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**Implementation Heterogeneity in  
Distributed Database Systems (JDBC,  
ODBC)**

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## **Abstract**

A distributed system is an application that executes a collection of protocols to coordinate the actions of multiple processes on a network such that components cooperate together to perform a single or small set of related tasks.

There are a lot of advantages in distributed system including the ability to connect remote users with remote resources in an open and scalable way.

This research aims to solve one of the problems of distributed information systems is the problem of heterogeneity, and the heterogeneity according to the different operating systems or programming languages or databases and this is the subject of research .

In this research was to use the middleware concept using two techniques which ODBC, JDBC to design an application that connects Java and two databases, as well as processing databases by Java interfaces remotely.

We used to design the Java application (Eclipse) and two databases (Ms Access, Mysql) by placing Java and Mysql in device and a database (Ms Access) in another device and process data remotely by Java.

## المستخلص

النظام الموزع هو تطبيق ينفذ مجموعة من البروتوكولات لتنسيق الإجراءات من عمليات متعددة على شبكة بحيث تتعاون المكونات معاً لأداء واحدة أو مجموعة من المهام ذات الصلة

هناك الكثير من المزايا في نظام توزيع بما في ذلك القدرة على توصيل المستخدمين عن بعد مع الموارد البعيدة بطريقة منفتحة وقابلة للتطوير.

يهدف هذا البحث لحل واحدة من مشكلات النظم المعلومات الموزعة وهي مشكلة عدم التجانس ، ويكون عدم التجانس باختلاف نظم التشغيل او اختلاف لغات البرمجة او قواعد بيانات وهذا موضوع البحث .

في هذا البحث تم استخدام مفهوم الوسيط وذلك باستخدام اثنين من تقنياته وهو ODBC, JDBC لتصميم تطبيق يقوم بالربط بين الجافا وقاعدتي بيانات وايضا معالجة قاعدتي البيانات عن طريق واجهات الجافا عن بعد.

واستخدما لتصميم هذا التطبيق جافا (Eclipses) وقاعدتي بيانات (Access , Mysql Ms) وذلك بوضع الجافا وMysql في جهاز وقاعدة البيانات (Access Ms) في جهاز اخر ومعالجة البيانات عن بعد بواسطة الجافا .

## 1.1 Introduction

Distributed systems are used in wide ranges because availability of powerful yet cheap microprocessors (PCs, workstation), continuing advances in communication technology. Resource sharing is the main motivating factor for constructing distributed systems. Resources such as printers, files, web pages or database records are managed by servers of the appropriate type. For example, web servers manage web pages and other web resources, Resources are accessed by clients. But to today Distributed systems have passed many of challenges, these challenges due difference in work environments; they must be constructed from a variety of different networks, operating systems such as Linux, Windows, Mac , computer hardware , programming languages such as Java, C, C++, C# or between various databases such as Oracle, Ms Access, which creates problem heterogeneity. And middleware can deal with the other differences. Concept of middleware used between the different work environments (heterogeneity) and there are many techniques that were used for the application of the concept of the middleware, for example: JDBC, RMI, RPC, CORBA ... etc.

In this research we use technology JDBC (Java) in working as a front to handle and process the database (insert, search, and edit and delete) remotely.

## 1.2 Research Problem

The main problem of research it focuses on JDBC and ODBC in distributed system.

## 1.3 Main Objective

Developing a user Interfaces for distributed information systems build on database can interact with different database management system.

### 1.3.1 Sub Objective

- To apply of the concept of Distributed information Systems.
- To solve Heterogeneity problem.
- To apply of the concept of Middleware by use JDBC, ODBC.

## 1.4 Research Methodology

This section briefly explains the methodology adopted in this research, we used middleware techniques (JDBC,ODBC) to link Java language (Eclipse) with two database management systems (Ms Access, Mysql) by placing Java and Mysql in device and the Ms Access in another device.

## 1.5 Research Structure

The study is presented in five chapters, chapter one is introductory, chapter two reviewed same related literature. Chapter three is Middleware, The research methodology and Implantation is disused in chapter four. Finally chapter five summarized the conclusion of research.

