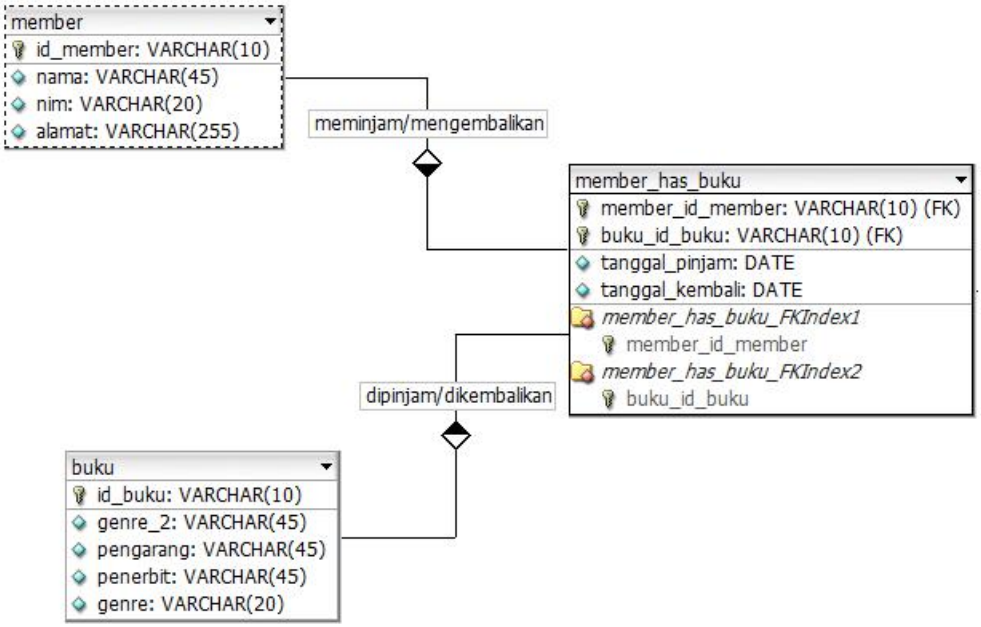
Nama : Reza Aristo Rifandi
NIM : L200180206
Kelas : H

Praktikum Modul 12
Membuat Sistem dengan Database



Membuat database perpustakaan

```
import mysql.connector

db = mysql.connector.connect(
    host="localhost",
    user="root",
    passwd="",
)

cursor=db.cursor()
sql="create database perpustakaan;"
cursor.execute(sql)
db.commit()
```

Membuat table member, buku, dan peminjaman/pengembalian

- Member

```
import mysql.connector

db = mysql.connector.connect(
    host="localhost",
    user="root",
    passwd="",
    database="perpustakaan"
)

cursor=db.cursor()
sql="""create table member(
    id_member varchar(10) not null primary key,
    nama varchar(45) not null,
    nim varchar(20) not null,
    alamat varchar(255) not null)
"""
cursor.execute(sql)
db.commit()
```

- Buku

```
import mysql.connector

db = mysql.connector.connect(
    host="localhost",
    user="root",
    passwd="",
    database="perpustakaan"
)

cursor=db.cursor()
sql="""create table buku(
    id_buku varchar(10) not null primary key,
    judul varchar(45) not null,
    pengarang varchar(45) not null,
    penerbit varchar(45) not null,
    genre varchar(20) not null)
"""
cursor.execute(sql)
db.commit()
```

- Peminjaman/Pengembalian

```
import mysql.connector

db = mysql.connector.connect(
    host="localhost",
    user="root",
    passwd="",
    database="perpustakaan"
)

cursor=db.cursor()
sql="""create table peminjaman_pengembalian(
    id_memberFK varchar(10) references member(id_member)
    on delete cascade on update cascade,
    id_bukuFK varchar(10) references buku(id_buku)
    on delete cascade on update cascade,
    tanggal_pinjam date,
    tanggal_kembali date,
    primary key(id_memberFK, id_bukuFK))
"""
cursor.execute(sql)
db.commit()
```

Memuat kode untuk CRUD Database

- Menu Awal

```
import tkinter.messagebox
from tkinter import*
import mysql.connector
from member_db import Member
from buku_db import Buku
from status_db import Status


db = mysql.connector.connect(
  host="localhost",
  user="root",
  passwd="",
  database="perpustakaan"
  )

c=db.cursor()

root = tk.Tk()

def CRUD():
  UI=FPage(root)
  cursor=db.cursor()

class FPage:
  def __init__(self, master):
    self.master = master
    self.master.geometry("400x400")
    self.master.config(bg = 'white')
    self.frame = Frame(self.master, bg = 'white')
    self.frame.pack()
```

```
        title = Label(self.frame, text='SELAMAT DATANG', font=('Times', 18, 'bold'))
        title.pack()
        title2 = Label(self.frame, text='Pilih Menu', font=('Times', 14))
        title2.pack(pady=20)
        btnMember = Button(self.frame, text="Member", font=(18), command=self.Member)
        btnMember.pack(anchor=CENTER, pady=10, ipadx=9)
        btnBuku = Button(self.frame, text="Buku", font=(18), command=self.Buku)
        btnBuku.pack(anchor=CENTER, pady=10, ipadx=20)
        btnStatus = Button(self.frame, text="Status", font=(18), command=self.Status)
        btnStatus.pack(anchor=CENTER, pady=10, ipadx=15)

    def Member(self):
        self.Member=Toplevel(self.master)
        self.UI=Member(self.Member)

    def Buku(self):
        self.Buku=Toplevel(self.master)
        self.UI=Buku(self.Buku)

    def Status(self):
        self.Status=Toplevel(self.master)
        self.UI=Status(self.Status)



CRUD()
```

- Member

```
import tkinter as tk
import tkinter.messagebox
from tkinter import*
import mysql.connector

db = mysql.connector.connect(
   host="localhost",
   user="root",
   passwd="",
   database="perpustakaan"
   )

c=db.cursor()

class Member:
   def __init__(self, master):
      self.master = master
      self.master.title("Database Member")
      self.master.geometry('300x300')
      self.frame = Frame(self.master)
      self.frame.grid()

      title = Label(self.frame, text="Database Member", font=('Times', 16, 'bold'))
      l_id = Label(self.frame, text="ID Member", font=('Times', 12))
      l_nama = Label(self.frame, text="Nama", font=('Times', 12))
      l_nim = Label(self.frame, text="NIM", font=('Times', 12))
      l_alamat = Label(self.frame, text="Alamat", font=('Times', 12))

      title.grid(row=0, columnspan=4, pady=10)
      l_id.grid(row=1, column=0, sticky=W, padx=3)
      l_nama.grid(row=2, column=0, sticky=W, padx=3)
      l_nim.grid(row=3, column=0, sticky=W, padx=3)
      l_alamat.grid(row=4, column=0, sticky=W, padx=3)
```

```
    #Entry dan posisi
    self.e_id = Entry(self.frame, width=30)
    self.e_nama = Entry(self.frame, width=30)
    self.e_nim = Entry(self.frame, width=30)
    self.e_alamat = Entry(self.frame, width=30)

    self.e_id.grid(row=1, column=1, sticky=W, padx=10)
    self.e_nama.grid(row=2, column=1, sticky=W, padx=10)
    self.e_nim.grid(row=3, column=1, sticky=W, padx=10)
    self.e_alamat.grid(row=4, column=1, sticky=W, padx=10)

    #Button dan posisi
    b_insert = Button(self.frame, text="Insert", command=self.insert_member)
    b_update = Button(self.frame, text="Update", command=self.update_member)
    b_show = Button(self.frame, text="Show", command=self.show_member)

    b_insert.grid(row=5, column=0, pady=10, ipadx=10)
    b_update.grid(row=5, column=1, pady=10, ipadx=10)
    b_show.grid(row=7, column=1, pady=10, ipadx=10)

def insert_member(self):
    c = db.cursor()
    sql =f"INSERT INTO member (`id_member`,`nama`,`nim`, `alamat`)VALUES('{self.e_id.get()}','{self.e_r
    c.execute(sql)
    db.commit()
    messagebox.showinfo("","Entry Data Berhasil")

def update_member(self):
    c = db.cursor()
    e1=self.e_nama.get()
    e2=self.e_nim.get()
    e3=self.e_alamat.get()
    e4=self.e_id.get()
    sql =f"UPDATE member SET nama=%s, nim=%s ,alamat=%s where id_member=%s"
    val = (e1,e2,e3,e4)
    c.execute(sql,val)
    db.commit()
    messagebox.showinfo("","Update Data Berhasil")
```

```
    def show_member(self):
        show = Tk()
        show.title("Data Member")
        Label(show, text="ID Member").grid(row=0, column=0, sticky=W)
        Label(show, text="Nama").grid(row=0, column=1, sticky=W)
        Label(show, text="NIM").grid(row=0, column=2, sticky=W)
        Label(show, text="Alamat").grid(row=0, column=3, sticky=W)



        sql="select*from member"
        c.execute(sql)
        Member = c.fetchall()

        for i in range(len(Member)):
            for j in range(len(Member[i])):
                teks=Entry(show)
                teks.grid(row=i+1,column=j)
                teks.insert(END,Member[i][j])

    def delete_member(self):
        self.delete_member=Toplevel(self.master)
        self.UI=delete_member(self.delete_member)
import tkinter as tk
import tkinter.messagebox
from tkinter import*
import mysql.connector

db = mysql.connector.connect(
    host="localhost",
    user="root",
    passwd="",
    database="perpustakaan"
    )

c=db.cursor()

class delete_member:
    def __init__(self, master):
        self.master = master
        self.frame = Frame(self.master)
        self.frame.grid()

        self.e_delete = Label(self.frame, text="Pilih ID Member")
        self.e_delete.grid(row=2, column=0, columnspan=2, pady=10, padx=10)
        self.e_id = Entry(self.frame, width=30)
        self.e_id.grid(row=4, column=0, columnspan=2, pady=10, padx=10)
        self.b_delete = Button(self.frame, text="Hapus", command=self.delete)
        self.b_delete.grid(row=6, column=0, columnspan=2, pady=10, padx=10)

    def delete(self):
        c=db.cursor()
        e1=self.e_id.get()
        sql = "delete from member where id_member=%s"
        val=(e1, )
        c.execute(sql, val)
        db.commit()
        messagebox.showinfo("", "Data Berhasil Dihapus")
```

- Buku

```
import tkinter as tk
import tkinter.messagebox
from tkinter import*
import mysql.connector
from delete_buku_db import delete_buku

db = mysql.connector.connect(
   host="localhost",
   user="root",
   passwd="",
   database="perpustakaan"
   )

c=db.cursor()

class Buku:
   def __init__(self, master):
      self.master = master
      self.master.title("Database Buku")
      self.master.geometry('300x300')
      self.frame = Frame(self.master)
      self.frame.grid()

      title = Label(self.frame, text="Database Buku", font=('Times', 16, 'bold'))
      l_id= Label(self.frame, text="ID Buku", font=('Times', 12))
      l_judul = Label(self.frame, text="Judul", font=('Times', 12))
      l_pengarang = Label(self.frame, text="Pegarang", font=('Times', 12))
      l_penerbit = Label(self.frame, text="Penerbit", font=('Times', 12))
      l_genre = Label(self.frame, text="Penerbit", font=('Times', 12))

      title.grid(row=0, columnspan=4, pady=10)
      l_id.grid(row=1, column=0, sticky=W, padx=3)
      l_judul.grid(row=2, column=0, sticky=W, padx=3)
      l_pengarang.grid(row=3, column=0, sticky=W, padx=3)
      l_penerbit.grid(row=4, column=0, sticky=W, padx=3)
      l_genre.grid(row=5, column=0, sticky=W, padx=3)
```

```
    #Entry dan posisi
    self.e_id = Entry(self.frame, width=30)
    self.e_judul = Entry(self.frame, width=30)
    self.e_pengarang = Entry(self.frame, width=30)
    self.e_penerbit = Entry(self.frame, width=30)
    self.e_genre = Entry(self.frame, width=30)

    self.e_id.grid(row=1, column=1, sticky=W, padx=10)
    self.e_judul.grid(row=2, column=1, sticky=W, padx=10)
    self.e_pengarang.grid(row=3, column=1, sticky=W, padx=10)
    self.e_penerbit.grid(row=4, column=1, sticky=W, padx=10)
    self.e_genre.grid(row=5, column=1, sticky=W, padx=10)


    #Button dan posisi
    b_insert = Button(self.frame, text="Insert", command=self.insert_buku)
    b_update = Button(self.frame, text="Update", command=self.update_buku)
    b_show = Button(self.frame, text="Show", command=self.show_buku)
    b_delete = Button(self.frame, text="Delete", command=self.delete_buku)


    b_insert.grid(row=6, column=0, pady=10, ipadx=10)
    b_update.grid(row=6, column=1, pady=10, ipadx=10)
    b_show.grid(row=7, column=1, pady=10, ipadx=10)
    b_delete.grid(row=7, column=0, pady=10, ipadx=10)

def insert_buku(self):
    cursor = db.cursor()
    sql =f"INSERT INTO buku (`id_buku`,`judul`,`pengarang`, `penerbit`, `genre`)VALUES('{self.e_id.get()}
    cursor.execute(sql)
    db.commit()
    messagebox.showinfo("","Entry Data Berhasil")
```

```
def update_buku(self):
    c = db.cursor()
    e1=self.e_judul.get()
    e2=self.e_pengarang.get()
    e3=self.e_penerbit.get()
    e4=self.e_genre.get()
    e5=self.e_id.get()
    sql =f"UPDATE buku SET judul=%s, pengarang=%s ,penerbit=%s, genre=%s where id_buku=%s"
    val = (e1,e2,e3,e4,e5)
    c.execute(sql,val)
    db.commit()
    messagebox.showinfo("","Update Data Berhasil")

def show_buku(self):
    show = Tk()
    show.title("Data Buku")
    Label(show, text="ID Buku").grid(row=0, column=0, sticky=W)
    Label(show, text="Judul").grid(row=0, column=1, sticky=W)
    Label(show, text="Pengarang").grid(row=0, column=2, sticky=W)
    Label(show, text="Penerbit").grid(row=0, column=3, sticky=W)
    Label(show, text="Genre").grid(row=0, column=4, sticky=W)


    sql="select*from buku"
    c.execute(sql)
    Buku = c.fetchall()

    for i in range(len(Buku)):
        for j in range(len(Buku[i])):
            teks=Entry(show)
            teks.grid(row=i+1,column=j)
            teks.insert(END,Buku[i][j])

def delete_buku(self):
    self.delete_buku=Toplevel(self.master)
    self.UI=delete_buku(self.delete_buku)
```

```
import tkinter as tk
import tkinter.messagebox
from tkinter import*
import mysql.connector

db = mysql.connector.connect(
   host="localhost",
   user="root",
   passwd="",
   database="perpustakaan"
   )

c=db.cursor()

class delete_buku:
   def __init__(self, master):
      self.master = master
      self.frame = Frame(self.master)
      self.frame.grid()

      self.e_delete = Label(self.frame, text="Pilih ID Buku")
      self.e_delete.grid(row=2, column=0, columnspan=2, pady=10, padx=10)
      self.e_id = Entry(self.frame, width=30)
      self.e_id.grid(row=4, column=0, columnspan=2, pady=10, padx=10)
      self.b_delete = Button(self.frame, text="Hapus", command=self.delete)
      self.b_delete.grid(row=6, column=0, columnspan=2, pady=10, padx=10)

   def delete(self):
      c=db.cursor()
      e1=self.e_id.get()
      sql = "delete from buku where id_buku=%s"
      val=(e1, )
      c.execute(sql, val)
      db.commit()
      messagebox.showinfo("", "Data Berhasil Dihapus")
```

- Peminjaman/Pengembalian

```
import tkinter as tk
import tkinter.messagebox
from tkinter import*
import mysql.connector

db = mysql.connector.connect(
   host="localhost",
   user="root",
   passwd="",
   database="perpustakaan"
   )

c=db.cursor()

class Status:
   def __init__(self, master):
      self.master = master
      self.master.geometry('450x250')
      self.frame = Frame(self.master)
      self.frame.grid()

      title = Label(self.frame, text="Pendataan Peminjaman dan Pengembalian Buku", font=('Times', 16, 'bold'))
      l_id_member = Label(self.frame, text="ID Member", font=('Times', 12))
      l_id_buku = Label(self.frame, text="ID Buku", font=('Times', 12))
      l_pinjam = Label(self.frame, text="Tanggal Pinjam", font=('Times', 12))
      l_kembali= Label(self.frame, text="Tanggal Kembali", font=('Times', 12))

      title.grid(row=0, columnspan=4, pady=10)
      l_id_member.grid(row=1, column=0, sticky=W, padx=3)
      l_id_buku.grid(row=2, column=0, sticky=W, padx=3)
      l_pinjam.grid(row=3, column=0, sticky=W, padx=3)
      l_kembali.grid(row=4, column=0, sticky=W, padx=3)


      #Entry dan posisi
      self.e_id_member = Entry(self.frame, width=30)
      self.e_id_buku = Entry(self.frame, width=30)
      self.e_pinjam= Entry(self.frame, width=30)
      self.e_kembali = Entry(self.frame, width=30)

      self.e_id_member.grid(row=1, column=1, sticky=W, padx=10)
      self.e_id_buku.grid(row=2, column=1, sticky=W, padx=10)
      self.e_pinjam.grid(row=3, column=1, sticky=W, padx=10)
      self.e_kembali.grid(row=4, column=1, sticky=W, padx=10)
```

```
    #Button dan posisi
    b_insert = Button(self.frame, text="Insert", command=self.insert_status)
    b_update = Button(self.frame, text="Update", command=self.update_status)
    b_show = Button(self.frame, text="Show", command=self.show_status)

    b_insert.grid(row=5, column=0, pady=10, ipadx=10)
    b_update.grid(row=5, column=1, pady=10, ipadx=10)
    b_show.grid(row=5, column=2, pady=10, ipadx=10)

  def insert_status(self):
    c = db.cursor()
    sql =f"INSERT INTO peminjaman_pengembalian (`id_memberFK`,`id_bukuFK`,`tanggal_pinjam`, `tanggal_kembali`)VALUES('{self.e_id_member.get()}',
    c.execute(sql)
    db.commit()
    messagebox.showinfo("","Entry Data Berhasil")

  def update_status(self):
    c = db.cursor()
    e1=self.e_id_member.get()
    e2=self.e_id_buku.get()

    sql =f"UPDATE peminjaman_pengembalian SET id_bukuFK=%s where id_memberFK=%s"
    val = (e1,e2)
    c.execute(sql,val)
    db.commit()
    messagebox.showinfo("","Update Data Berhasil")

  def show_status(self):
    status = Tk()
    status.title("Alur Perputaran Buku")
    Label(status, text="ID Member").grid(row=0, column=0, sticky=W)
    Label(status, text="ID Buku").grid(row=0, column=1, sticky=W)
    Label(status, text="Tanggal Pinjam").grid(row=0, column=2, sticky=W)
    Label(status, text="Tanggal Kembali").grid(row=0, column=3, sticky=W)

    sql="select*from peminjaman_pengembalian"
    c.execute(sql)
    Status = c.fetchall()

    for i in range(len(Status)):
      for j in range(len(Status[i])):
        teks=Entry(status)
        teks.grid(row=i+1,column=j)
        teks.insert(END,Status[i][j])
```

Eksekusi Program