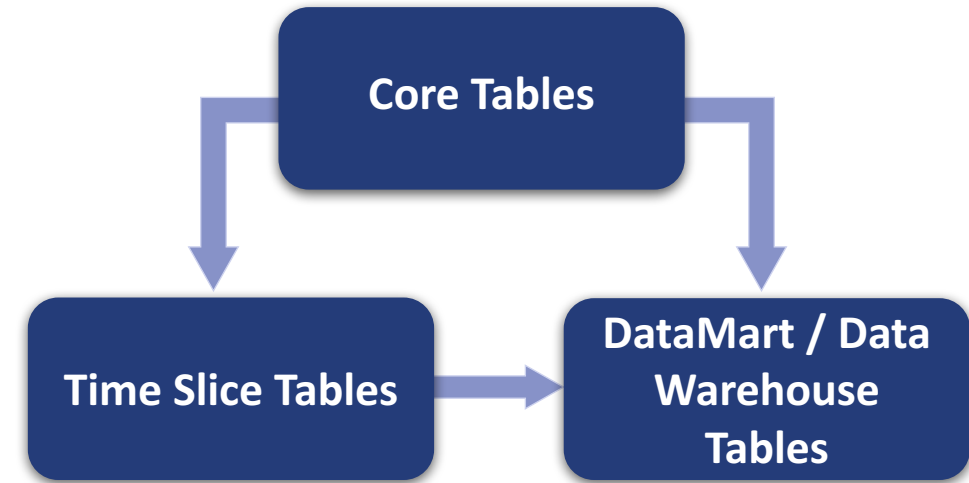
- Data Model Overview
 - Core Tables
 - Datamart Tables
- Database Details
 - Common Columns
 - Naming Sub Components
 - Naming Type ID's
- Basic Reporting Tables
 - Investments
 - Resources
 - Timsheets
- Baseline & Hierarchy Tables
 - Baseline
 - Master/Sub

Data Model Overview

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Overview Of Data Model

- There are 3 areas where data is stored
- Core Tables
 - These are the production tables used for the day to day functions
 - They include
 - Investment Information
 - Resource Information
 - Timesheet Information
 - Data updated in real time (live tables)
- Time Slice Tables
 - Houses summarized data by Daily, Weekly, Bi-Weekly, Monthly, Bi-Monthly, Quarterly, Semi-Annually, Yearly views
 - These tables are populated via a job process – Time Slice
 - Time Slices are critical to define how much data is summarized
- DataMart Tables
 - Provides Summary and Rollup Data
 - Time Facts Data
 - DataMart is populated via several job processes – Rate Matrix Extraction, DataMart Extraction and Datamart Rollup



Core Tables

Investments

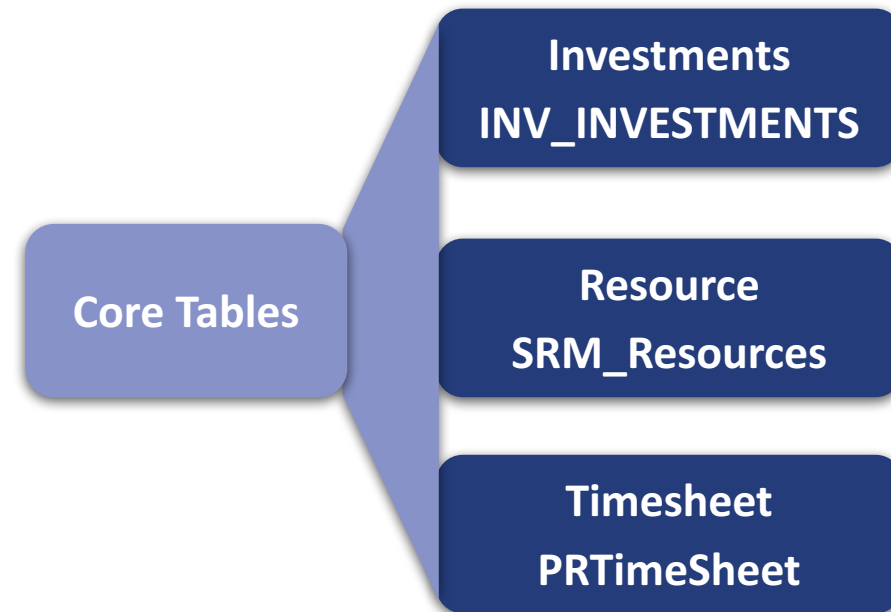
- INV_INVESTMENTS is the basic investment table that links to all of the related investment tables

Resources

- SRM_RESOURCES is the basic resource/role table that links to all resource related tables

Timesheet

- Stores timesheet information and links to the resource, time entry and time period tables



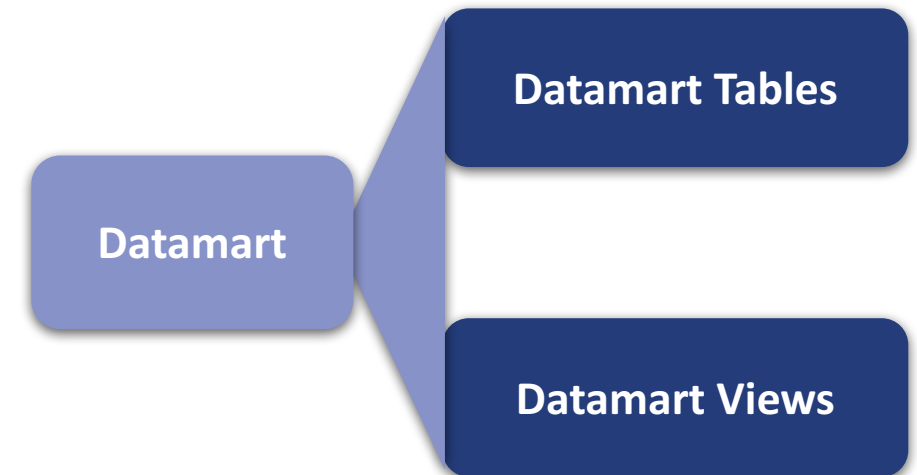
Datamart Tables

- Datamart Tables

- Time bucketed PM information
- Weekly, monthly, quarterly, and yearly time bucketed information at the OBS level
- Summary information about projects
- Project, resource, and task information on a daily basis
- Resource information

- Datamart Views

- Views store information like project, resource, and task information for each project on a daily basis
- Questions like “what is the estimated time to completion per day for resource “Scott on project “Clarity Rollout?” (can be answered by querying this table



Database Details

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Common Columns

Column Name	Description
ID or PRID	Primary Key
CREATED_DATE	Date/time record was created
CREATED_BY	User that created the record. Foreign key to CMN_SEC_USERS.ID
LAST_UPDATED_DATE	Date/time record was last updated
LAST_UPDATED_BY	User that updated the record. Foreign key to CMN_SEC_USERS.ID

Naming Sub Components

- <Component>[_<Sub component>]_<Additional Descr>[_<Type id>]
- The Additional Description points to a specific area of the object or functionality.
 - Ex 1. NBI_DIM_OBS = NikuBusinessIntelligence_Dimension_OBS
 - Ex 2. CMN_SEC_USERS = Common_Security_Users
- The Additional Description varies in length, between 1 and 22 characters long including the underscore
- The Additional Description may be 2 to 3 names separated by underscores
- It's length is dependent on the length of the Sub Component
- Some tables have just a Component and Sub Component

Naming Type IDs

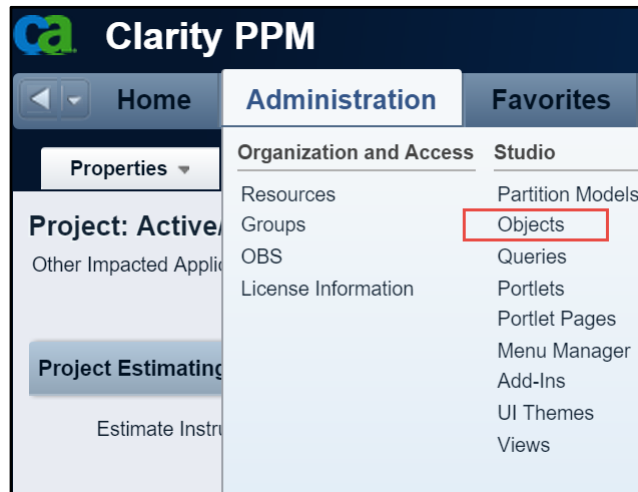
- The Type Id describes a database object.
 - Ex 1. NBI_DIM_OBS_FLAT_SP =
NikuBusinessIntelligence_Dimension_OBS_Flat_SP
- There are only 2 exceptions when the type ID doesn't have to be used:
 - Tables
 - Views (when necessary for backwards compatibility in legacy modules)
- All other db objects require a type id. The Type Id length is between 1-4 characters.

Naming Type IDs

Type	Type ID	Description
Primary key constraints and indexes	PK	Primary key constraints need to be named explicitly as they control the name of the primary key index (which is automatically created)
Foreign key constraints	FKx	Foreign key constraints need to be named explicitly ("after table XYZ add XYZ_FK1 foreign key...")
Check constraints	CKx	i.e. CK1 or CK2
Unique indexes	Ux	i.e. U1
Non-unique indexes	Nx	i.e. N1 or N2
Sequences (Oracle only)	Sx	i.e. S1 or S2. S1 is used for primary key sequences only. i.e. CMN_LOOKUPS_S1
Triggers	TRGx or TX	i.e. TRG1 or TRG2, T1 or T2
Packages	PKG	
Stored Procedures	SP	
Functions	FCT	
Views	V	
Aggregate/Summary tables	SUM	

Identifying Attribute Database Table

Attributes in CA PPM are stored on the object in CA PPM. An object has a set of tables associated to it. The attribute list allows for an admin to navigate to the object and identify exactly where in the database the attribute is stored.



Example: On the object “Project” the “Active” attribute can be found on the INV_INVESTMENTS table with the database column IS_ACTIVE.

Properties

Attributes

Linking

Actions

Views

Audit Trail

Access to this Object

Object: Project - Attributes

Attribute Name

active

Active

Active

▼

Attribute Display

All Attributes

▼

Filter

Show All

Clear

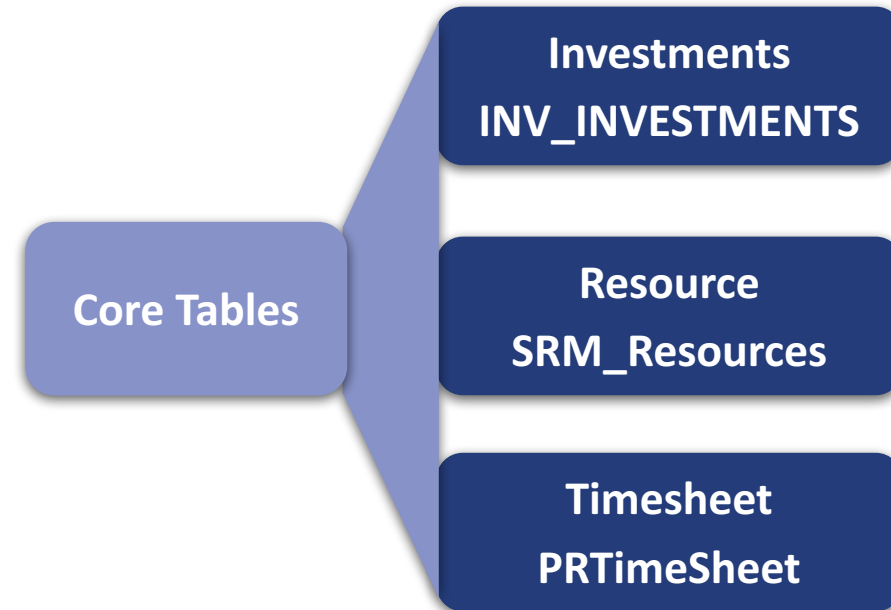
	Attribute	Description	Active	Virtual	Data Type	Default	Database Table	Database Column
	Active		✓		Boolean	☑	INV_INVESTMENTS	IS_ACTIVE

Basic Reporting Tables

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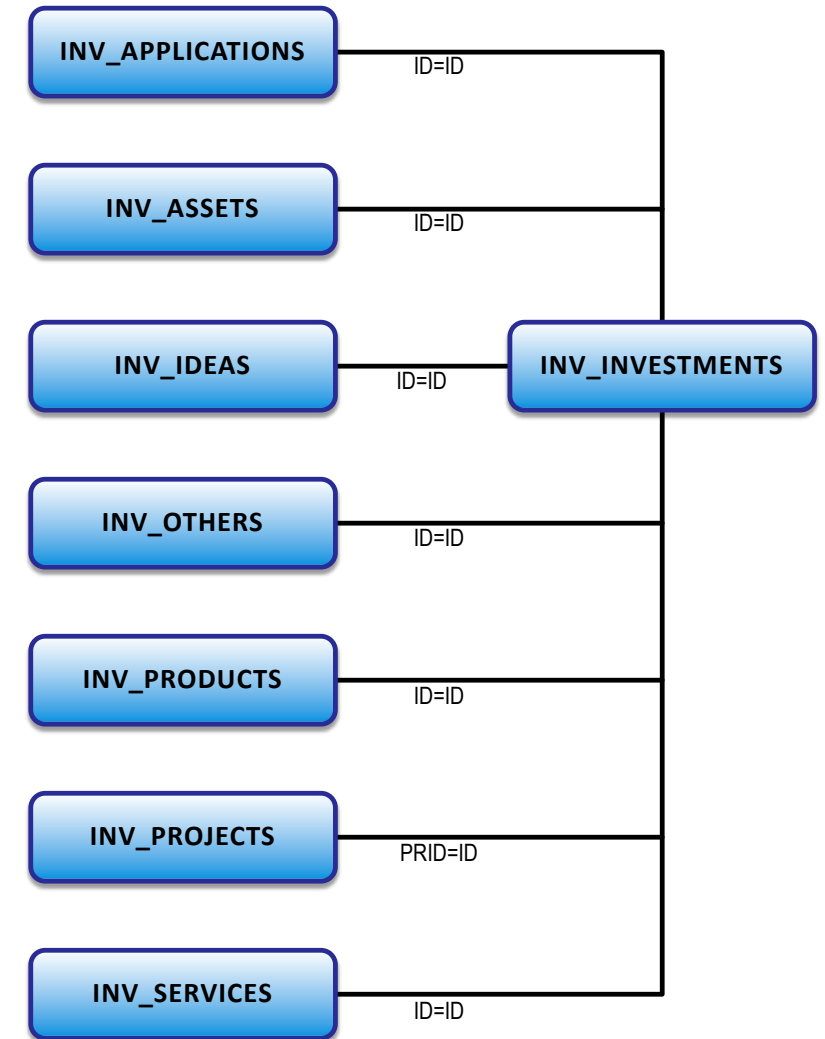
Basic Reporting Tables

- The basic reporting tables revolve around three key data elements
 - Investments
 - Resources
 - Timesheet Data
- During this section we will learn about
 - The individual tables that are used to represent this data
 - How these tables are linked together
 - Lookup Tables associated with the base data
- Exercises
 - We will perform exercises throughout this section



Investments

- **INV_INVESTMENTS**
 - Clarity defined data common to all investments
- **INV_APPLICATIONS**
 - Clarity defined application defined application specific data.
- **INV_ASSETS**
 - This table stores CA Clarity PPM-defined asset-specific data.
- **INV_IDEAS**
 - Idea specific data for an idea investment
- **INV_OTHERS**
 - Clarity defined other specific data
- **INV_PRODUCTS**
 - TCO and Version
- **INV_PROJECTS**
 - CA PPM defined project and program specific data.
- **INV_SERVICES**
 - This table extends from investments table and stores service-specific information



Project Associated Tables

PAC_MNT_PROJECTS

- Table contains the financial properties associated to the project. Each record represents one project.
- ID = INV_INVESTMENTS ID

PRTASK

- Table contains the tasks associated to the project.
- PRPROJECTID = INV_INVESTMENTS ID

PRASSIGNMENT

- Table contains the task and the resource assigned to the task. This is the connecting table between PRTASK and SRM_RESOURCES

PRTEAM

- Table contains the team on the project. This table is the connecting table for SRM_RESOURCES to establish who is assigned on the team of the project.

PAC_MNT_PROJECTS

PRTASK

PRASSIGNMENT

PRTEAM

Example

Query

```
SELECT INVI.CODE  
      , INVI.NAME  
      ,INVI.ODF_OBJECT_CODE  
FROM INV_INVESTMENTS INVI
```

Output

	CODE	NAME	ODF_OBJECT_CODE
1	2342	Ross Test Access	idea
2	AP1001	Fixed Assets	application
3	AS1001	Dell PowerVault NX1950 Network Storage	asset
4	PG1000	Online Web Portal Program	project
5	SV1001	Email	service

Activity

Primary Activity

1. Display all projects that are financially OPEN and active in Clarity. Project Name, Financial Status, Project ID

Additional Activities

1. Display the team members assigned to a project in Clarity. Project Name, Team Member Name
2. Display the ETC's for all resources assigned to a task on a project in Clarity. Project Name, Task Name, Assigned Resource, ETC

Resources

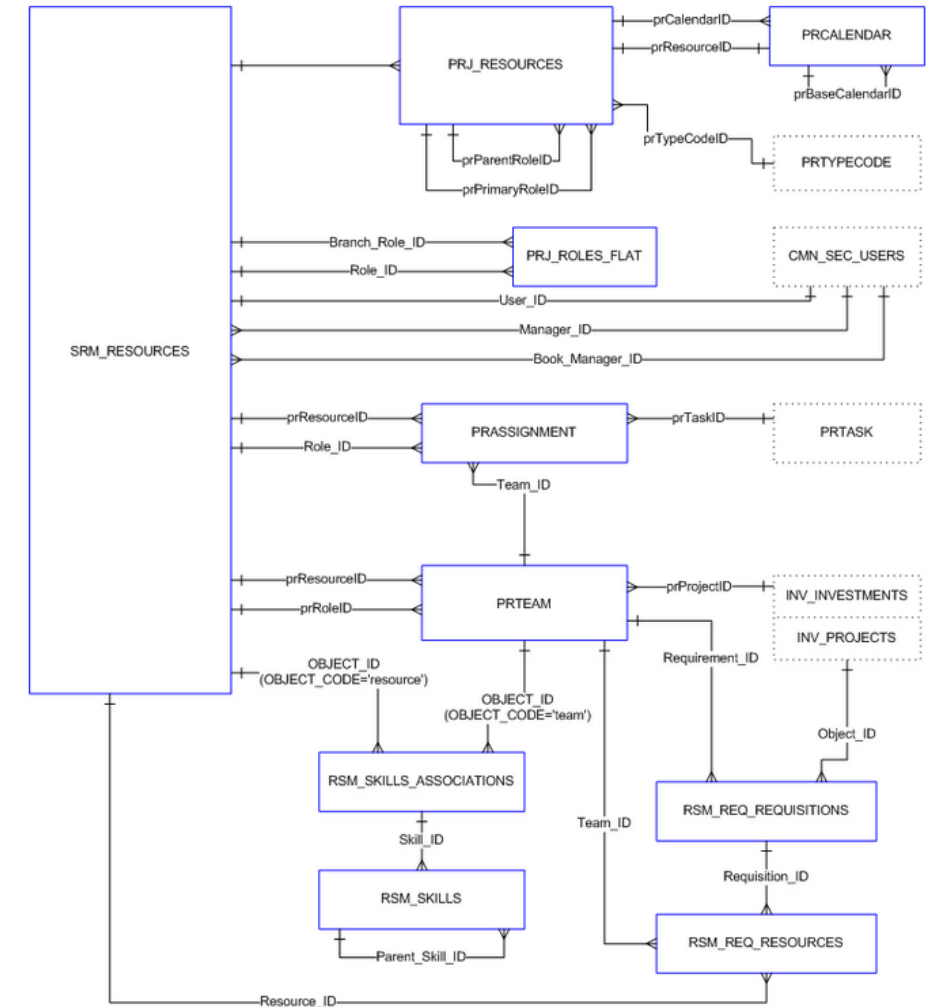
- CMN_SEC_USERS

This table displays the users of the system. Users are resources created on the admin side and can login to the system.

- SRM_RESOURCES

This table displays the basic information for resources of the system. Resources can be multiple types (Labor, Material, Expense, Equipment)

NOTE: SRM_RESOURCES table contains both the user_id and id. Try to avoid using the cmn_sec_users table unless a specific attribute is needed. IE: User Status.



Resource Associated Tables

PRJ_RESOURCES

- Table contains the advanced properties associated to the resource. Is a resource a role? Why type of resource? Is this resource open for time entry? Primary Role?
- Each record represents one resource.
- PRID = SRM_RESOURCES ID

RSM_SKILLS

- Table contains the skills associated to the resource.
- ID = RSM_SKILL_ASSOCIATIONS.SKILL_ID

RSM_SKILL_ASSOCIATIONS

- Table is the connecting table for skills and resources. It connects both the RSM_SKILLS table with the SRM_RESOURCES table.

PRJ_RESOURCES

RSM_SKILLS

RSM_SKILL_ASSOCIATIONS

Activity

Primary Activity

1. Display all of the resources that are open for time entry and have a hire date before the current date. Full name, Open For Time Entry

Additional Activities

1. Display all of the users that are locked inactive in the system. First name, Last name, User Status
2. Display the Primary role for all resources in the system. Resource Full Name, Primary Role Name

Timesheet Tables

- **PRTIMESHEET**
 - Table contains the timesheets in the system
 - **Note:** This table only contains records for users who have opened the timesheet in the system
- **PRTIMEENTRY**
 - Table contains the time entry specific to each timesheet. The timeentry represents each line on the timesheet which is usually a task or investment. This table connects to the prassignment table and the timesheet table.
 - PRTIMESHEETID = PRTIMESHEET.PRID
 - PRASSIGNMENTID = PRASSIGNMENT.PRID
- **PRTIMEPERIOD**
 - Table contains the time period the timesheet belongs to
 - PRID = PRTIMESHEET.PRTIMEPERIODID

PRTIMESHEET

PRTIMEENTRY

PRTIMEPERIOD

Activity

Primary Activity

1. Display all timesheets that have been posted in the system within the past 3 months. Resource, Timeperiod, Timesheet Status

Additional Activity

1. Display the timesheet and the task assigned to the timesheet with the actuals on the line. Resource, Timeperiod, Task Name, Total Actuals

Baseline and Project Hierarchy Tables

Baseline Tables

PRJ_BASELINES

- Table contains the baselines stored in the database. These baselines connect to the investment being baselined

PRJ_BASELINES

PRJ_BASELINE_DETAILS

- Table contains the drilldown of the baseline. This table will contain baseline data based on Task, Assignment, and Project
- **Important Defintions**
- USAGE_SUM = Baselined Effort (Act + Remaining Effort) in seconds
- COST_SUM = Baselined Cost
- DURATION = Effort duration
- Baseline_id = prj_baselines.id
- **Note:** The details can be linked to the timeslice table

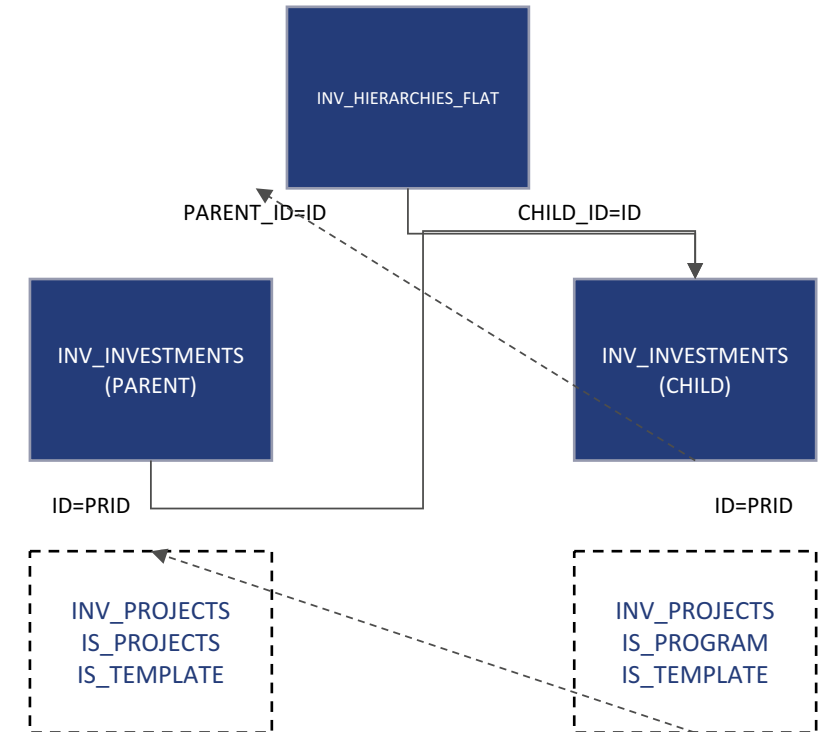
PRJ_BASELINE_DETAILS

Master / Sub Tables

This table enables rapid retrieval of all descendants within a hierarchy

PRJ_BASELINES

- Table contains the relationships associated to each investment
 - CHILD_ID = INV_INVESTMENTS.ID
 - PARENT_ID = INV_INVESTMENTS.ID
- Same table is used for multiple purposes
 - Filter for Program
 - INV_PROJECTS . IS_PROGRAM
- The link_source_id contains the ID of the immediate parent of the child. By examining the link_source_id, the original hierarchical order can also be retrieved



Activity

Primary Activity

1. Display all the projects associated to programs. Program, Project, Project ID

Additional Activity

1. Display all of the projects that have a sub-project, but are not programs. Project, Project ID

Questions?



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- Enter Number of **PDU's Claimed** (1 PDU per course hour)
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Query References

Below is a document with the queries from our activities as well as some additional helpful queries.



SQL_DataModelTraining_Beginner.sql