

# Rational Algebra

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1. Select Nama, Alamat, and Gaji from employee in “Research” department.

$\Leftrightarrow \pi_{nama, alamat, gaji}(\sigma_{Dname = \text{Research}}(Employee \bowtie Department))$

nmdepan varchar(20)	nmbelakang varchar(20)	alamat varchar(50)	gaji int
John	Smith	731 Fondren, Houston, TX	30000
Franklin	Wong	638 Voss, Houston, TX	40000
Ramesh	Narayan	975 Fire Oak, Humble, TX	38000
Joyce	English	5631 Rice, Houston, TX	25000

2. Select nama, alamat, and noKTP from employee that is a supervisor of other employees.

$\Leftrightarrow \pi_{NmDepan, NmBelakang, Alamat, NoKTP}(\sigma_{NoKTP \text{ IN } NOKTP\_MGR}(Employee))$

nmdepan varchar(20)	nmbelakang varchar(20)	alamat varchar(50)	NoKTP varchar(10)
Franklin	Wong	638 Voss, Houston, TX	333445555
Jennifer	Wallace	291 Berry, Bellaire, TX	987654321
James	Borg	450 Stone, Houston, TX	888665555

3. Select nama and noKTP from employee with its supervisor's nama and noKTP.

$\Leftrightarrow \pi_{Nama\_Employee, NoKTP\_Employee, Nama\_Supervisor, NoKTP\_Supervisor} (Employee \bowtie Employee.NoKTPKepala = Employee.NoKTP)$

Nama_Employee varchar(41)	NoKTP_Employee varchar(10)	Nama_Supervisor varchar(41)	NoKTP_Supervisor varchar(10)
John Smith	123456789	Franklin Wong	333445555
Franklin Wong	333445555	James Borg	888665555
Alicia Zelaya	999887777	Jennifer Wallace	987654321
Jennifer Wallace	987654321	James Borg	888665555
Ramesh Narayan	666884444	Franklin Wong	333445555
Joyce English	453453453	Franklin Wong	333445555
Ahmad Jabbar	987987987	Jennifer Wallace	987654321
James Borg	888665555	(NULL)	(NULL)

4. Select nama, alamat, and noKTP that is a manager in Department 4.

$\Leftrightarrow \pi_{Nama, Alamat, NoKTP}(\sigma_{Dnomor = 4}(Department \bowtie Department.NOKTP\_MGR = Employee.NoKTP))$

Nama varchar(41)	Alamat varchar(50)	NoKTP varchar(10)
Jennifer Wallace	291 Berry, Bellaire, TX	987654321

5. Select nama, alamat, and nama\_proyek from employee that works in "ProductZ" project.

$\Leftrightarrow \pi_{Nama, Alamat, Nama\_proyek}(\sigma_{Nama\_Proyek="ProductZ"}(Bekerja\_Pada \bowtie Bekerja\_Pada.NoKTP=Employee.NoKTP \bowtie Bekerja\_Pada.Pnomor=Project.Pnomor))$

Nama varchar	Alamat varchar	nama_proyek varchar
Franklin Wong	638 Voss, Houston, TX	ProductZ
Ramesh Narayan	975 Fire Oak, Humble, TX	ProductZ

6. Select nama\_proyek controlled by "Research" department.

$\Leftrightarrow \pi_{Nama\_proyek}(\sigma_{Dname="Research"}(Project \bowtie Project.Dnum=Department.Dnomor))$

Nama_Proyek varchar(20)
ProductX
ProductY
ProductZ

7. Select nama\_proyek located in "Houston" or "Stafford".

$\Leftrightarrow \pi_{Nama\_Proyek}(\sigma_{Plokasi="Houston" OR Plokasi="stanford"}(Project))$

Nama_Proyek varchar(20)
ProductZ
Computerization
Reorganization
Newbenefits

8. Select name and location of the project which "John" work on it.

$\Leftrightarrow \pi_{Nama\_project, Location}(\sigma_{NmDepan="John"}(Bekerja\_Pada \bowtie Bekerja\_Pada.NoKTP=Employee.NoKTP \bowtie Bekerja\_Pada.Pnomor=Project.Pnomor))$

Nama_Project varchar	Location varchar
ProductX	Bellaire
ProductY	Sugarland

9. Select nama and alamat of male employee with salary less than 40000

$\Leftrightarrow \pi_{Nama, Alamat}(\sigma_{JenisKelamin="L" AND Gaji < 40000}(Employee))$

Nama varchar(41)	Alamat varchar(50)
John Smith	731 Fondren, Houston, TX
Ramesh Narayan	975 Fire Oak, Humble, TX
Ahmad Jabbar	980 Dallas, Houston, TX

10. Select nama and gaji of “Administration” department manager.

$\Leftrightarrow \pi_{Nama, Gaji}(\sigma_{Dname = 'Administration'}(Department \bowtie Department.NOKTP\_MGR = Employee.NoKTP))$

Nama varchar(41)	Gaji int
Jennifer Wallace	43000