Scala编程数据库的操作

1. 创建一个实体表：Element其中包括：姓名、出生日期、年龄、身份证号、是否学过英语。

import org.apache.spark.sql.{SparkSession, DataFrame}

import org.apache.spark.sql.functions.\_

case class Element(name: String, birthDate: String, age: Int, idCardNumber: String, hasLearnedEnglish: Boolean)

object Main extends App {

val spark = SparkSession.builder()

.appName("ElementDataFrameExample")

.master("local[\*]")

.getOrCreate()

import spark.implicits.\_

// 创建一个DataFrame

val data = Seq(

Element("John Doe", "1990-01-01", 34, "1234567890", true),

Element("Jane Smith", "1985-05-15", 39, "0987654321", false)

)

val df: DataFrame = data.toDF()

// 打印DataFrame的schema和数据

df.printSchema()

df.show(false)

spark.stop()

}

1. 用Scala编程完成对Element表的增删查改等相关操作。
   1. 增加：1、zhangsan，1978-2-2，40，120304197802403123，yes

2、wangwu ，1987-3-5, 36，14023419870305234E，no

* 1. 修改：将张三的年龄改为39、出生日期改为1978-6-2
  2. 查询：查询学过英语并且年龄在36以上
  3. 删除：wangwu的所有信息

import scala.collection.mutable.ArrayBuffer

case class Element(name: String, birthDate: String, age: Int, idCardNumber: String, hasLearnedEnglish: Boolean)

object ElementTable {

private var elements: ArrayBuffer[Element] = ArrayBuffer(

Element("zhangsan", "1978-2-2", 40, "120304197802403123", true),

Element("wangwu", "1987-3-5", 36, "14023419870305234E", false)

)

// 添加新元素

def addElement(element: Element): Unit = {

elements += element

}

// 修改元素信息

def updateElement(name: String, newAge: Int, newBirthDate: String): Unit = {

elements.find(\_.name == name) match {

case Some(element) =>

element.age = newAge

element.birthDate = newBirthDate

case None => println("Element not found.")

}

}

// 查询学过英语并且年龄在指定范围内的元素

def queryEnglishLearnersWithAgeAbove(ageThreshold: Int): Seq[Element] = {

elements.filter(\_.hasLearnedEnglish && \_.age >= ageThreshold)

}

// 删除指定姓名的元素

def deleteElement(name: String): Unit = {

elements = elements.filterNot(\_.name == name)

}

// 打印所有元素信息

def printElements(): Unit = {

elements.foreach(println)

}

}

object Main extends App {

// 添加新元素

ElementTable.addElement(Element("zhangsan", "1978-2-2", 40, "120304197802403123", true))

ElementTable.addElement(Element("wangwu", "1987-3-5", 36, "14023419870305234E", false))

// 修改元素信息

ElementTable.updateElement("zhangsan", 39, "1978-6-2")

// 查询学过英语并且年龄在36以上的元素

val result = ElementTable.queryEnglishLearnersWithAgeAbove(36)

println("学过英语并且年龄在36以上的元素:")

result.foreach(println)

// 删除wangwu的信息

ElementTable.deleteElement("wangwu")

// 打印剩余元素信息

println("剩余元素信息:")

ElementTable.printElements()

}