**Entities - Attributes**

USER -userId, userName, password, role iiiid

CUSTOMER - customerId, customerName, accountNumber, accountBalance

EMPLOYEE - employeeId, employeeName

EQUIPMENT - equipmentId, equipmentName, type, status, cost

TRANSACTION - transactionId, customerId, equipmentId, rentalDate, returnDate, totalCost

MESSAGE - messageId, senderId, recieverId, messageContent, timeStamp

RENTALREQUESTS - requestId, customerId, equipmentId, requestedDate, response, status

SCHEDULEDEQUIPMENT - scheduleId, eventId, equipmentId, eventDate

INVOICE - invoiceId, transactionId, invoiceDate, amount

Relationships

**UML CLASS DIAGRAMS**

|  |
| --- |
| **User** |
| - String userId  - String userName  - String password  - String role |
| +User()  +User(String, String, String, String)  +User(User)  +getUserId(): String  +getUserName(): String  +getPassword(): String  +getRole(): String  +setUserId(String): void  +setUserName(String): void  +setPassword(String): void  + setRole(String): void  + display(): void |

|  |
| --- |
| **Employee** |
| - String employeeId  - String employeeName |
| +Employee()  +Employee(String, String)  +Employee(Employee)  +getEmployeeId(): string  +getEmployeeName(): string  +setEmployeeId(string): void  +setEmployeeName(string): void  +display(): void |

|  |
| --- |
| **RENTALREQUEST** |
| - String requestId  - String customerId  - String equipmentId  - String requestedDate  - String response  - String status |
| +RentalRequest()  +RentalRequest(String, String, String, String, String, String)  +RentalRequest(RentalRequest)  +getRequestId(): String  +getCustomerId(): String  +getEquipmentId(): String  +getRequestedDate(): String  +getResponse(): String  +getStatus(): String  +setRequestId(String): void  +setCustomerId(String): void  +setEquipmentId(String): void  +setRequestedDate(String): void  +setResponse(String): void  +setStatus(String): void  +display(): void |

|  |
| --- |
| **Customer** |
| - customerId: String  - customerFirstName: String  - customerLasttName: String  - accountNumber: String  - accountBalance: float |
| + Customer()  + Customer(String, String, String, String, float)  + Customer(Customer)  + getCustomerId(): String  + getCustomerFirstName(): String  + getCustomerLasttName(): String  + getAccountNumber(): String  + getAccountBalance(): float  + setCustomerId(String): void  + setCustomerFirstName(String): void  + setCustomerLastName(String): void  + setAccountNumber(String): void  + setAccountBalance(float): void  + display(): void |

|  |
| --- |
| **Equipment** |
| - equipmentId: String  - equipmentName: String  - type: String  - status: String |
| + Equipment()  + Equipment(String, String, String, String)  + Equipment(Equipment)  + getEquipmentId(): String  + getEquipmentName(): String  + getType():String  + getStatus(): String  + setEquipmentId(String): void  + setEquipmentName(String): void  + setType(String): void  + setStatus(String): void  + display(): void |

|  |
| --- |
| **Transaction** |
| - String transactionId  - String customerId  - String equipmentId  - String rentalDate  - String Date  - float totalCost |
| +Transaction()  +Transaction(String, String, String, String, String, float)  +Transaction(Transaction)  +getTransactionId(): String  +getCustomerId: String  +getEquipmentId(): String  +getRentalDate(): String  +getDate(): String  +getTotalCost(): float  +setTransactionId(String): void  +setCustomerId(String): void  +setEquipmentId(String): void  +setRentalDate(String): void  +setDate(String): void  +setTotalCost(float): void  + display(): void |

|  |
| --- |
| **Message** |
| - messageId: String - senderId: String  - recieverId: String  - messageContent: String  - timestamp: String |
| + Message()  + Message(String, String, String, String, String)  + Message(Message)  + getMessageId(): String  + getSenderId(): String  + getRecieverId(): String  + getMessageContent(): String  + getTimestamp(): String  + setSenderId(String): void  + setMessageId(String): void  + setRecieverId(String): void  + setMessageContent(String): void  + setTimestamp(String): void  + display(): void |

|  |
| --- |
| ScheduledEquipment |
| - scheduleId: String  - eventId: String  - equipmentId: String  - eventDate: Date |
| + ScheduledEquipment()  + ScheduledEquipment(String, String, String, Date)  + ScheduledEquipment(ScheduledEquipment)  + getScheduleId(): String  + getEventId(): String  + getEquipmentId(): String  + getEventDate(): Date  + setScheduleId(String): void  + setEventId(String): void  + setEquipmentId(String): void  + setEventDate(Date): void  +display(): void |

|  |
| --- |
| Invoice |
| - invoiceId: String  - transactionId: String  - invoiceDate: Date  - amount: float |
| + Invoice()  + Invoice(String, String, Date, float)  + Invoice(Invoice)  + getInvoiceId(): String  + getTransactionId(): String  + getInvoiceDate(): Date  + getAmount(): float  + setInvoiceId(String): void  + setTransactionId(String): void  + setInvoiceDate(Date): void  + setAmount(float): void  +display(): void |

**RELATIONAL NOTATION**

CUSTOMER - customerId, customerName, accountNumber, accountBalance

EQUIPMENT - equipmentId, equipmentName, type, status, cost

RENTALREQUESTS - requestId, requestedDate, customerId, equipmentId, transactionId, messageId, status

FOREIGN KEY (customerId) REFERENCES CUSTOMER

FOREIGN KEY (equipmentId) REFERENCES EQUIPMENT

FOREIGN KEY (messageId) REFERENCES MESSAGE

FOREIGN KEY (transactionId) REFERENCES TRANSACTION

EMPLOYEE - employeeId, employeeName

SCHEDULE – scheduleId, eventId, equipmentId, eventDate, employeeId

FOREIGN KEY (equipmentId) REFERENCES EQUIPMENT

FOREIGN KEY (employeeId) REFERENCES EMPLOYEE

TRANSACTION - transactionId, customerId, equipmentId, rentalDate, returnDate, totalCost

FOREIGN KEY (customerId) REFERENCES CUSTOMER

FOREIGN KEY (equipmentId) REFERENCES EQUIPMENT

INVOICE – invoiceId, transactionId, invoiceDate, amount

FOREIGN KEY (transactionId) REFERENCES TRANSACTION

MESSAGE - messageId, customerId, employeeId, messageContent, timestamp

FOREIGN KEY (customerId) REFERENCES CUSTOMER

FOREIGN KEY (equipmentId) REFERENCES EQUIPMENT

**3NF Relational Notation**

USER (userId, username, password, role)

CUSTOMER (customerId, firstName, lastName, accountBalance, accountNumber)

FOREIGN KEY (customerId) REFERENCES USERS

EMPLOYEE (employeeId, firstName, lastName)

FOREIGN KEY (employeeId) REFERENCES USERS

EQUIPMENT (equipmentID, equipmentName, type, status)

TRANSACTION (transactionId, customerId, equipmentId, rentalDate, returnDate, totalCost)

FOREIGN KEY (customerId) REFERENCES CUSTOMER

FOREIGN KEY (equipmentId) REFERENCES EQUIPMENT

MESSAGE (messageId, senderId, receiverId, messageContent, timestamp)

FOREIGN KEY (senderId) REFERENCES USER

FOREIGN KEY (receiverId) REFERENCES USER

RENTALREQUEST (requestId, customerId, equipmentId, requestedDate, messageId, status)

FOREIGN KEY (customerId) CUSTOMER

FOREIGN KEY (equipmentId) REFERENCES EQUIPMENT

FOREIGN KEY (messageId) REFERENCES MESSAGE

SCHEDULEDEQUIPMENT (scheduleId, eventId, equipmentId, eventDate)

FOREIGN KEY (equipmentId) REFERENCES EQUIPMENT

INVOICE (invoiceId, transactionId, invoiceDate, amount)

FOREIGN KEY (transactionId) REFERENCES TRANSACTION