**Al-Isra University**

**Faculty of IT**

**جــامـعـة الإسراء**

**كـليـة تكـنولوجيـا المعلومـات**

|  |  |  |
| --- | --- | --- |
| **Department:**  **CIS** | **Assignment NO. 1** | **Date: 4-11-2024** |
| Semester:First | Year:(2024/2025) | **Instructor**  Dr. Ali Ibrahim |
| **Course No.:** 06013231 | **Course Name:** DBMSs | **Section: 1** |
| **Student No.:**  AE2279 | **Student Name:** Kawther Khaled Al Maharmeh | Submission date  **23-11-2024** |

What are difference between Centralized and Client/Server Architectures for DBMSs write technical report

**Centralized Architecture**

**In the central architecture, all database components are stored on one server or a small set of closely connected servers. This type of structure is characterized by:**

|  |  |
| --- | --- |
| Advantages | Disadvantages |
| **Simplicity:** It is easy to manage and maintain the system because everything is central. | **Expansion problems:** limited expansion due to single server capacity; Expansion can be expensive and complex. |
| **Consistent performance:** Performance is expected because all data and processes are in one system. | **One point of failure:** If the central server crashes, the whole system becomes unavailable. |
| **Simplified backup and recovery:** central control makes it easy to implement and manage backup and restore operations. | **Performance bottlenecks:** High load can cause deterioration of performance because all operations are done by a single server. |
| **Security:** It is easier to secure one system than multiple distributed systems. | **Limited flexibility:** less flexible in load distribution and improved resource use1. |

**Client/Server** **Architecture**

**In the client/server architecture, the database system is divided into two main components: customers and servers. This type of structure is characterized by:**

|  |  |
| --- | --- |
| Advantages | Disadvantages |
| **Expansion:** Easy to expand by adding more customers and servers as needed. | **Complexity:** More complicated in management and maintenance due to the distributed nature of the system. |
| **Load distribution:** loads can be distributed across multiple servers, improving performance and efficiency. | **Network reliance:** performance depends on network speed and reliability. |
| **Improved availability:** redundancy and overreach mechanisms can be implemented to ensure higher availability. | **Security challenges:** Increasing access points increases security risks and makes management more challenging. |
| **Flexibility:** Different customers can work on different platforms and interact with central server. | **Data consistency:** Ensuring data consistency across multiple customers can be more complex, especially in distributed environments |