Practice Exercise: Create Logical Model, Relational Model, and Generate DDL code:

This is a practice exercise for creating logical model, relational model, and generating schema DDL from relational model using Oracle Data Modeler

Please create tables with your initial as suffix, e.g. instead of AP_ (replace AP with your initial)

Data Dictionary:

Table Name	AP_EMP		EMPLOYEE TABLE	
Column Name	Datatype	Size	Optional/Mandatory	Comment
EMPNO	NUMERIC	4	Mandatory	Employee ID Number
EFNAME	VARCHAR	30	Mandatory	Employee Frist Name
ELNAME	VARCHAR	30	Mandatory	Employee Last Name
JOB	VARCHAR	30	Mandatory	Employee Functional Role
MGR	NUMERIC	4	Optional	Employee Manager ID
HIREDATE	DATE		Mandatory	Employee Join Date
SAL	NUMERIC	(7,2)	Mandatory	Employee Monthly Salary in USD
COMM	NUMERIC	(7,2)	Optional	Employee commission

Table Name	AP_DEPT		DEPARTMENT TABLE	
Column Name	Datatype	Size	Optional/Mandatory	Comment
DEPTNO	NUMERIC	2	Mandatory	Department ID Number
DNAME	VARCHAR	30	Mandatory	Department Name
LOC	VARCHAR	30	Mandatory	Location City of the Department

Table Name	AP_PROJECT		ORGANIZATION PROJECTS	
Column Name	Datatype	Size	Optional/Mandatory	Comment

PROJID	NUMERIC	3	Mandatory	Project ID Number
PNAME	VARCHAR	30	Mandatory	Name of the Project
STARTDATE	DATE		Mandatory	Start Date of the Project
ENDDATE	DATE		Mandatory	End Date of the Project

Table Name	AP_SALGRADE	SALARY GRADE TABLE		
Column Name	Datatype	Size	Optional/Mandatory	Comment
GRADE	VARCHAR	2	Mandatory	Salary Grade of Employee
HISAL	NUMERIC	(7,2)	Mandatory	High Salary Value
LOSAL	NUMERIC	(7,2)	Mandatory	Low Salary Value

Highlighted in BLUE is Primary Key of the corresponding table.

STEPS FOR CREATING LOGICAL MODEL

Create each Entity (table) with all Attributes (columns) with proper datatype, size, optional/mandatory, primary key, and comments for each attributes

Create relationship among entities. If there is any Many to Many relationship, create associate (intersect) table in between with at least one attribute. With associate entity in middle, it will have two one to many relationships, with many side towards associate entity.

For each relationship, select source key as primary key of the source side table (table which has one side of one-to-many relationship)
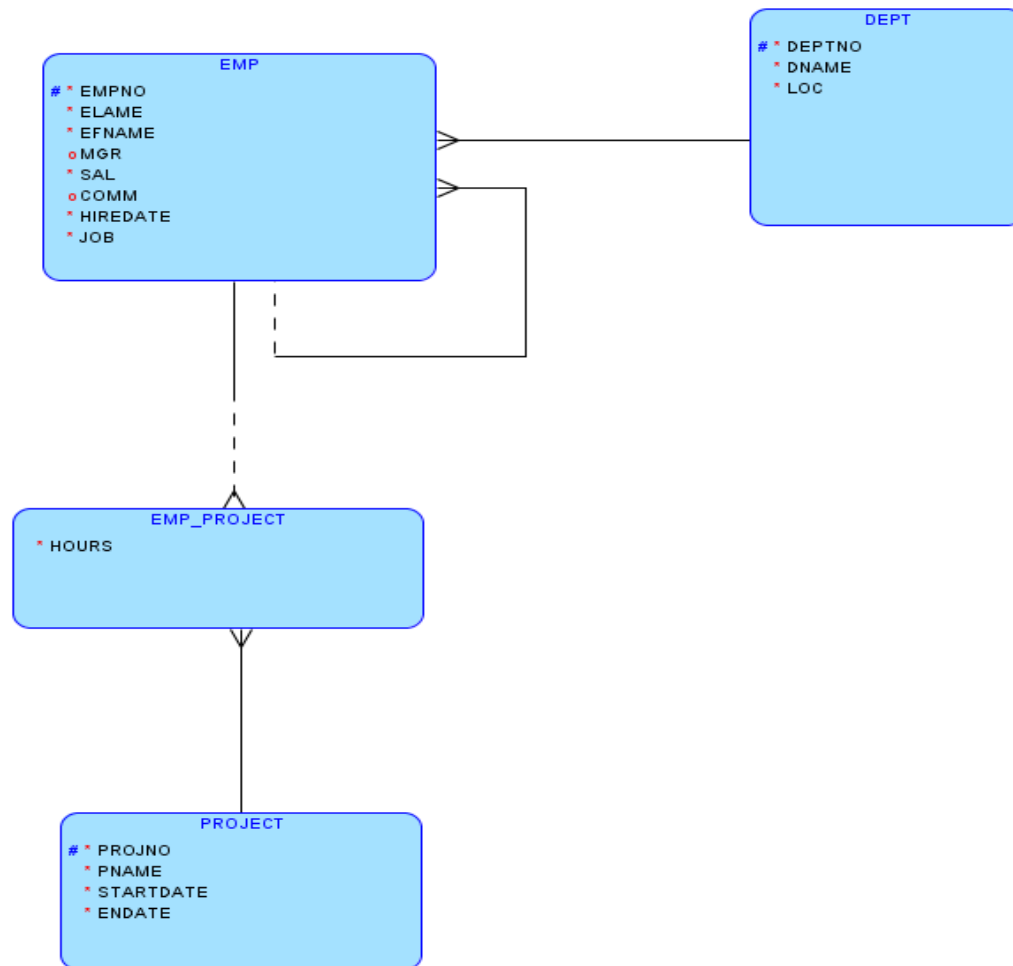
Convert Logical model to Relational Model

Rename Foreign Key column to same column name of primary key of referenced table.

Expand Relational Model as necessary so that all details are clearly visible.

General DDL script from the relational model and save it as PRACTICE_SCHEMA_DDL.sql on your laptop/desktop.

LOGICAL MODEL:

RELATIONAL MODEL

EMP

P	*	EMPNO	NUMBER (4)
	*	ENAME	VARCHAR2 (30)
	*	JOB	VARCHAR2 (30)
F		MGR	NUMBER (4)
	*	HIREDATE	DATE
	*	SAL	NUMBER (7,2)
		COMM	NCLOB
F	*	DEPTNO	NUMBER (2)

EMP_PK (EMPNO)

EMP_DEPT_FK (DEPTNO)
EMP_EMP_FK (MGR)

DEPT

P	*	DEPTNO	NUMBER (2)
	*	DNAME	VARCHAR2 (20)
	*	LOC	VARCHAR2 (20)

DEPT_PK (DEPTNO)

SALGRADE

P	*	GRADE	VARCHAR2 (2)
	*	HISAL	NUMBER (7,2)
	*	LOSAL	NUMBER (7,2)

SALGRADE_PK (GRADE)

PROEMP

	*	HOURS	NUMBER (4)
PF	*	EMPNO	NUMBER (4)
PF	*	PROJID	NUMBER (3)

PROEMP_PK (EMPNO, PROJID)

PROEMP_EMP_FK (EMPNO)
PROEMP_PROJECT_FK (PROJID)

PROJECT

P	*	PROJID	NUMBER (3)
	*	PNAME	VARCHAR2 (30)
	*	STARTDATE	DATE
	*	ENDDATE	DATE

PROJECT_PK (PROJID)