DATABASE SERVER (MYSQL)

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Materi

- Overview Database Server
  - Software Database Server
  - Keuntungan Menggunakan Database Server
- Database Server MySQL
  - Instalasi Software Database Server
  - Konfigurasi Software Database Server
  - Instalasi Software Database Client
  - Konfigurasi Software Database Client
- Structured Query Language (SQL)
  - SQL Fundamental
  - Reporting Data Dengan SQL

Overview Database Server

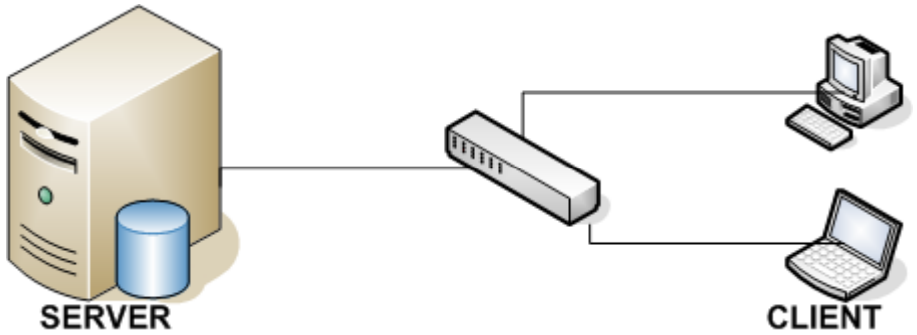
- Database Server adalah :
  - Sebuah sistem atau program komputer (software)
  - Menyediakan layanan-layanan database
  - Layanan database dapat diakses oleh komputer atau software lain.

Software Database Server

- Software Database Server
  - Bayar/Komersial/Proprietary
    - Oracle, SQL Server, MySQL Enterprise, Interbase, DB2
  - Gratis/Free
    - MySQL, PostgreSQL

Keuntungan Database Server

- Data disimpan terpusat
- Dapat melakukan operasi-operasi kompleks
- Terpasang sistem keamanan
- Dapat diakses secara konkuren



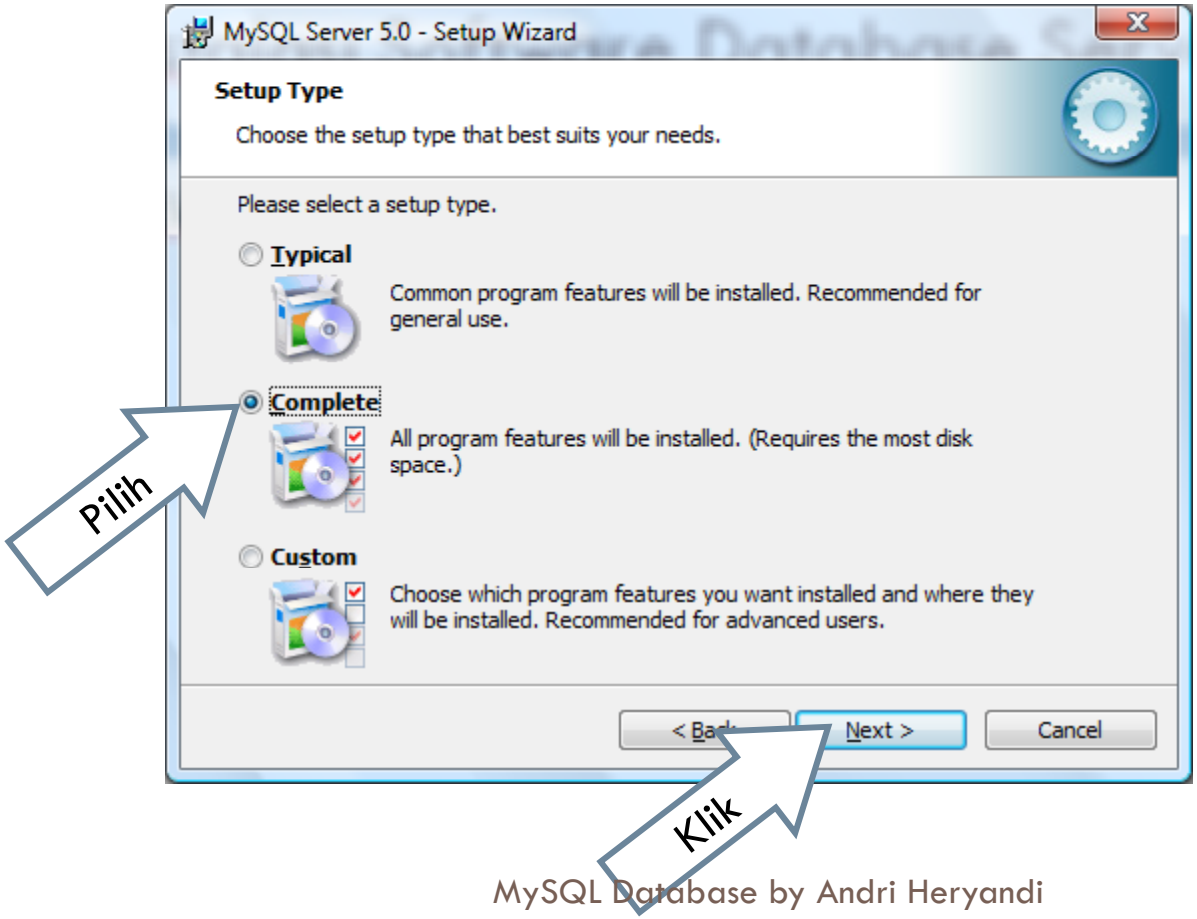
Instalasi Software Database Server

- Eksekusi file installer (setup)



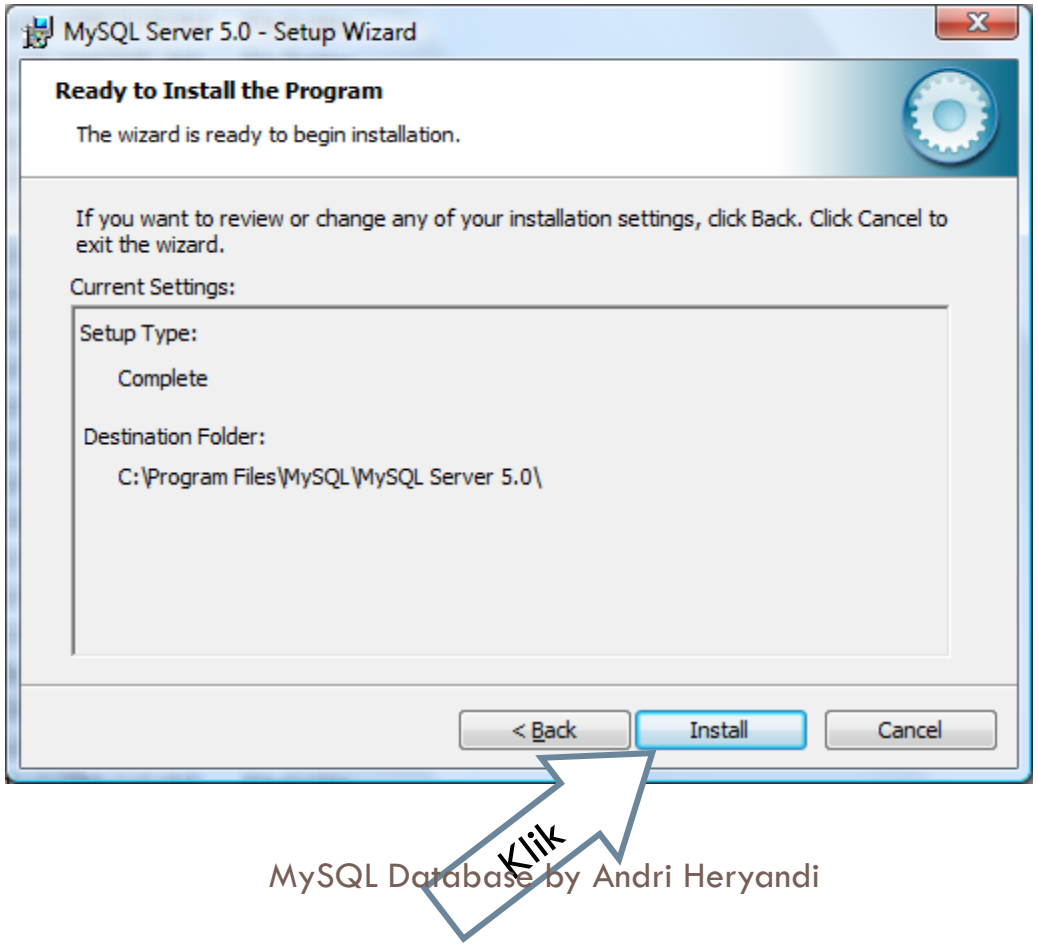
Instalasi Software Database Server

- Pilih Complete. Kemudian klik Next.



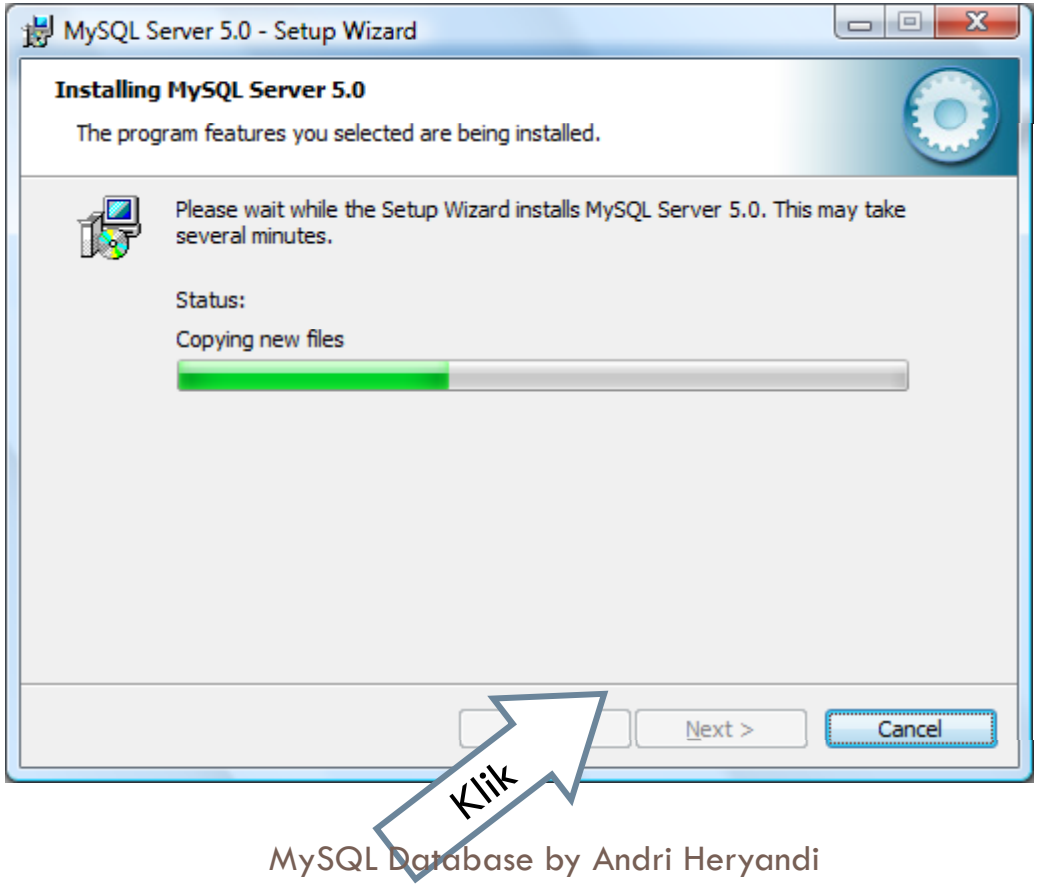
Instalasi Software Database Server

- Klik tombol Install untuk memulai Instalasi Software



Instalasi Software Database Server

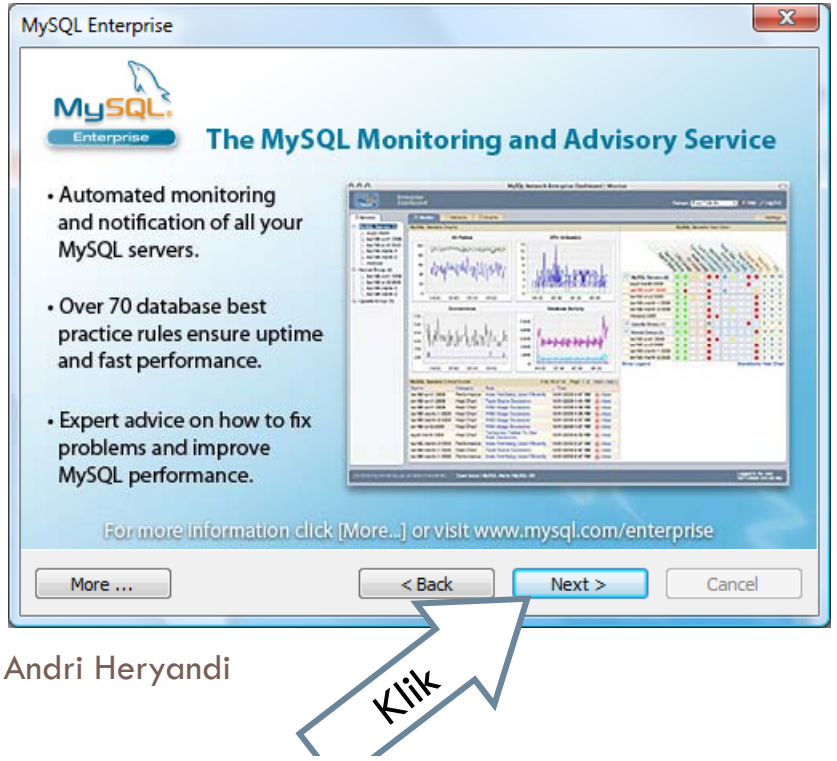
- Tunggus sampai selesai.



Instalasi Software Database Server

- Sedikit Informasi dari MySQL





Instalasi Software Database Server

- Instalasi Software Selesai



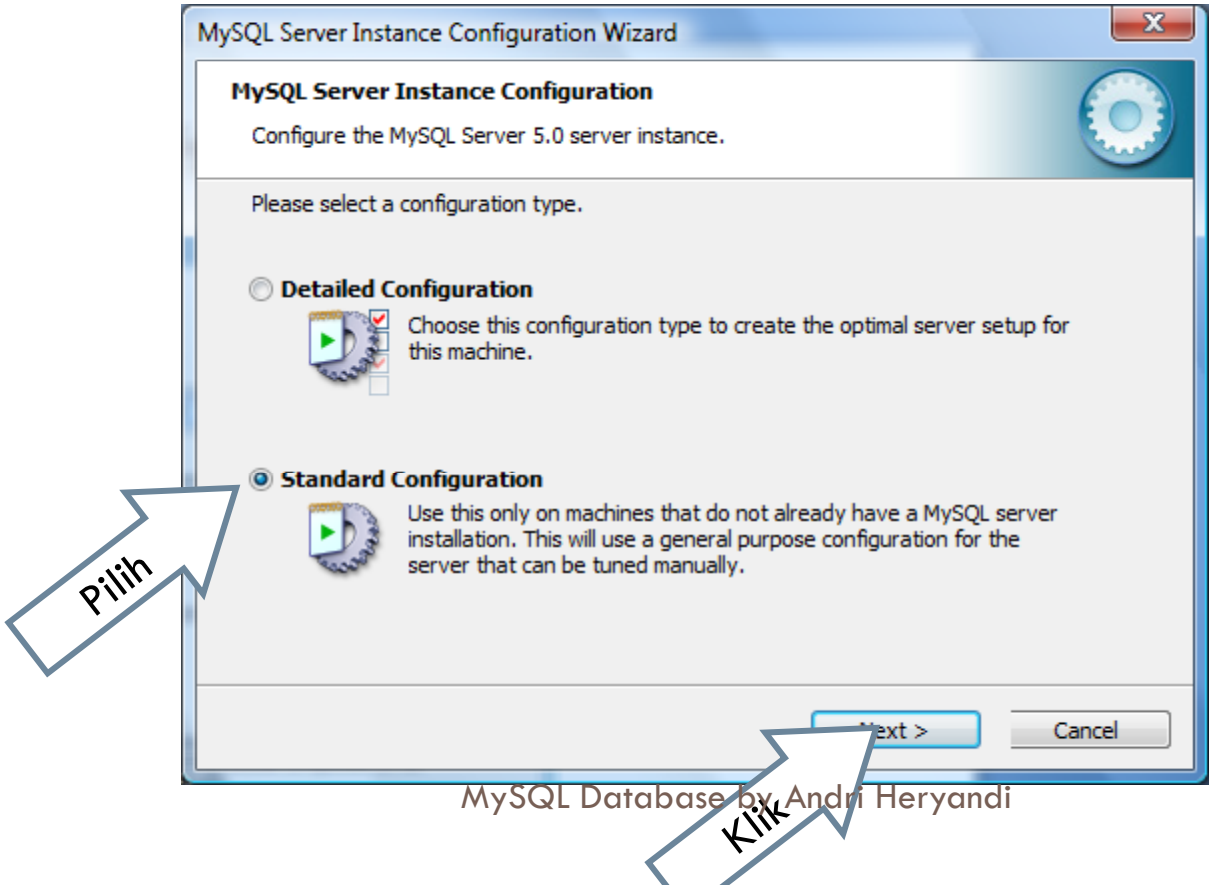
Konfigurasi Software Database Server

- Configurasi Server



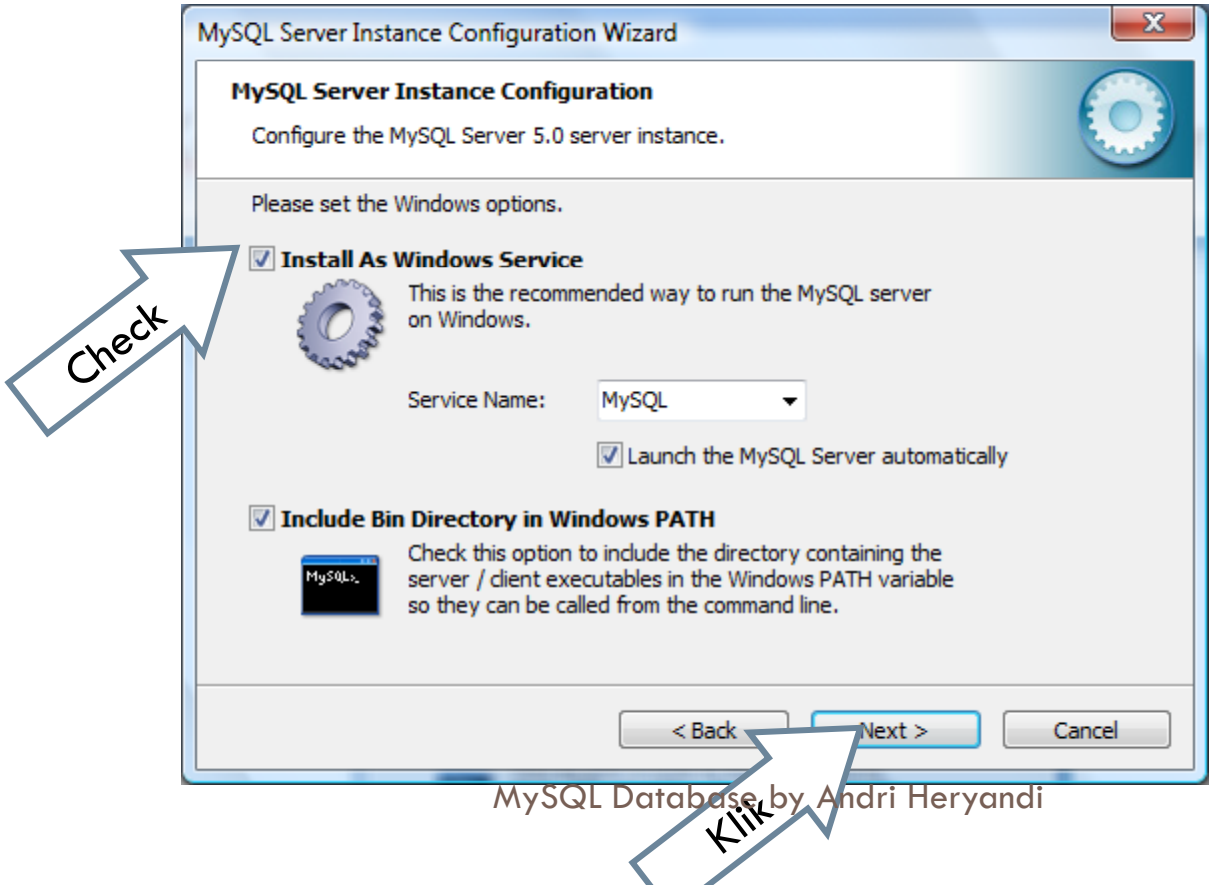
Konfigurasi Software Database Server

- Pilih Standard Configuration. Klik Next



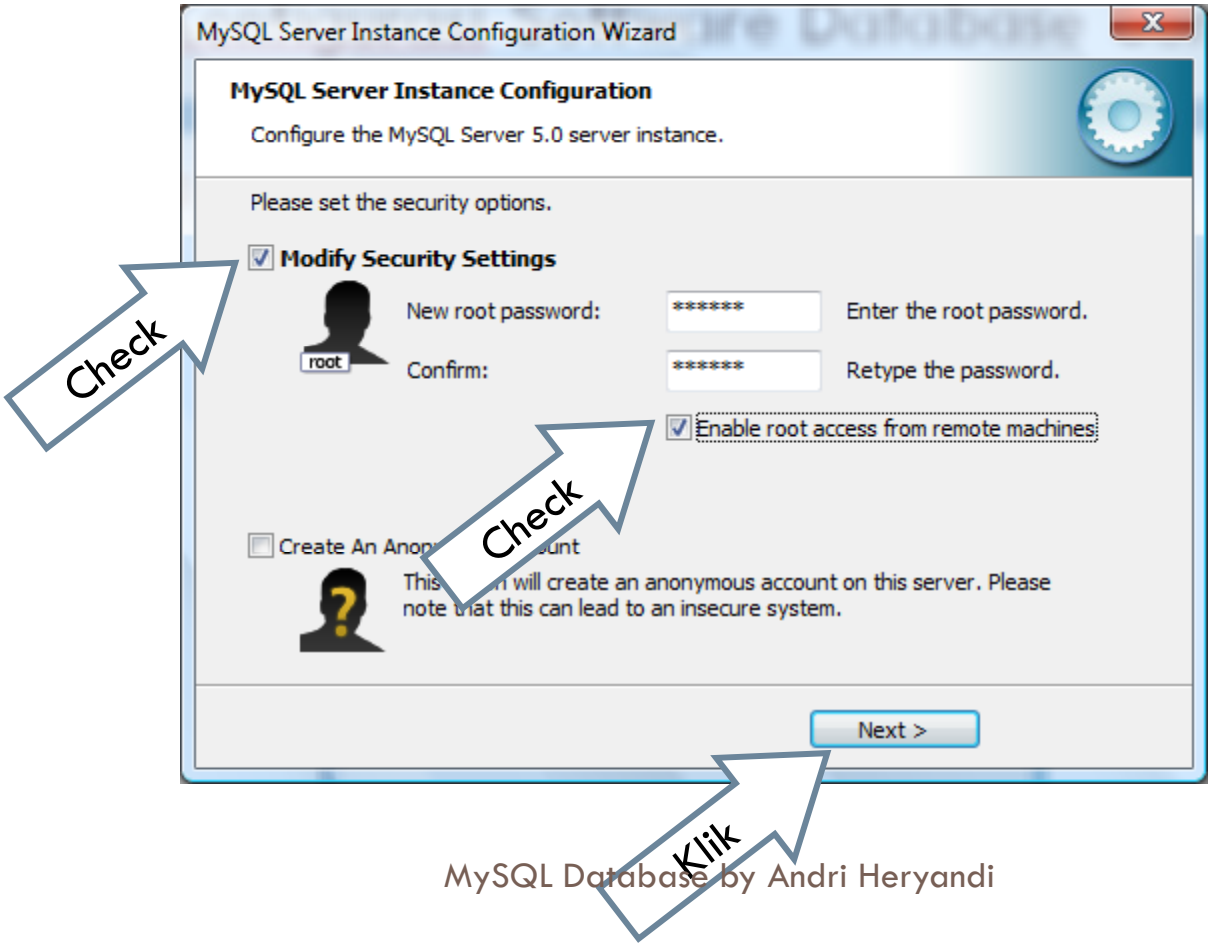
Konfigurasi Software Database Server

- Pilih Install As Windows Service, Pilih Include Directory n Windows PATH,



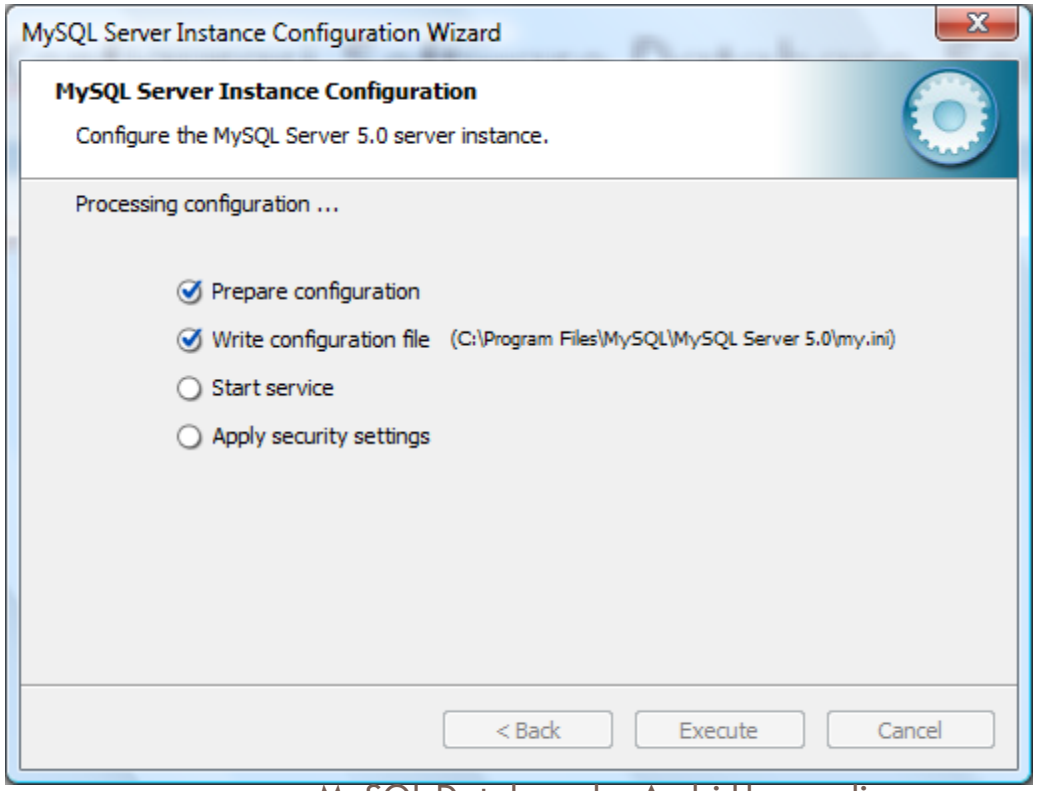
Konfigurasi Software Database Server

- Pengisian Passwod



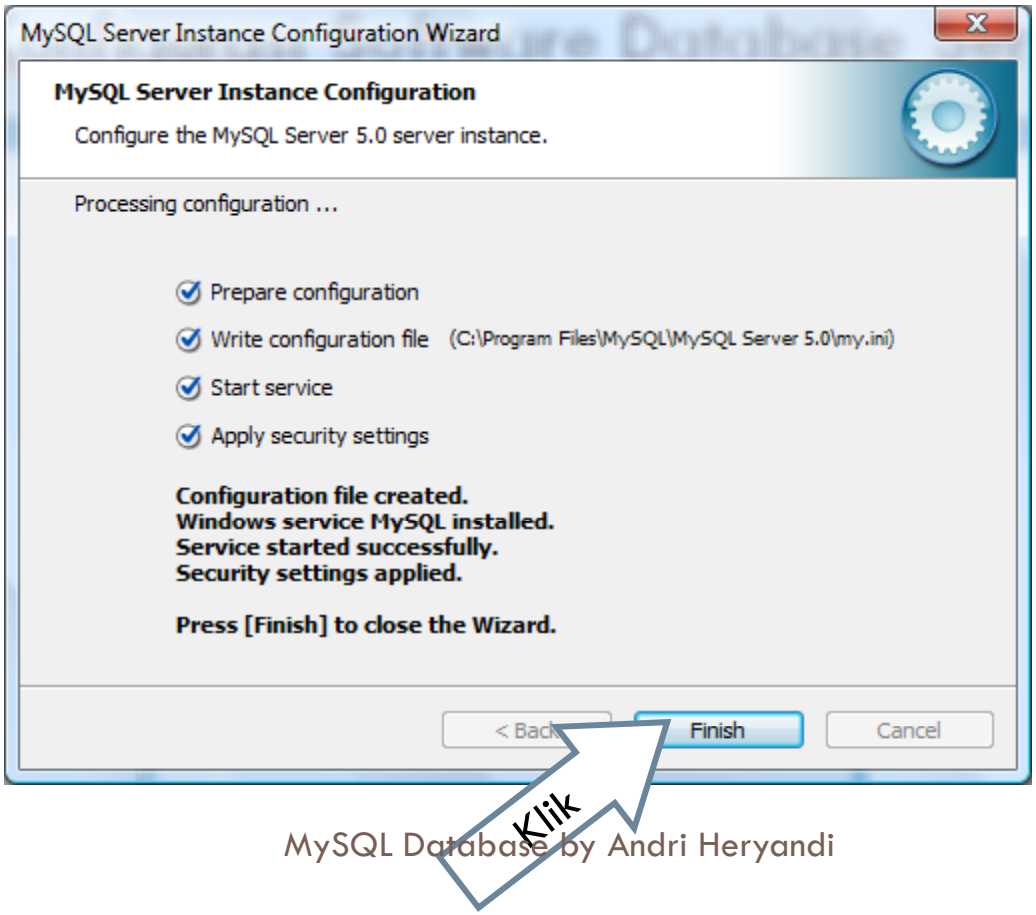
Konfigurasi Software Database Server

- Configurasi Server



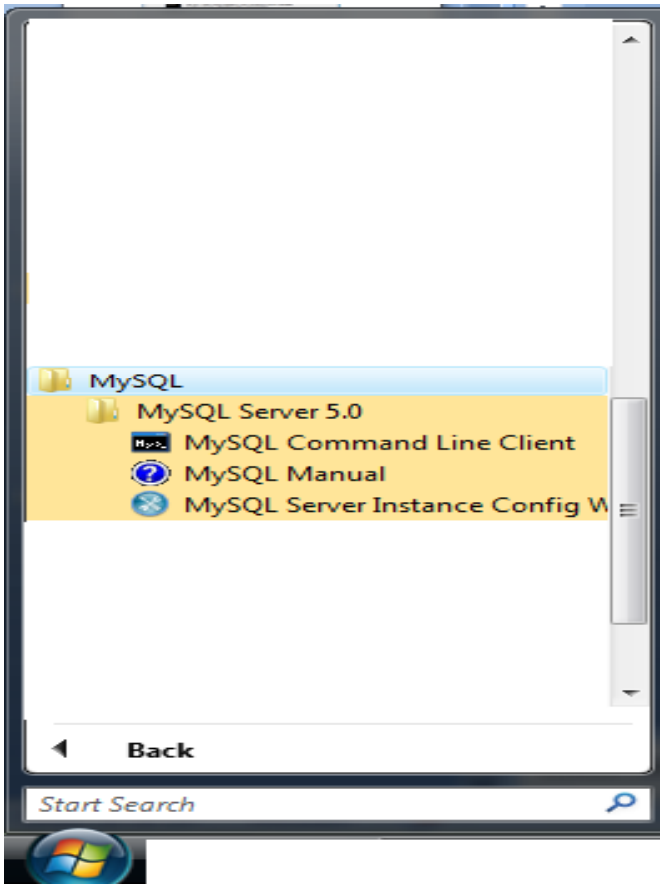
Konfigurasi Software Database Server

- Configurasi Server Selesai. Klik tombol Finish.



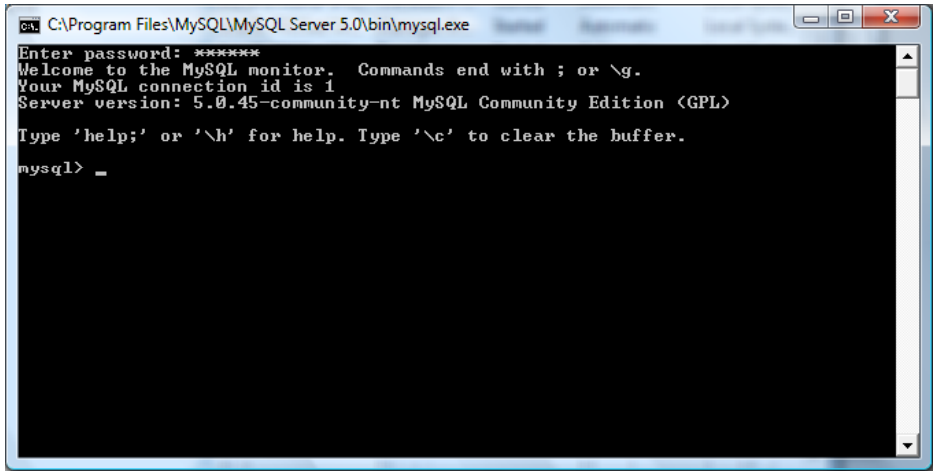
Periksa

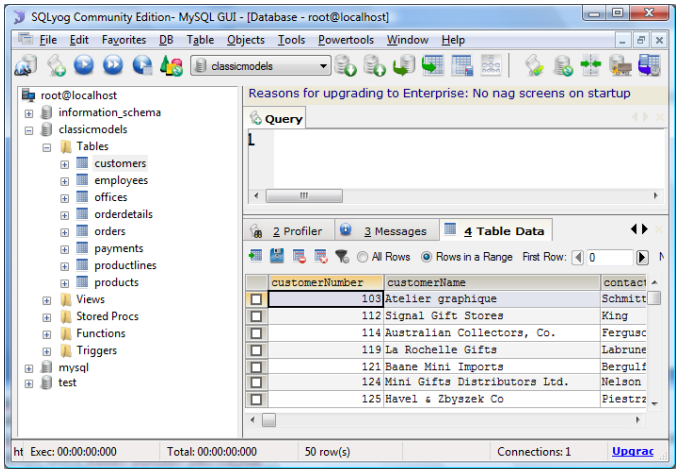
- Di start Menu → Program ada sub menu MySQL



Instalasi Software Database Client

- Ada dua jenis database client yaitu
  - Database client bawaan dari MySQL
  - Database client bukan bawaan dari MySQL
    - Dibuat khusus oleh kita (perusahaan)
    - Dibuat oleh pihak lain (SQLFront, SQLYog, dll)





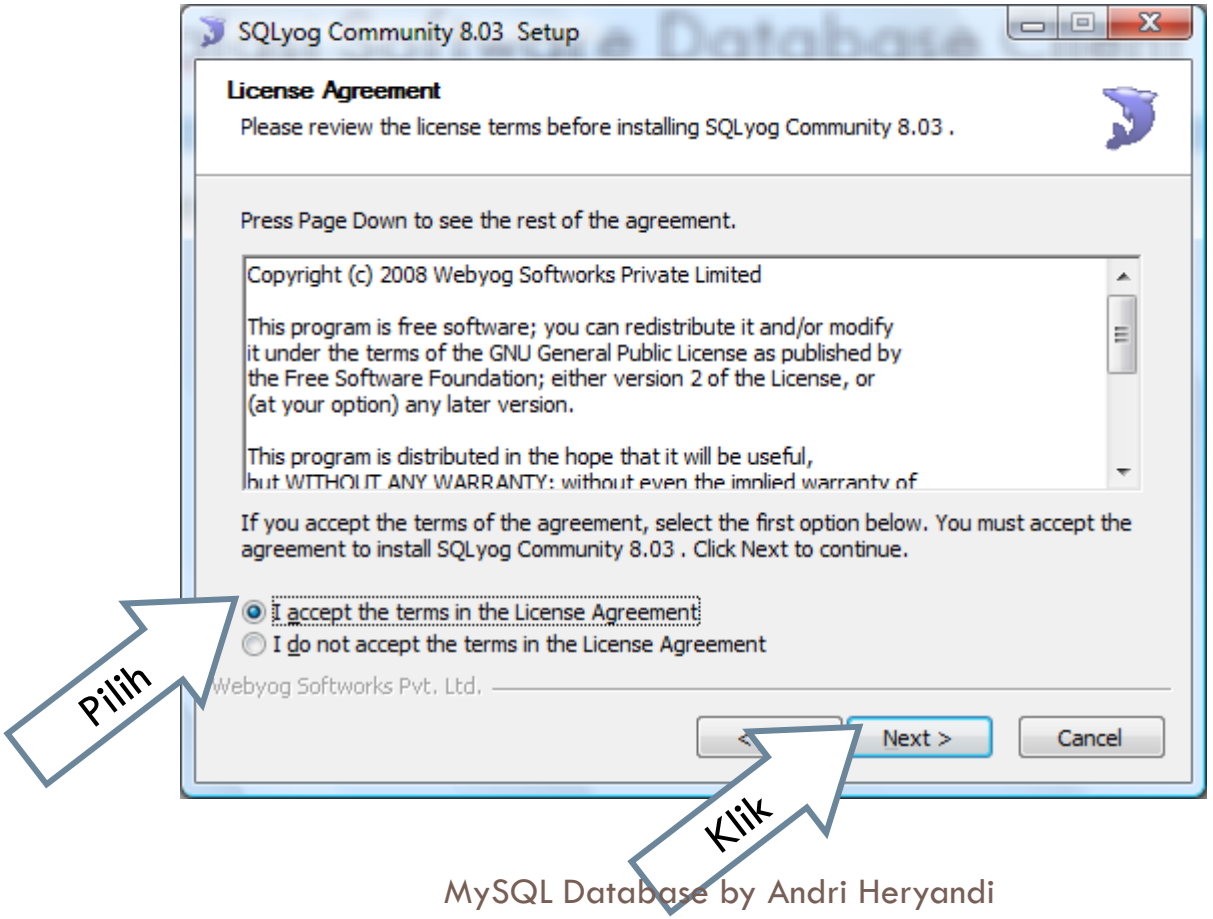
Instalasi Software Database Client

- Eksekusi file installer.



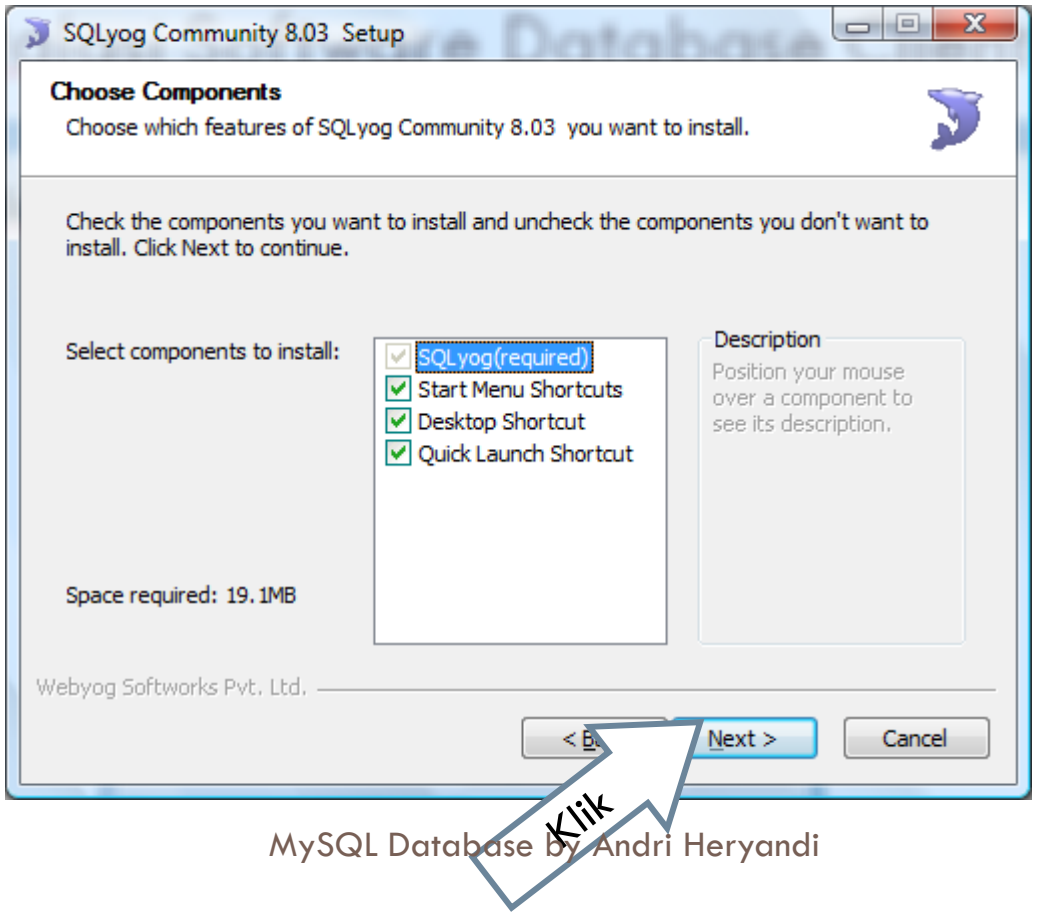
Instalasi Software Database Client

- Klik I Accept the terms …. Klik Next.



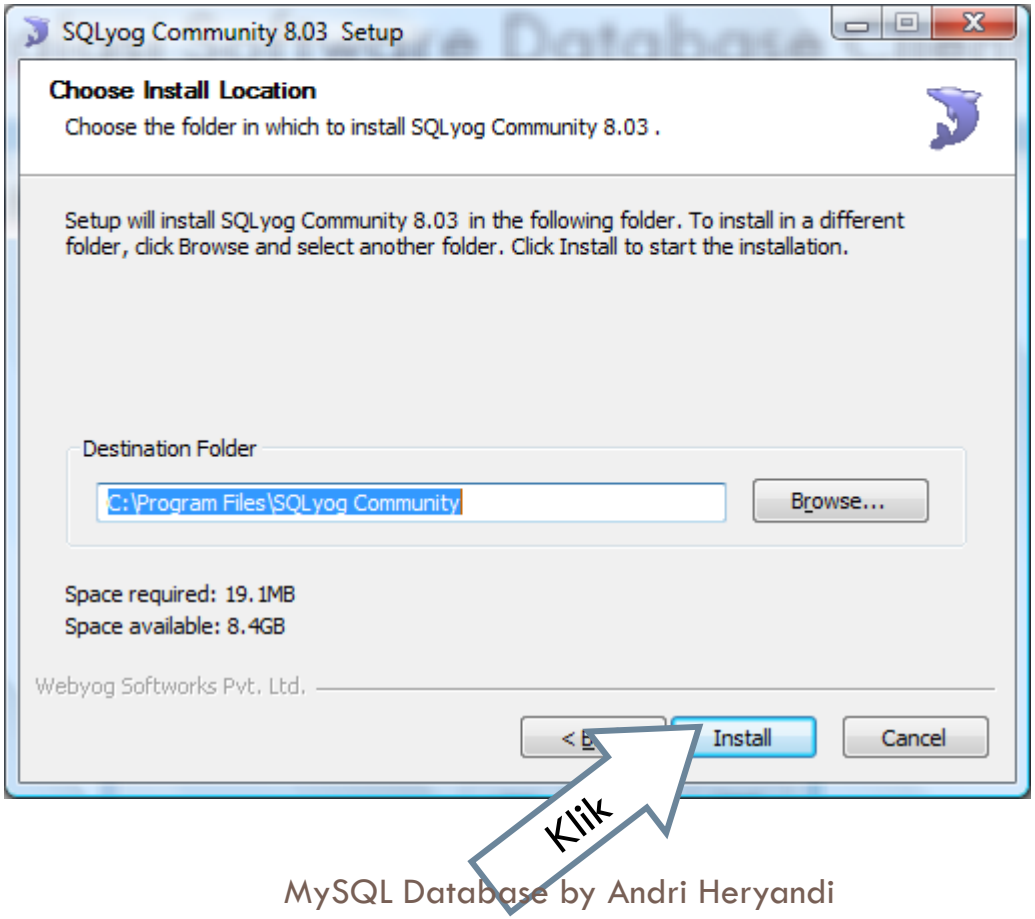
Instalasi Software Database Client

- Pilih semua. Klik tombol Next.



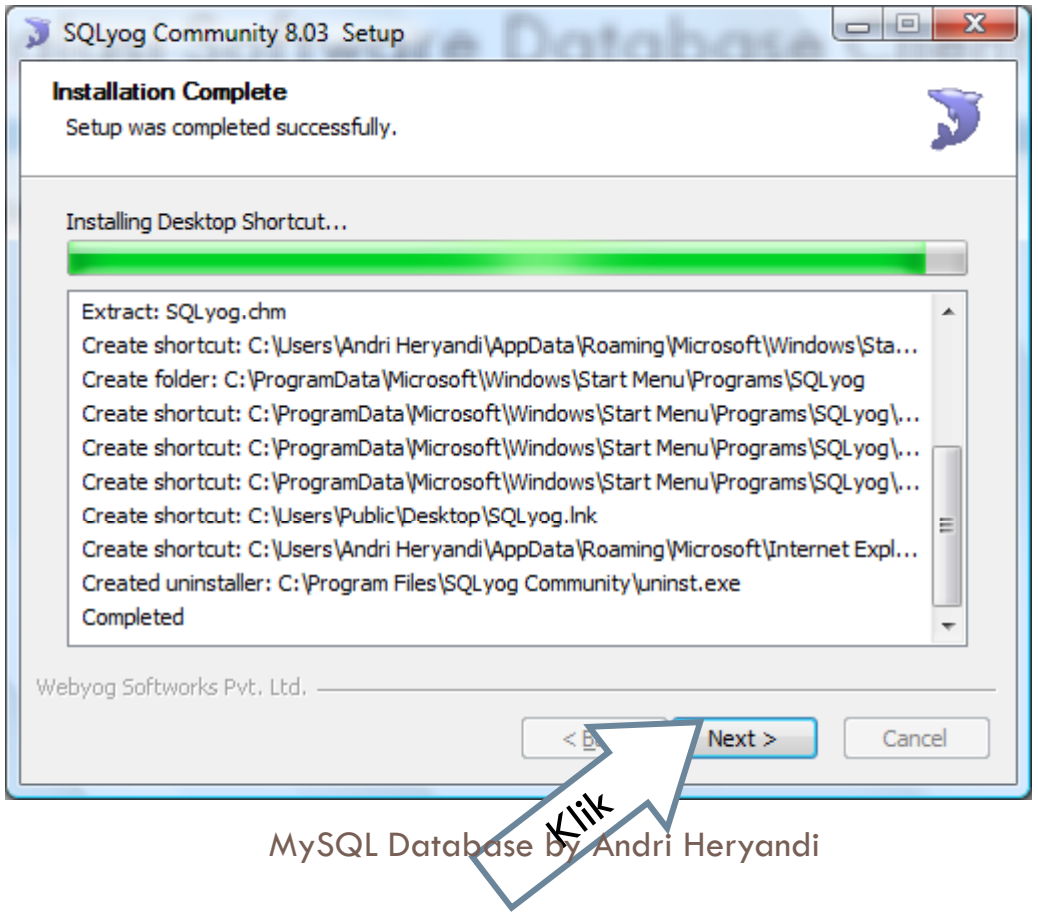
Instalasi Software Database Client

- Tentukan lokasi instalasi software.



Instalasi Software Database Client

- Tunggu sampai selesai. Jika telah selesai klik Next.



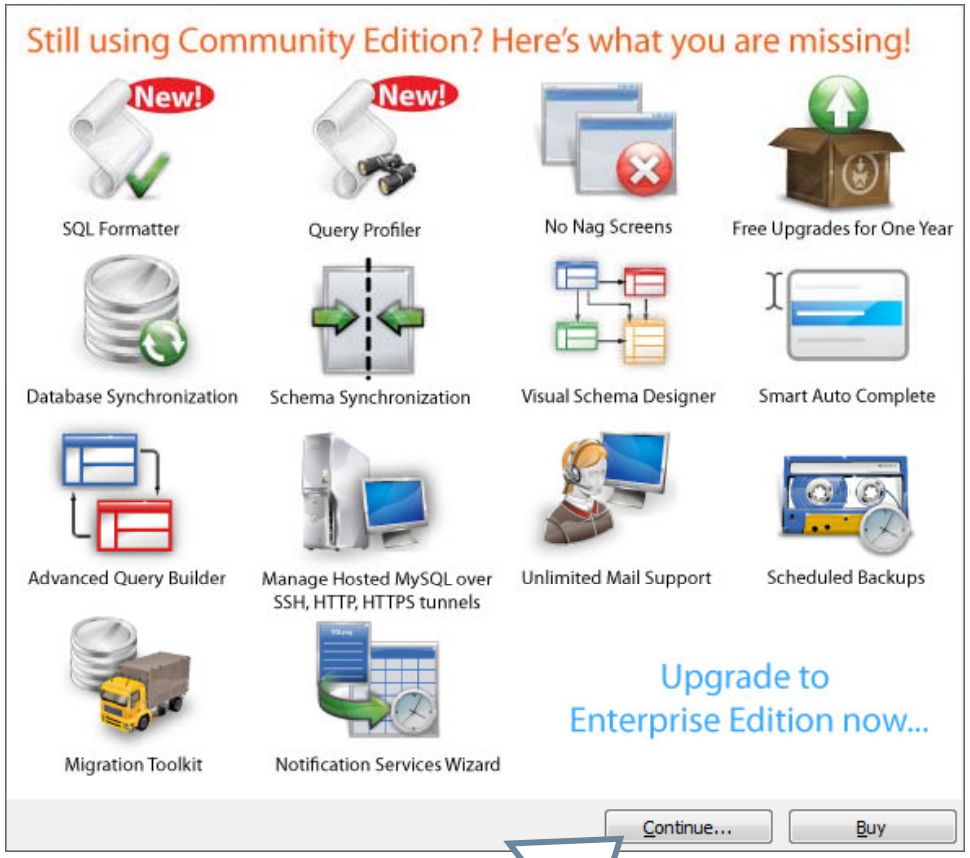
Instalasi Software Database Client

- Instalasi selesai. Klik Finish.



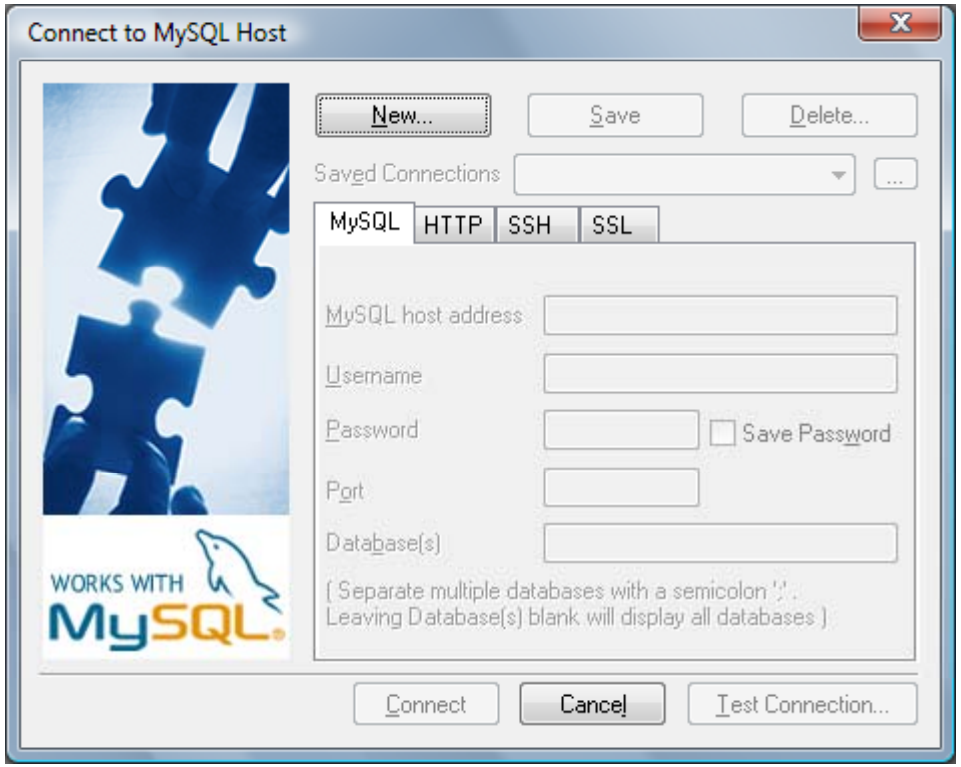
Konfigurasi Software Database Client

- Jalankan SQLYog.



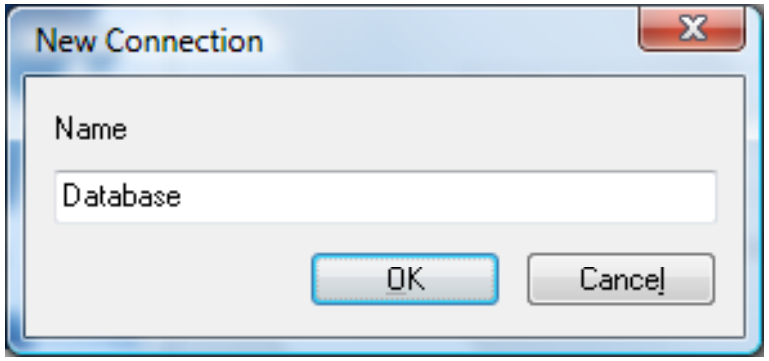
Konfigurasi Software Database Client

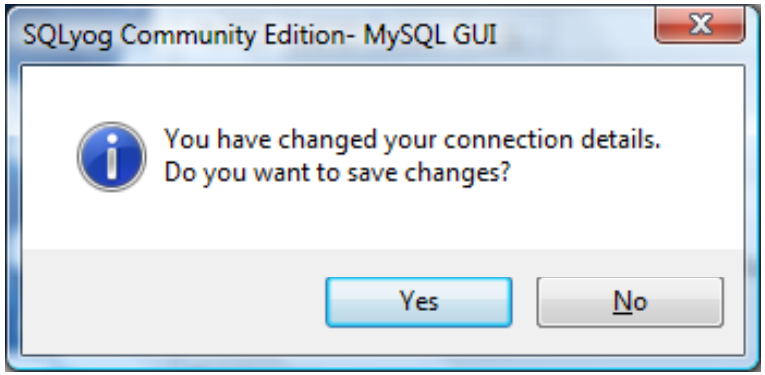
- Jalankan SQLYog. Klik New untuk membuat Connection baru

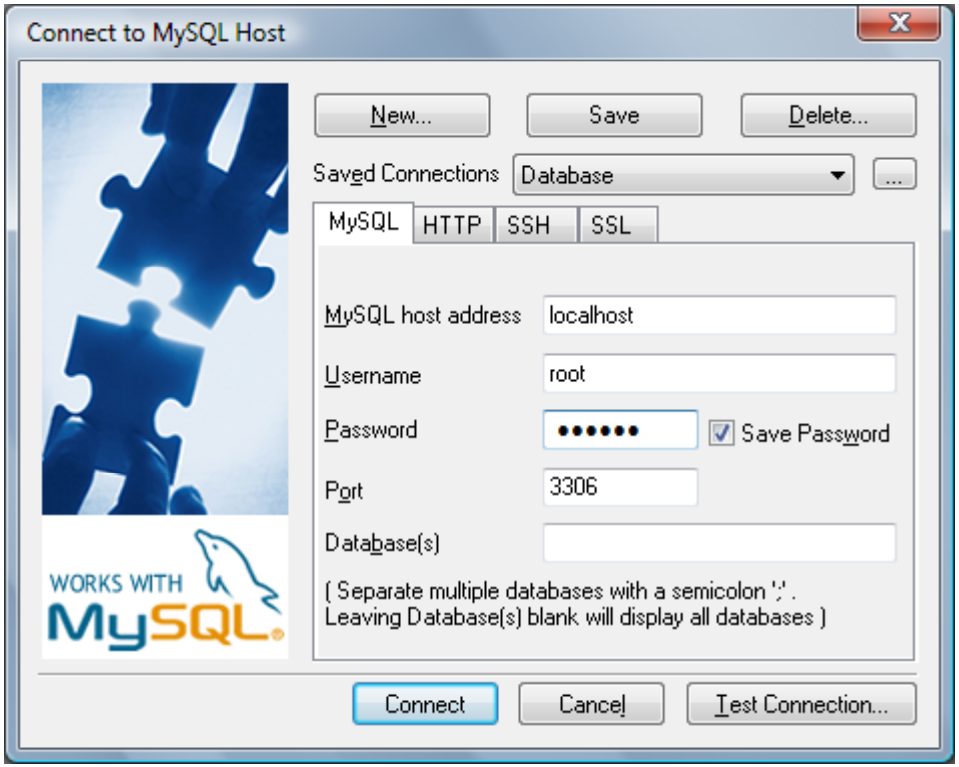


Konfigurasi Software Database Client

- Klik Tombol New. Isi nama koneksi, misalnya “DB SDM”

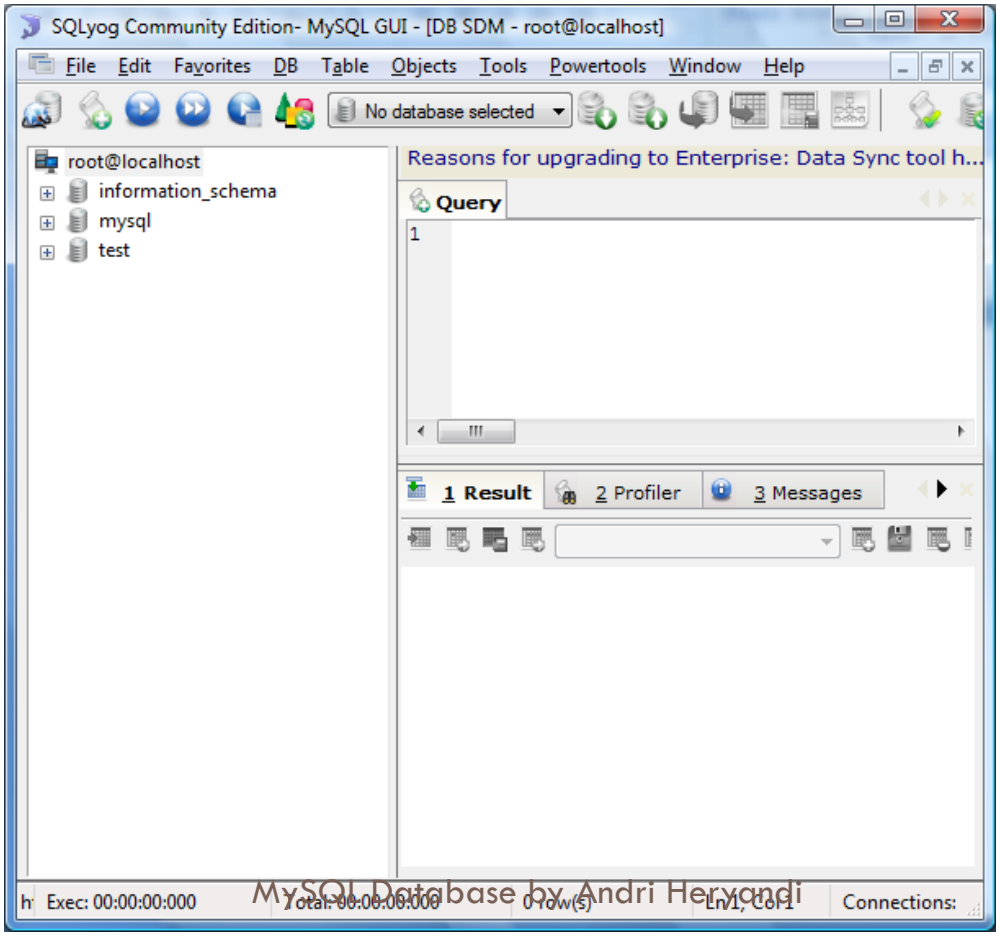






Konfigurasi Software Database Client

- SQLYog telah siap untuk digunakan.



Structured Query Language (SQL) (Membuat Database)

- Membuat Database

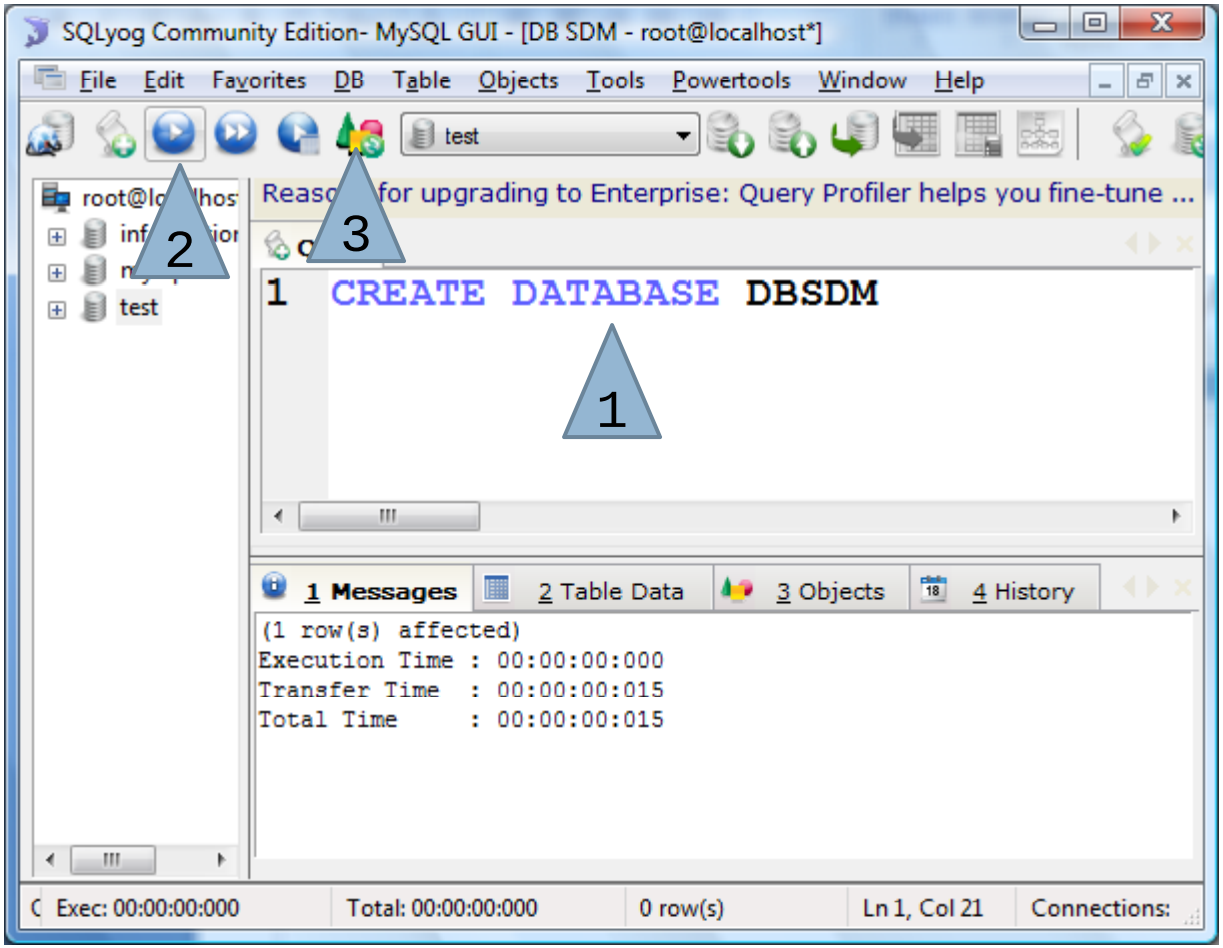
  Sintak SQL :

  ```
  Create Database [NamaDatabase]
  ```

  Contoh :

  ```
  Create Database DBSDM
  ```

Structured Query Language (SQL) (Eksekusi SQL)



Langkah yang perlu dilakukan adalah :

1. Tulis SQL di SQL Editor.
2. Klik tombol Execute Query
3. Jika berhasil, klik tombol Refresh Object Browser untuk merefresh objek Browser.
4. Lihat, harus ada DBSDM di bagian kiri.

Structured Query Language (SQL) (Membuat Table)

- Membuat Tabel

  Sintak SQL :

```
Create Table [NamaDatabase] (
  NamaField1 TipeField Options,
  NamaField2 TipeField ,
  …
  NamaFieldN TipeField
)
```

Structured Query Language (SQL) (Membuat Table)

- Contoh

```
create table pegawai (
   NIP varchar(10) not null,
   Nama varchar(50) not null,
   Kelamin char(1) not null,
   TglLahir date null,
   ThnKerja int,
   Gaji float,
   Primary Key (NIP)
)
```

Structured Query Language (SQL) (Tambah Data)

- Menambah Data

  Sintak SQL :

```
Insert into [NamaTable]
    values
    (IsiField1, IsiField2, …, IsiFieldN)
```

  Atau

```
Insert into [NamaTable]
  (Field1, Field2, …, FieldN)
  values
  (IsiField1, IsiField2, …, IsiFieldN)
```

Structured Query Language (SQL) (Contoh Tambah Data)

- Contoh menambah data

1. ```
   insert into pegawai values
   ('001','Adi','L','1970-6-7',2003,1500000);
   ```
2. ```
   insert into pegawai values
   ('002','Putri','P',19801228,2005,1250000);
   ```
3. ```
   insert into pegawai(nip,nama,kelamin)
   values('003','Sutisna','L');
   ```
4. ```
   insert into pegawai(nama,nip,kelamin)
   values('Susilawati','004','P');
   ```

Structured Query Language (SQL) (Melihat Isi Table)

- Melihat isi tabel (dasar)

  Sintak SQL :

```
Select * from  [NamaTabel]
```

  Atau

```
Select Field1,Field2, …, FieldN from
  [NamaTable]
```

Structured Query Language (SQL) (Contoh Melihat Isi Table)

Contoh :

```
Select * from pegawai
```

NIP	Nama	Kelamin	TglLahir	ThnKerja	Gaji
001	Adi	L	1970-06-07	2003	1.5e+006
002	Putri	P	1980-12-28	2005	1.25e+006
003	Sutisna	L	(NULL)	(NULL)	(NULL)
004	Susilawati	P	(NULL)	(NULL)	(NULL)

Structured Query Language (SQL) (Contoh Melihat Isi Table)

Contoh :

```
Select NIP,Nama from Pegawai
```

NIP	Nama
001	Adi
002	Putri
003	Sutisna
004	Susilawati

Structured Query Language (SQL) (Mengubah Isi Table)

- Mengubah isi tabel

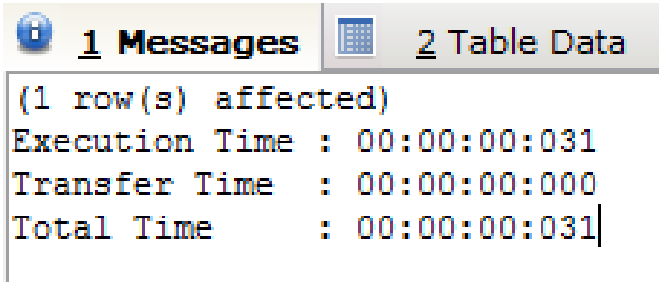
Sintak SQL :

```
Update [NamaTabel]
Set Field1=IsiField1Baru,
    Field2=IsiField2Baru, …
    …
    FieldN=IsiFieldNBaru
Where
     Kriteria_Data_Yang_Diubah
```

Structured Query Language (SQL) (Contoh Mengubah Isi Table)

- Contoh :

```
Update pegawai
SET ThnKerja=2006 where NIP='003'
```

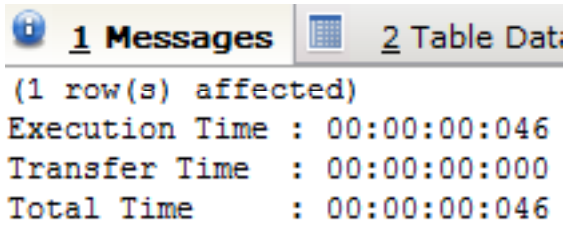


Mengedit data pegawai yang NIP 003 dengan mengisi ThnKerja dengan 2006.

Structured Query Language (SQL) (Contoh Mengubah Isi Table)

- Contoh :

```
Update pegawai
SET ThnKerja=2003,Gaji=2000000
WHERE NIP='004'
```

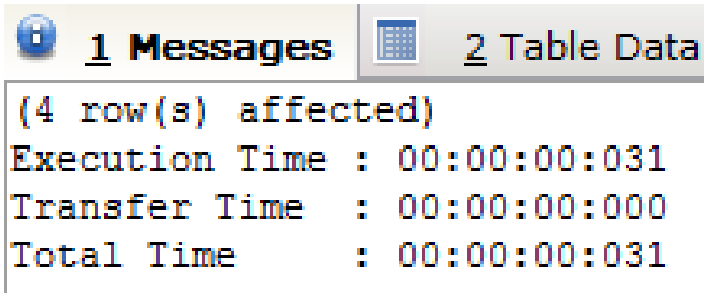


Mengedit data pegawai yang NIP 003 dengan mengisi ThnKerja=2003 dan Gaji=2000000

Structured Query Language (SQL) (Contoh Mengubah Isi Table)

- Contoh :

```
UPDATE pegawai
SET Nama=Upper(Nama)
```



Mengedit seluruh data pegawai (tanpa where) dengan mengubah nama menjadi kapital (uppercase)

Structured Query Language (SQL) (Menghapus Isi Table)

- Menghapus isi tabel

  Sintak SQL :

```
DELETE FROM [NamaTabel]
WHERE
      Kriteria Data Yang Dihapus
```

Structured Query Language (SQL) (Contoh Menghapus Isi Table)

- Contoh :

```
DELETE FROM pegawai
WHERE NIP='004'
```

Menghapus data pegawai yang mempunyai NIP 004

Structured Query Language (SQL) (Contoh Menghapus Isi Table)

- Contoh :

```
DELETE FROM pegawai
```

Menghapus seluruh data pegawai (tanpa where).
Tetapi struktur tabelnya masih tetap ada.

Structured Query Language (SQL) (Menghapus Table)

- Menghapus Tabel

  Sintak SQL :

  ```
  Drop Table [NamaDatabase]
  ```

  Contoh :

  ```
  Drop Table Pegawai
  ```

  Hapus struktur tabel pegawai. Jika table masih memiliki data, maka akan dihapus.

Structured Query Language (SQL) (Menghapus Database)

- Menghapus Database

  Sintak SQL :

  DROP DATABASE [NamaDatabase]

  Contoh :

  DROP DATABASE DBSDM

  Hapus struktur database DBSDM. Jika database masih memiliki tabel, maka akan dihapus.

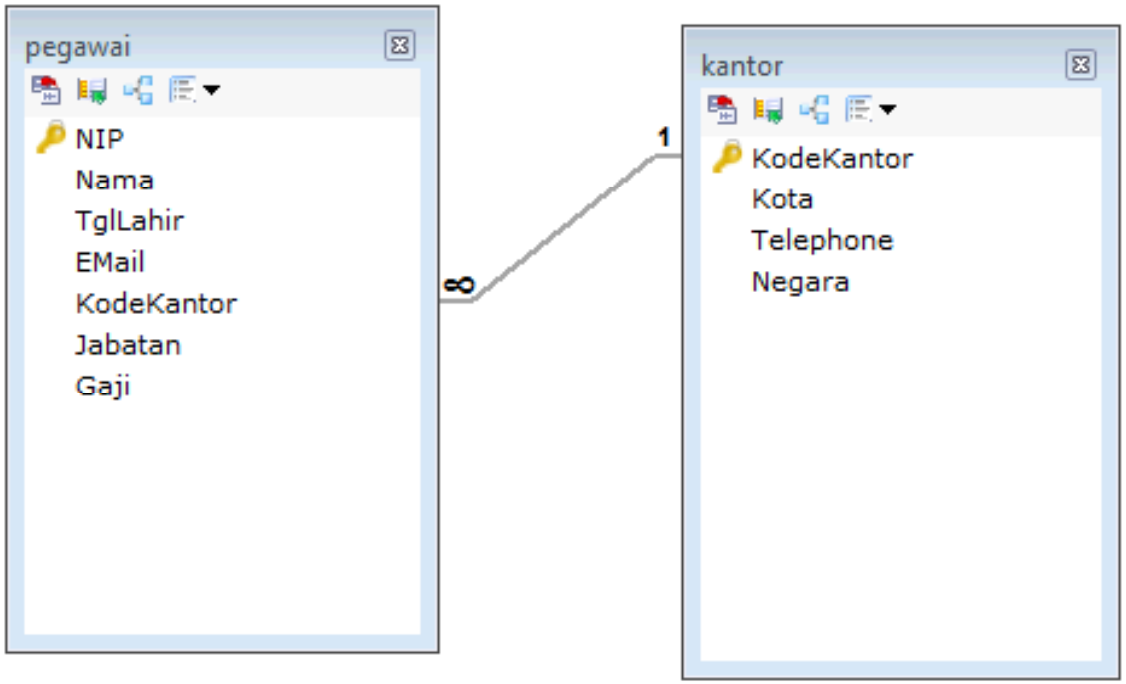
Reporting Data Dengan SQL

Sebelum melakukan reporting data, persiapkan dulu contoh data yang akan digunakan dengan cara :

1. Buka SQLYog
2. Klik menu Tool
3. Klik tombol [...] untuk mencari file DBSDM2.SQL
4. Klik tombol Execute
5. Jika telah selesai, klik tombol Done.
6. Klik tombol Refresh Object Browser
7. Maka akan tercipta sebuah database dengan nama DBSDM2

Reporting Data Dengan SQL

- Isi database DBSDM2 adalah Table Pegawai dan Table Kantor. Skema Relasi antara tabelnya adalah sebagai berikut :



Reporting Data Dengan SQL

- Isi Table Pegawai (**`Select * from Pegawai`**)

NIP	Nama	TglLahir	EMail	KodeKantor	Jabatan	Gaji
1	Diane Murphy	1960-02-05	dmurphy@classicmodelcars.com	1	President	10000
2	Mary Patterson	1970-03-30	mpatterso@classicmodelcars.com	1	VP Sales	6000
3	Jeff Firrelli	1975-12-28	jfirrelli@classicmodelcars.com	1	VP Marketing	5000
4	William Patterson	1965-07-18	wpatterson@classicmodelcars.com	6	Sales Rep	2500
5	Gerard Bondur	1968-02-04	gbondur@classicmodelcars.com	4	Sales Rep	2350
6	Anthony Bow	1980-08-17	abow@classicmodelcars.com	1	Sales Manager	4000
7	Leslie Jennings	1975-03-12	ljennings@classicmodelcars.com	1	Staff	2000
8	Leslie Thompson	1977-03-14	lthompson@classicmodelcars.com	1	Sales Rep	2200
9	Julie Firrelli	1955-09-10	jfirrelli@classicmodelcars.com	2	Staff	2000
10	Steve Patterson	1964-09-13	spatterson@classicmodelcars.com	2	Staff	1500
11	Foon Yue Tseng	1956-05-30	ftseng@classicmodelcars.com	3	Sales Manager	4500
12	George Vanauf	1988-02-29	gvanauf@classicmodelcars.com	3	Staff	1750
13	Loui Bondur	1950-12-22	lbondur@classicmodelcars.com	4	Staff	1500
14	Gerard Hernandez	1980-12-24	ghernande@classicmodelcars.com	4	Staff	1900
15	Pamela Castillo	1957-04-05	pcastillo@classicmodelcars.com	4	Sales Manager	4250
16	Larry Bott	1974-04-04	lbott@classicmodelcars.com	7	Staff	2250
17	Barry Jones	1970-07-25	bjones@classicmodelcars.com	7	Staff	2100
18	Andy Fixter	1966-11-07	afixter@classicmodelcars.com	6	Staff	2200
19	Peter Marsh	1982-08-17	pmarsh@classicmodelcars.com	6	Sales Manager	3500
20	Tom King	1981-01-01	tking@classicmodelcars.com	6	Sales Rep	2000
21	Mami Nishi	1972-04-18	mnishi@classicmodelcars.com	5	Staff	1750
22	Yoshimi Kato	1973-05-20	ykato@classicmodelcars.com	5	Sales Rep	2250
23	Martin Gerard	1981-05-23	mgerard@classicmodelcars.com	4	Staff	1900

Reporting Data Dengan SQL

- Isi Table Kantor (**`Select * from Kantor`**)

KodeKantor	Kota	Telephone	Negara
1	San Francisco	+1 650 219 4782	USA
2	Boston	+1 215 837 0825	USA
3	NYC	+1 212 555 3000	USA
4	Paris	+33 14 723 4404	France
5	Tokyo	+81 33 224 5000	Japan
6	Sydney	+61 2 9264 2451	Australia
7	London	+44 20 7877 2041	UK

Reporting Data Dengan SQL

- SELECT menggunakan klausa WHERE

1. `Select * from pegawai where KodeKantor=3`
2. `Select Nama from pegawai where Jabatan='President'`
3. `Select * from Kantor where Negara= 'USA'`
4. `SELECT * from Pegawai where Gaji>=5000`

Reporting Data Dengan SQL

- SELECT menggunakan lebih dari 1 kondisi

1. ```
   Select * from pegawai where
   KodeKantor=3 or KodeKantor=1
   ```
2. ```
   Select * from pegawai where
   Jabatan='Staff' and KodeKantor=4
   ```
3. ```
   SELECT * from Pegawai where
   Gaji>=2000 and Jabatan= 'Staff'
   and KodeKantor=4
   ```
   ```

Reporting Data Dengan SQL

- SELECT menggunakan fungsi tanggal

```
1. Select now()
2. Select * from pegawai where TglLahir='19600205'
3. Select * from pegawai where Year(TglLahir)>1975
4. Select * from pegawai where Month(TglLahir)=5
5. Select * from pegawai where
   DayOfMonth(TglLahir)=12
6. Select * from pegawai where
   DayOfMonth(TglLahir)=DayOfMonth(now()) and
   Month(TglLahir)=Month(now())
7. Select * from pegawai where
   DayOfWeek(TglLahir)=2
```

Reporting Data Dengan SQL

- SELECT menggunakan klausa LIKE

1. ```
   Select * from pegawai where Nama
   Like 'Leslie%'
   ```
2. ```
   Select * from pegawai where Nama
   Like '%Bondur'
   ```
3. ```
   Select * from pegawai where Nama
   Like '%lie%'
   ```
   ```

Reporting Data Dengan SQL

- SELECT menggunakan ORDER BY dan LIMIT

1. `Select * from pegawai order by gaji`
2. `Select * from pegawai order by gaji desc`
3. `Select * from pegawai order by kodekantor, gaji desc`
4. `Select * from pegawai order by tgllahir limit 0,5`

Reporting Data Dengan SQL

- SELECT menggunakan fungsi agregasi

1. ```
   Select min(gaji), max(gaji),
   avg(gaji), sum(gaji), count(*) from
   pegawai;
   ```
2. ```
   Select min(gaji), max(gaji),
   avg(gaji), sum(gaji) from pegawai
   where kodekantor=4;
   ```
3. ```
   select min(tgllahir) 'Termuda',
   max(tgllahir) 'Tertua' from pegawai;
   ```
   ```

Reporting Data Dengan SQL

- SELECT menggunakan GROUPING

1. ```
   Select kodekantor, min(gaji), max(gaji), avg(gaji), sum(gaji), count(*) from pegawai group by kodekantor;
   ```
2. ```
   Select jabatan,avg(gaji) from pegawai group by jabatan;
   ```
3. ```
   Select kodekantor, jabatan, max(gaji) from pegawai group by kodekantor, jabatan order by kodekantor, jabatan;
   ```
4. ```
   Select jabatan,avg(gaji) from pegawai group by jabatan HAVING avg(gaji)>=5000;
   ```

Reporting Data Dengan SQL

- SELECT dari banyak tabel

1. ```
   Select Pegawai.*, Kantor.* from Pegawai, Kantor
   where Pegawai.KodeKantor=Kantor.KodeKantor;
   ```
2. ```
   Select Pegawai.NIP, Pegawai.Nama, Kantor.Kota,
   Kantor.Negara from Pegawai, Kantor where
   Pegawai.KodeKantor=Kantor.KodeKantor;
   ```
3. ```
   Select P.NIP, P.Nama, K.Kota, K.Negara from
   Pegawai P, Kantor K where
   P.KodeKantor=K.KodeKantor;
   ```
4. ```
   Select P.NIP, P.Nama, K.Kota, K.Negara from
   Pegawai P, Kantor K where
   P.KodeKantor=K.KodeKantor and K.Negara<>'USA' ;
   ```

Sekian.

Ada Pertanyaan?