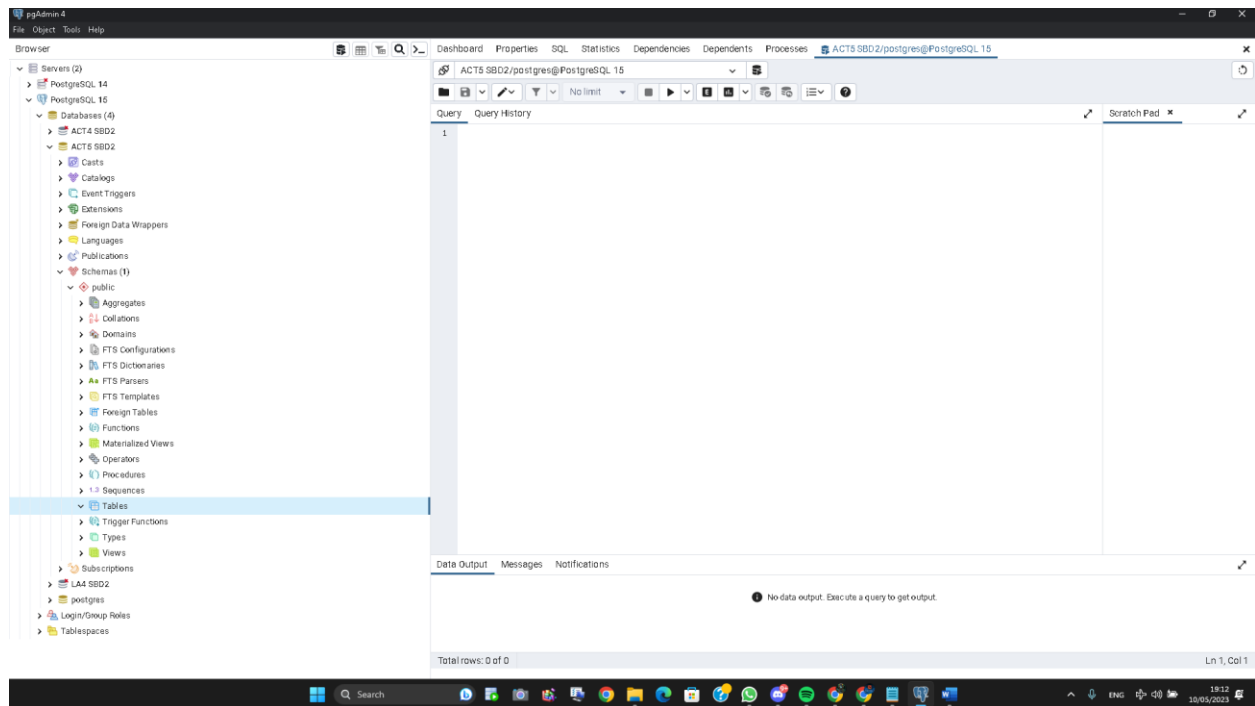


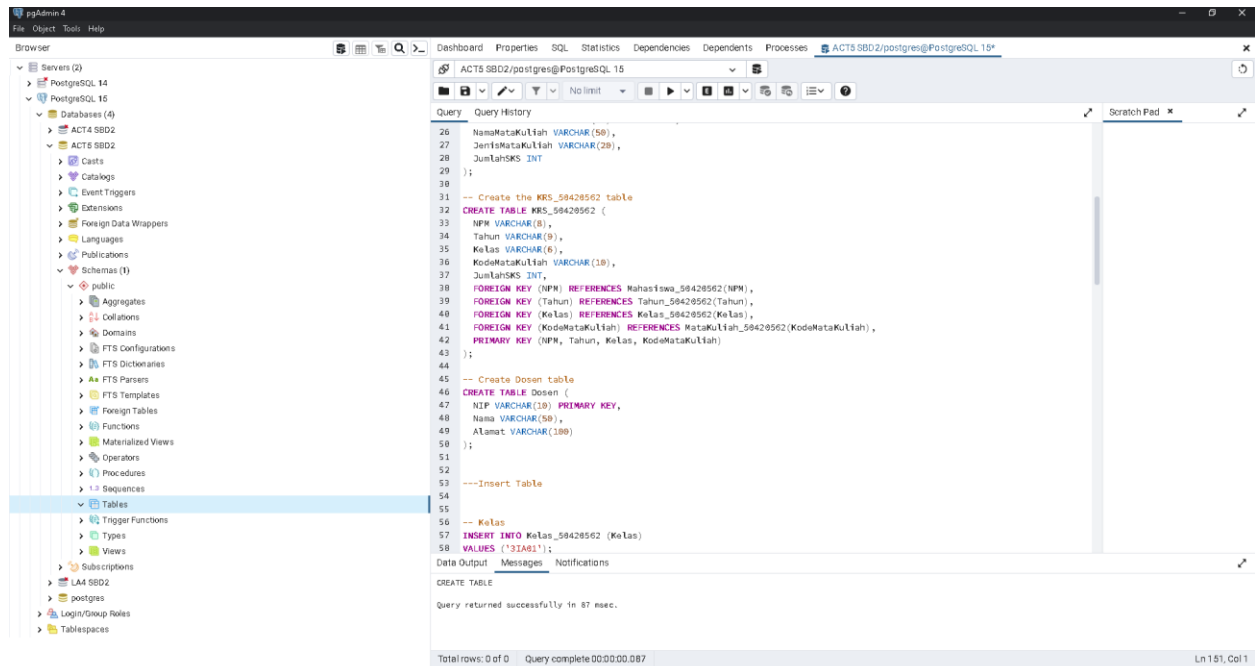
ACT SBD2

Mata Praktikum : Sistem Basis Data 2
Kelas : 3IA02
Praktikum ke- : 5
Tanggal : 11/5/2023
Materi : Relational Database
NPM : 50420562
Nama : Ibrahim Bramullah
Ketua Asisten : Naufal Maulana
Paraf Asisten :
Nama Asisten :
Jumlah Lembar : 12 Lembar

Create Database



Create Table



Data Output

142
143
144
145
146
147
148
149
150
151

--Data

SELECT * FROM Kelas_50420562;
SELECT * FROM Krs_50420562;
SELECT * FROM Mahasiswa_50420562;
SELECT * FROM Matakuliah_50420562;
SELECT * FROM Tahun_50420562;
SELECT * FROM Dosen_50420562;

Data OutputMessagesNotifications

	kelas
	[PK] character varying (6)
1	3IA01
2	3IA02

142
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144
145
146
147
148
149
150
151

--Data

SELECT * FROM Kelas_50420562;
SELECT * FROM Krs_50420562;
SELECT * FROM Mahasiswa_50420562;
SELECT * FROM Matakuliah_50420562;
SELECT * FROM Tahun_50420562;
SELECT * FROM Dosen_50420562;

Data OutputMessagesNotifications

	npm	tahun	kelas	kodematakuliah	Jumlahsks
	[PK] character varying (8)	[PK] character varying (9)	[PK] character varying (6)	[PK] character varying (10)	integer
1	50420562	2022/2023	3IA02	MK001	2
2	50420562	2022/2023	3IA02	MK002	2
3	50420562	2022/2023	3IA02	MK003	3
4	50420562	2022/2023	3IA02	MK004	2
5	50420562	2022/2023	3IA02	MK005	3
6	50420562	2022/2023	3IA02	MK006	2
7	50420562	2022/2023	3IA02	MK007	2
8	50420562	2022/2023	3IA02	MK008	1

```

142
143
144 --Data
145 SELECT * FROM Kelas_50420562;
146 SELECT * FROM Krs_50420562;
147 SELECT * FROM Mahasiswa_50420562;
148 SELECT * FROM Matakuliah_50420562;
149 SELECT * FROM Tahun_50420562;
150 SELECT * FROM Dosen_50420562;
151

```

Data Output Messages Notifications

	npm [PK] character varying (8)	nama character varying (50)	jurusan character varying (50)	fakultas character varying (50)	kelas character varying (6)
1	50420123	John Doe	Teknik Informatika	Teknologi Industri	3IA01
2	50420234	Jane Smith	Sistem Informasi	Teknologi Industri	3IA01
3	50420345	David Johnson	Teknik Komputer	Teknologi Industri	3IA01
4	50420456	Emily Williams	Manajemen Informatika	Teknologi Industri	3IA02
5	50420562	Ibrahim Bramullah	Teknik Informatika	Teknologi Industri	3IA02

```

142
143
144 --Data
145 SELECT * FROM Kelas_50420562;
146 SELECT * FROM Krs_50420562;
147 SELECT * FROM Mahasiswa_50420562;
148 SELECT * FROM Matakuliah_50420562;
149 SELECT * FROM Tahun_50420562;
150 SELECT * FROM Dosen_50420562;
151

```

Data Output Messages Notifications

	kodematakuliah [PK] character varying (10)	namamatakuliah character varying (50)	jenlamatakuliah character varying (20)	jumlahsks integer
1	MK001	Rekayasa Perangkat Lunak 1	Wajib	2
2	MK002	Konsep Data Mining	Wajib	2
3	MK003	Teori Bahasa dan Otomata	Wajib	3
4	MK004	Rekayasa Komputasional	Wajib	2
5	MK005	Sistem Basis Data 2	Wajib	3
6	MK006	Forensik Teknologi Informasi	Pilihan	2
7	MK007	Grafik Komputer 2	Pilihan	2
8	MK008	Teknologi Game	Pilihan	1

```
142
143
144 --Data
145 SELECT * FROM Kelas_50420562;
146 SELECT * FROM Krs_50420562;
147 SELECT * FROM Mahasiswa_50420562;
148 SELECT * FROM Matakuliah_50420562;
149 SELECT * FROM Tahun_50420562;
150 SELECT * FROM Dosen_50420562;
151
```

Data Output Messages Notifications

	tahun [PK] character varying (9)
1	2022/2023

```
142
143
144 --Data
145 SELECT * FROM Kelas_50420562;
146 SELECT * FROM Krs_50420562;
147 SELECT * FROM Mahasiswa_50420562;
148 SELECT * FROM Matakuliah_50420562;
149 SELECT * FROM Tahun_50420562;
150 SELECT * FROM Dosen_50420562;
151
```

Data Output Messages Notifications

	nip [PK] character varying (10)	nama character varying (50)	alamat character varying (100)
1	1234567890	Doe John	123 Main Street
2	2345678901	Smith Jane Smithy	456 Elm Street
3	3456789012	John David Johanson	789 Oak Street

156
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RIGHT JOIN

SELECT D.NIP, D>Nama AS>NamaDosen, M.NPM, M>Nama AS>NamaMahasiswa
FROM Dosen_50420562 D
RIGHT JOIN (SELECT K.NPM, K.KodeMataKuliah, M>Nama
FROM KRS_50420562 K
JOIN Mahasiswa_50420562 M ON K.NPM = M.NPM) M
ON D.KodeMataKuliah = M.KodeMataKuliah;

Data Output

Messages

Notifications

	nip character varying (10)	namadosen character varying (50)	npm character varying (8)	namamahasiswa character varying (50)
1	[null]	[null]	50420562	Ibrahim Bramullah
2	1234567890	Doe John	50420562	Ibrahim Bramullah
3	[null]	[null]	50420562	Ibrahim Bramullah
4	[null]	[null]	50420562	Ibrahim Bramullah
5	[null]	[null]	50420562	Ibrahim Bramullah
6	3456789012	John David Johanson	50420562	Ibrahim Bramullah
7	[null]	[null]	50420562	Ibrahim Bramullah
8	2345678901	Smith Jane Smithy	50420562	Ibrahim Bramullah

166
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176

LEFT JOIN

SELECT D.NIP, D>Nama AS>NamaDosen, M.NPM, M>Nama AS>NamaMahasiswa
FROM Dosen_50420562 D
LEFT JOIN (SELECT K.NPM, K.KodeMataKuliah, M>Nama
FROM KRS_50420562 K
JOIN Mahasiswa_50420562 M ON K.NPM = M.NPM) M
ON D.KodeMataKuliah = M.KodeMataKuliah;

Data Output

Messages

Notifications

	nip character varying (10)	namadosen character varying (50)	npm character varying (8)	namamahasiswa character varying (50)
1	1234567890	Doe John	50420562	Ibrahim Bramullah
2	3456789012	John David Johanson	50420562	Ibrahim Bramullah
3	2345678901	Smith Jane Smithy	50420562	Ibrahim Bramullah

176
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184
185

--- INNER JOIN

SELECT D.NIP, D>Nama AS>NamaDosen, M.NPM, M>Nama AS>NamaMahasiswa
FROM Dosen_50420562 D
INNER JOIN (SELECT K.NPM, K.KodeMataKuliah, M>Nama
FROM KRS_50420562 K
JOIN Mahasiswa_50420562 M ON K.NPM = M.NPM) M
ON D.KodeMataKuliah = M.KodeMataKuliah;

Data Output

Messages

Notifications

	nip character varying (10)	namadosen character varying (50)	npm character varying (8)	namamahasiswa character varying (50)
1	1234567890	Doe John	50420562	Ibrahim Bramullah
2	3456789012	John David Johanson	50420562	Ibrahim Bramullah
3	2345678901	Smith Jane Smithy	50420562	Ibrahim Bramullah

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--- OUTER JOIN

SELECT D.NIP, D>Nama AS>NamaDosen, M.NPM, M>Nama AS>NamaMahasiswa
FROM Dosen_50420562 D
FULL OUTER JOIN (SELECT K.NPM, K.KodeMataKuliah, M>Nama
FROM KRS_50420562 K
JOIN Mahasiswa_50420562 M ON K.NPM = M.NPM) M
ON D.KodeMataKuliah = M.KodeMataKuliah;

Data Output

Messages

Notifications

	nip character varying (10)	namadosen character varying (50)	npm character varying (8)	namamahasiswa character varying (50)
1	[null]	[null]	50420562	Ibrahim Bramullah
2	1234567890	Doe John	50420562	Ibrahim Bramullah
3	[null]	[null]	50420562	Ibrahim Bramullah
4	[null]	[null]	50420562	Ibrahim Bramullah
5	[null]	[null]	50420562	Ibrahim Bramullah
6	3456789012	John David Johanson	50420562	Ibrahim Bramullah
7	[null]	[null]	50420562	Ibrahim Bramullah
8	2345678901	Smith Jane Smithy	50420562	Ibrahim Bramullah

SQL CODE:

```
---Create Table

-- Create the Mahasiswa_50420562 table
CREATE TABLE Mahasiswa_50420562 (
  NPM VARCHAR(8) PRIMARY KEY,
  Nama VARCHAR(50) NOT NULL,
  Jurusan VARCHAR(50) NOT NULL,
  Fakultas VARCHAR(50) NOT NULL,
  Kelas VARCHAR(6) NOT NULL
);

-- Create the Tahun_50420562 table
CREATE TABLE Tahun_50420562 (
  Tahun VARCHAR(9) PRIMARY KEY
);

-- Create the Kelas_50420562 table
CREATE TABLE Kelas_50420562 (
  Kelas VARCHAR(6) PRIMARY KEY
);

-- Create the MataKuliah_50420562 table
CREATE TABLE MataKuliah_50420562 (
  KodeMataKuliah VARCHAR(10) PRIMARY KEY,
  NamaMataKuliah VARCHAR(50),
  JenisMataKuliah VARCHAR(20),
  JumlahSKS INT
);

-- Create the KRS_50420562 table
CREATE TABLE KRS_50420562 (
  NPM VARCHAR(8),
  Tahun VARCHAR(9),
  Kelas VARCHAR(6),
  KodeMataKuliah VARCHAR(10),
  JumlahSKS INT,
  FOREIGN KEY (NPM) REFERENCES Mahasiswa_50420562(NPM),
  FOREIGN KEY (Tahun) REFERENCES Tahun_50420562(Tahun),
  FOREIGN KEY (Kelas) REFERENCES Kelas_50420562(Kelas),
  FOREIGN KEY (KodeMataKuliah) REFERENCES MataKuliah_50420562(KodeMataKuliah),
  PRIMARY KEY (NPM, Tahun, Kelas, KodeMataKuliah)
);
```



```

-- Create Dosen_50420562 table
CREATE TABLE Dosen_50420562 (
    NIP VARCHAR(10),
    Nama VARCHAR(50),
    Alamat VARCHAR(100),
    KodeMataKuliah VARCHAR(10),

    FOREIGN KEY (KodeMataKuliah) REFERENCES MataKuliah_50420562(KodeMataKuliah),
    PRIMARY KEY (NIP,KodeMataKuliah)
);

---Insert Table

-- Kelas
INSERT INTO Kelas_50420562 (Kelas)
VALUES ('3IA01');

INSERT INTO Kelas_50420562 (Kelas)
VALUES ('3IA02');

--Tahun
INSERT INTO tahun_50420562 (tahun) VALUES ('2022/2023');

-- MataKuliah
INSERT INTO MataKuliah_50420562 (KodeMataKuliah, NamaMataKuliah, JenisMataKuliah,
JumlahSKS)
VALUES ('MK001', 'Rekayasa Perangkat Lunak 1', 'Wajib', 2);

INSERT INTO MataKuliah_50420562 (KodeMataKuliah, NamaMataKuliah, JenisMataKuliah,
JumlahSKS)
VALUES ('MK002', 'Konsep Data Mining', 'Wajib', 2);

INSERT INTO MataKuliah_50420562 (KodeMataKuliah, NamaMataKuliah, JenisMataKuliah,
JumlahSKS)
VALUES ('MK003', 'Teori Bahasa dan Otomata', 'Wajib', 3);

INSERT INTO MataKuliah_50420562 (KodeMataKuliah, NamaMataKuliah, JenisMataKuliah,
JumlahSKS)
VALUES ('MK004', 'Rekayasa Komputasional', 'Wajib', 2);

INSERT INTO MataKuliah_50420562 (KodeMataKuliah, NamaMataKuliah, JenisMataKuliah,
JumlahSKS)

```

```

VALUES ('MK005', 'Sistem Basis Data 2', 'Wajib', 3);

INSERT INTO MataKuliah_50420562 (KodeMataKuliah, NamaMataKuliah, JenisMataKuliah,
JumlahSKS)
VALUES ('MK006', 'Forensik Teknologi Informasi', 'Pilihan', 2);

INSERT INTO MataKuliah_50420562 (KodeMataKuliah, NamaMataKuliah, JenisMataKuliah,
JumlahSKS)
VALUES ('MK007', 'Grafik Komputer 2', 'Pilihan', 2);

INSERT INTO MataKuliah_50420562 (KodeMataKuliah, NamaMataKuliah, JenisMataKuliah,
JumlahSKS)
VALUES ('MK008', 'Teknologi Game', 'Pilihan', 1);

-- Mahasiswa
INSERT INTO Mahasiswa_50420562 (NPM, Nama, Jurusan, Fakultas, Kelas)
VALUES ('50420123', 'John Doe', 'Teknik Informatika', 'Teknologi Industri',
'3IA01');

INSERT INTO Mahasiswa_50420562 (NPM, Nama, Jurusan, Fakultas, Kelas)
VALUES ('50420234', 'Jane Smith', 'Sistem Informasi', 'Teknologi Industri',
'3IA01');

INSERT INTO Mahasiswa_50420562 (NPM, Nama, Jurusan, Fakultas, Kelas)
VALUES ('50420345', 'David Johnson', 'Teknik Komputer', 'Teknologi Industri',
'3IA01');

-- Mahasiswa (continued)
INSERT INTO Mahasiswa_50420562 (NPM, Nama, Jurusan, Fakultas, Kelas)
VALUES ('50420456', 'Emily Williams', 'Manajemen Informatika', 'Teknologi
Industri', '3IA02');

INSERT INTO Mahasiswa_50420562 (NPM, Nama, Jurusan, Fakultas, Kelas)
VALUES ('50420562', 'Ibrahim Bramullah', 'Teknik Informatika', 'Teknologi
Industri', '3IA02');

-- KRS
INSERT INTO KRS_50420562 (NPM, Tahun, Kelas, KodeMataKuliah, JumlahSKS)
VALUES ('50420562', '2022/2023', '3IA02', 'MK001', 2);

INSERT INTO KRS_50420562 (NPM, Tahun, Kelas, KodeMataKuliah, JumlahSKS)
VALUES ('50420562', '2022/2023', '3IA02', 'MK002', 2);

INSERT INTO KRS_50420562 (NPM, Tahun, Kelas, KodeMataKuliah, JumlahSKS)
VALUES ('50420562', '2022/2023', '3IA02', 'MK003', 3);

```

```
INSERT INTO KRS_50420562 (NPM, Tahun, Kelas, KodeMataKuliah, JumlahSKS)
VALUES ('50420562', '2022/2023', '3IA02', 'MK004', 2);
```

```
INSERT INTO KRS_50420562 (NPM, Tahun, Kelas, KodeMataKuliah, JumlahSKS)
VALUES ('50420562', '2022/2023', '3IA02', 'MK005', 3);
```

```
INSERT INTO KRS_50420562 (NPM, Tahun, Kelas, KodeMataKuliah, JumlahSKS)
VALUES ('50420562', '2022/2023', '3IA02', 'MK006', 2);
```

```
INSERT INTO KRS_50420562 (NPM, Tahun, Kelas, KodeMataKuliah, JumlahSKS)
VALUES ('50420562', '2022/2023', '3IA02', 'MK007', 2);
```

```
INSERT INTO KRS_50420562 (NPM, Tahun, Kelas, KodeMataKuliah, JumlahSKS)
VALUES ('50420562', '2022/2023', '3IA02', 'MK008', 1);
```

```
-- Insert data into Dosen_50420562 table
```

```
INSERT INTO Dosen_50420562 (NIP, Nama, Alamat, KodeMataKuliah)
VALUES ('1234567890', 'Doe John', '123 Main Street', 'MK002');
```

```
INSERT INTO Dosen_50420562 (NIP, Nama, Alamat, KodeMataKuliah)
VALUES ('2345678901', 'Smith Jane Smithy', '456 Elm Street', 'MK008');
```

```
INSERT INTO Dosen_50420562 (NIP, Nama, Alamat, KodeMataKuliah)
VALUES ('3456789012', 'John David Johanson', '789 Oak Street', 'MK006');
```

```
--Data
```

```
SELECT * FROM Kelas_50420562;
```

```
SELECT * FROM Krs_50420562;
```

```
SELECT * FROM Mahasiswa_50420562;
```

```
SELECT * FROM Matakuliah_50420562;
```

```
SELECT * FROM Tahun_50420562;
```

```
SELECT * FROM Dosen_50420562;
```

```
--- RIGHT JOIN
```

```
SELECT D.NIP, D>Nama AS NamaDosen, M.NPM, M>Nama AS NamaMahasiswa
FROM Dosen_50420562 D
```

```
RIGHT JOIN (SELECT K.NPM, K.KodeMataKuliah, M>Nama
            FROM KRS_50420562 K
            JOIN Mahasiswa_50420562 M ON K.NPM = M.NPM) M
ON D.KodeMataKuliah = M.KodeMataKuliah;
```

```
--- LEFT JOIN
SELECT D.NIP, D>Nama AS>NamaDosen, M.NPM, M>Nama AS>NamaMahasiswa
FROM Dosen_50420562 D
LEFT JOIN (SELECT K.NPM, K.KodeMataKuliah, M>Nama
           FROM KRS_50420562 K
           JOIN Mahasiswa_50420562 M ON K.NPM = M.NPM) M
ON D.KodeMataKuliah = M.KodeMataKuliah;
```

```
--- INNER JOIN
SELECT D.NIP, D>Nama AS>NamaDosen, M.NPM, M>Nama AS>NamaMahasiswa
FROM Dosen_50420562 D
INNER JOIN (SELECT K.NPM, K.KodeMataKuliah, M>Nama
            FROM KRS_50420562 K
            JOIN Mahasiswa_50420562 M ON K.NPM = M.NPM) M
ON D.KodeMataKuliah = M.KodeMataKuliah;
```

```
--- OUTER JOIN
SELECT D.NIP, D>Nama AS>NamaDosen, M.NPM, M>Nama AS>NamaMahasiswa
FROM Dosen_50420562 D
FULL OUTER JOIN (SELECT K.NPM, K.KodeMataKuliah, M>Nama
                  FROM KRS_50420562 K
                  JOIN Mahasiswa_50420562 M ON K.NPM = M.NPM) M
ON D.KodeMataKuliah = M.KodeMataKuliah;
```