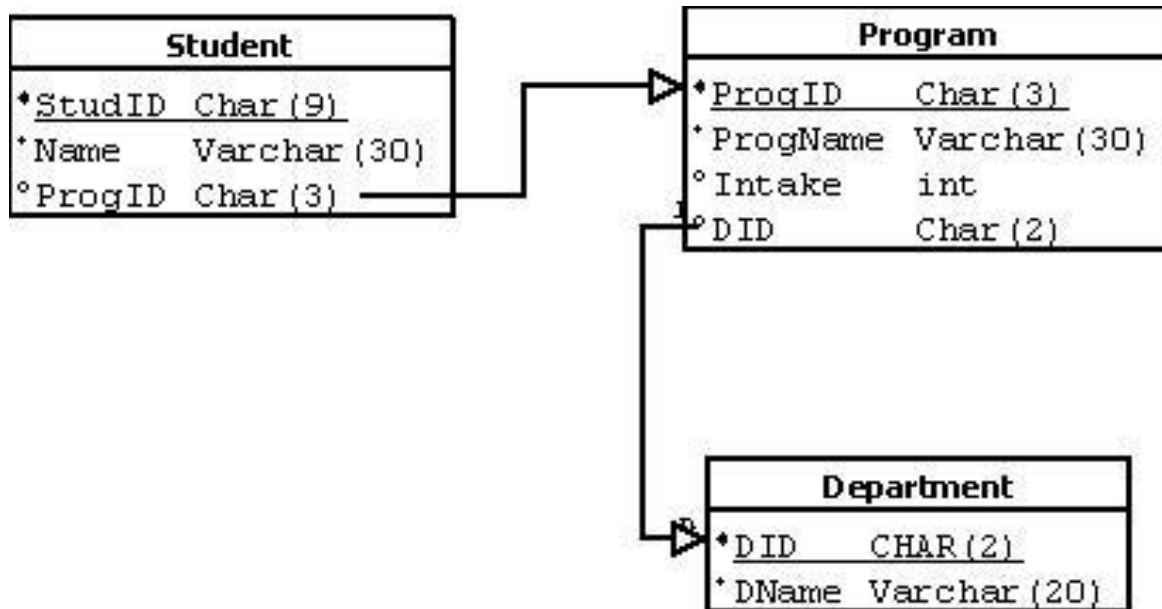# **Schema Examples**

pm_jat @ daiict

XIT Database – Relational Schema

XIT Database – Relation Instances

Student

StudentID	Name	ProgID	CPI
101	Rahul	BCS	7.5
102	Vikash	BIT	8.6
103	Shally	BEE	5.4
104	Alka	BIT	6.8
105	Ravi	BCS	6.5

Program

PID	ProgName	Intake	DID
BCS	BTech(CS)	40	CS
BIT	BTech(IT)	30	CS
BEE	BTech(EE)	40	EE
BME	BTech(ME)	40	ME

Department

DID	DName
CS	Computer Engineering
EE	Electrical Engineering
ME	Mechanical Engineering

Company (Database) Schema
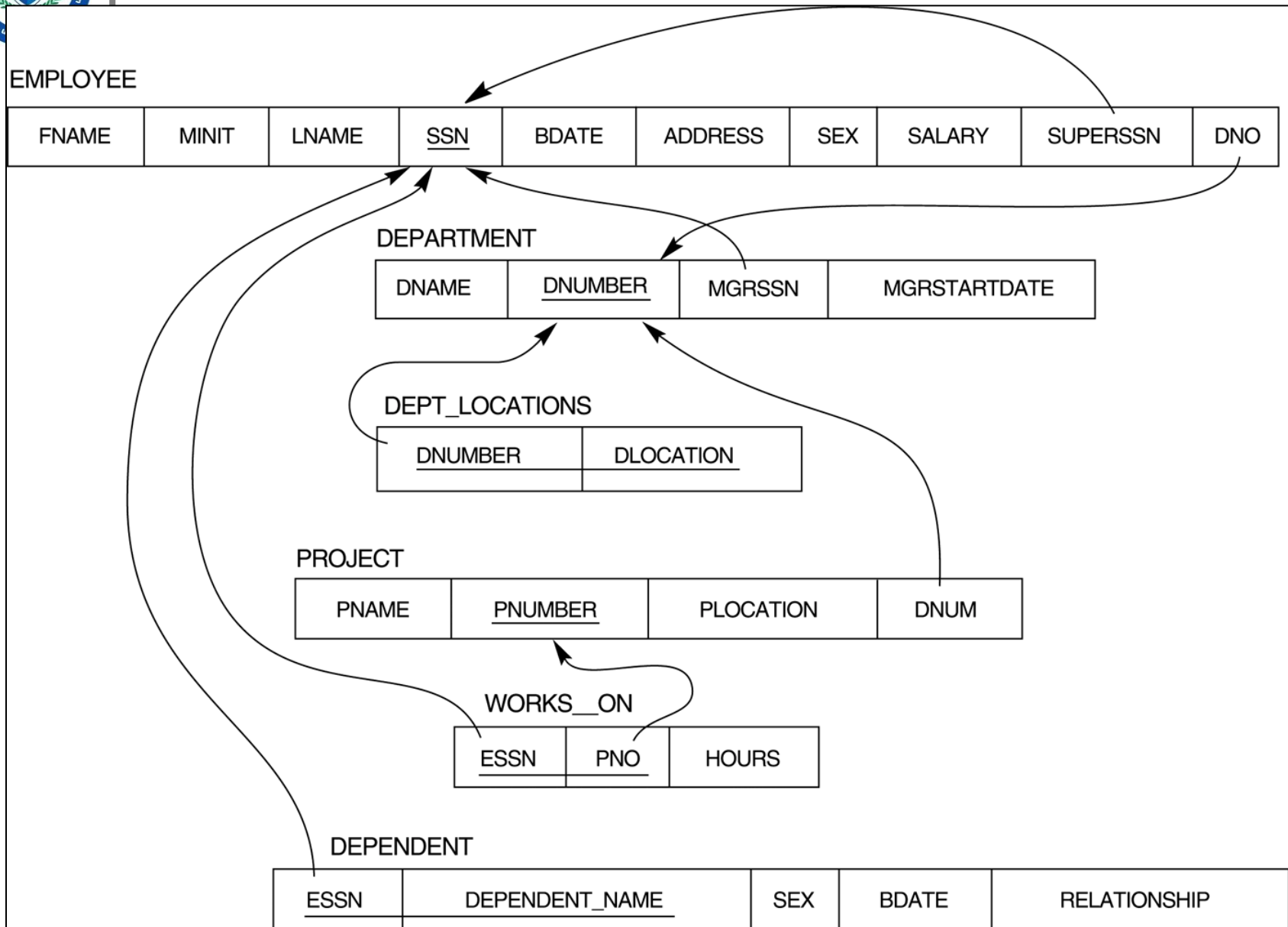
Employee

fname character v	minit chara	lname character	ssn numeric(9,0)	bdate date	addr chara	sex chai	salary numeri	superssn numeric(10,0)	dno sma
Jennifer	S	Wallace	987654321	1931-	291	F	43000	888665555	4
Alicia	J	Zelaya	999887777	1958-	3321	F	25000	987654321	4
Ahmad	V	Jabbar	987987987	1959-	980	M	25000	987654321	4
Franklin	T	Wong	333445555	1945-	638	M	40000	888665555	5
Ramesh	K	Narayan	666884444	1952-	975	M	38000	333445555	5
Joyce	A	English	453453453	1962-	5631	F	25000	333445555	5
James	E	Borg	888665555	1927-	450	M	55000		1
John	B	Smith	123456789	1955-	731	M	33000	333445555	5

DLocation

dno smalli	dlocation character va
1	Houston
4	Stafford
5	Bellaire
5	Sugarland
5	Houston

Department

dname character varying(	dno smal	mgrssn numeric(9,0)	mgrstartdat date
Research	5	333445555	1978-05-22
Administration	4	987654321	1985-01-01
Headquater	1	888665555	1971-06-19

Department

dname character varying(	dno smal	mgrssn numeric(9,0)	mgrstartdat date
Research	5	333445555	1978-05-22
Administration	4	987654321	1985-01-01
Headquater	1	888665555	1971-06-19

Projects

pname character varying(2	pno smal	plocation character v	dno sma
ProductX	1	Bellaire	5
ProductY	2	Sugarland	5
ProductZ	3	Houston	5
Computerization	10	Stafford	4
Reorganization	20	Houston	1
Newbenifits	30	Stafford	4

Works_ON

essn numeric(9,0)	pno smallint	hours numeric(5,1)
123456789	1	32.5
123456789	2	7.5
666884444	3	40.0
453453453	1	20.0
453453453	2	20.0
333445555	2	10.0
333445555	3	10.0
333445555	10	10.0
333445555	20	10.0
333445555	1	32.5
999887777	30	30.0
999887777	10	10.0
987987987	10	35.0
987987987	30	5.0
987654321	30	20.0
987654321	20	15.0
888665555	20	

Employee

fname character v	minit chara	lname character	ssn numeric(9,0)	bda dat
Jennifer	S	Wallace	987654321	193
Alicia	J	Zelaya	999887777	195
Ahmad	V	Jabbar	987987987	195
Franklin	T	Wong	333445555	194
Ramesh	K	Narayan	666884444	195
Joyce	A	English	453453453	196
James	E	Borg	888665555	192
John	B	Smith	123456789	195

Projects

pname character varying(2	pno sma	p c
ProductX	1	B
ProductY	2	S
ProductZ	3	H
Computerization	10	S
Reorganization	20	H
Newbenifits	30	S

Dependents

essn numeric(9,0)	dependent_name character varying(20)	sex character(1)	bdate date	relationship character var
333445555	Alice	F	1976-	DAUGHTER
333445555	Theodore	M	1973-	SON
333445555	Joy	F	1948-	SPOUSE
987654321	Abner	M	1932-	SPOUSE
123456789	Michael	M	1978-	SON
123456789	Alice	F	1978-	DAUGHTER
123456789	Elizabeth	F	1957-	SPOUSE

Employee

fname character \	minit chara	lname character	ssn numeric(9,0)	bda dat
Jennifer	S	Wallace	987654321	193
Alicia	J	Zelaya	999887777	195
Ahmad	V	Jabbar	987987987	195
Franklin	T	Wong	333445555	194
Ramesh	K	Narayan	666884444	195
Joyce	A	English	453453453	196
James	E	Borg	888665555	192
John	B	Smith	123456789	195

DA-Acad schema

Student(<u>StudetID</u>, StdName, ProgID, Batch)

Course(<u>CourseNo</u>, CourseName, Credit)

Faculty(FacultyID, FacultyName)

Offers(<u>AcadYear, Semester, CourseNo</u>, FacultyID)

Registers(<u>StudetID, AcadYear, Semester, CourseNo</u>, grade)

Result(<u>StudetID, AcadYear, SemesterType</u>, SPI, CPI)

Semester(<u>AcadYear, SemesterType</u>)

==> Observe Keys here?

==> What are Foreign Keys here?

DA-ACad

Instructor

instructorid character vary	instructorname character varying (30)
I0005	P M Jat
I0007	Sanjay Srivastava

CourseOffering

acadyear integer	semester character va	courseno character v	instructorid character var
2007	Autumn	CS101	I0005
2007	Winter	CS102	I0005
2007	Summer	CS103	I0007

Course

courseno character varying (5)	coursename character varying (35)	credit numeric (3,1)
CS101	C Programming	4.0
CS102	Algorithm	4.0
CS103	Basic Computers	3.0
CS104	Probability	3.0
CS105	Calculus	3.0

8/5/2019

CourseOffering

acadyear (integer)	semester (character va)	courseno (character v)	instructorid (character var)
2007	Autumn	CS101	I0005
2007	Winter	CS102	I0005
2007	Summer	CS103	I0007

CourseRegistration

studentid (character va)	acadyear (integer)	semester (character va)	courseno (character va)	grade (charac)
200711001	2007	Autumn	CS101	AA
200711001	2007	Winter	CS102	CC
200711001	2007	Summer	CS103	AA
200711002	2007	Autumn	CS101	AA
200711002	2007	Winter	CS102	CC
200711002	2007	Summer	CS103	CC
200711003	2007	Autumn	CS101	AA
200711003	2007	Winter	CS102	CC

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DA-Acad schema (FKs)

Offers: **CourseNo** refers to Course(CourseNo)

Offers: **FacultyID** refers to Faculty(FacultyID)

Registers: **StudetID** refers to Student(StudetID)

Registers: (**AcadYear, Semester, CourseNo**) refers to Offers(AcadYear, Semester, CourseNo)

Result: StudetID refers to Student(StudetID)

Result(AcadYear, SemesterType)

refers to Semester(AcadYear, SemesterType)

Schema HoR #1

STUDENT(<u>id</u>, name, email, prog_code, batch, cpi)
//Batch is like 2009, 2010, or so; Progcode is like '01' for BTech, or so

ROOM(<u>rno</u>, wing, floor)
//floors are like 0 (Ground), 1(First), and 2 (Second)

ALLOT(<u>sid</u>, rno)
//Record of all allotments is stored in this relation. Students (sid) not having entry in this relation means-they are not residing in the HoR

HMC(<u>sid</u>, wing, Floor)
  //Key SID and (Wing, Floor)

Schema HoR #2

STUDENT(<u>id</u>, name, email, prog_code, batch, cpi)
  //Batch is like 2009, 2010, or so; Progcode is like '01' for BTech, or so

CoursesTaken(<u>stud_id, course_no, sem, acad_yr</u>, grade)

Result(<u>stud_id, sem, acad_yr</u>, SPI, CPI)

ROOM(<u>rno</u>, wing, floor)
  //floors are like 0 (Ground), 1(First), and 2 (Second)

ALLOT(<u>sid</u>, rno)
  //Record of all allotments is stored in this relation. Students (sid) not
    having entry in this relation means-they are not residing in the HoR

SBG(<u>sid, Committee</u>, Role)
   //sid is student id of sbg member, and role can be like convener, or
member, committee is name of committee like CMC, or HMC, or so

Simplified Company schema

EMPLOYEE (<u>ssn</u>, ename, bdate, dno, gender, superssn)
  Foreign Keys: dno REFERENCES department (dno),
  Foreign Key: superssn REFERENCES employee (ssn)
DEPARTMENT (<u>dno</u>, dname, mgrssn, mgrstartdate)
  Foreign Keys: mgrssn REFERENCES employee (essn)
DEP_LOCATIONS (<u>dno, dlocation</u>)
  Foreign Keys: dno REFERENCES department (dno),
PROJECT (<u>pno</u>, pname, plocation, dno)
  Foreign Keys: dno REFERENCES department (dno),
WORKS_ON (<u>essn, pno</u>, hours)
  Foreign Keys: essn REFERENCES employee (essn)
  Foreign Keys: pno REFERENCES project (pno)
DEPENDENT (<u>essn, dep_name</u>, gender, bdate date, relationship)
  Foreign Keys: essn REFERENCES employee (essn)

ename character v	ssn integ	bdate date	gen cha	salary numeric(	super intege	dno smal
James	105	1927-	M	55000		1
Franklin	102	1945-	M	40000	105	5
Jennifer	106	1931-	F	43000	105	4
John	101	1955-	M	30000	102	5
Alicia	108	1958-	F	25000	106	4
Ramesh	104	1952-	M	38000	102	5
Joyce	103	1962-	F	25000	102	5
Ahmad	107	1959-	M	25000	106	4

dname character varying(20)	dno smallint	mgrssn integer	mgrstartdate date
Research	5	102	1978-05-22
Administration	4	106	1985-01-01
Headquater	1	105	1971-06-19

dno smalli	dlocation character va
1	Houston
4	Stafford
5	Bellaire
5	Sugarland
5	Houston

pname character varying(2	pno smal	plocation character v	dno sma
ProductX	1	Bellaire	5
ProductY	2	Sugarland	5
ProductZ	3	Houston	5
Computerization	10	Stafford	4
Reorganization	20	Houston	1
Newbenifits	30	Stafford	4

dname character varying(20)	dno smallint	mgrssn integer	mgrstartdate date
Research	5	102	1978-05-22
Administration	4	106	1985-01-01
Headquater	1	105	1971-06-19

essn integer	pno smallint	hours numeric
101	1	32.5
101	2	7.5
104	3	40.0
103	1	20.0
103	2	20.0
102	2	10.0
102	3	10.0
102	10	10.0
102	20	10.0
102	1	32.5
108	30	30.0
108	10	10.0
107	10	35.0
107	30	5.0
106	30	20.0
106	20	15.0
105	20	

essn integer	dependent_n character var	gender charac	bdate date	relationship character var
102	Alice	F	1976-	DAUGHTER
102	Theodore	M	1973-	SON
102	Joy	F	1948-	SPOUSE
106	Abner	M	1932-	SPOUSE
101	Michael	M	1978-	SON
101	Alice	F	1978-	DAUGHTER
101	Elizabeth	F	1957-	SPOUSE