

```

public class LeaseManagementSystem {

    // Create a new Lease Record

    public static void createLease(String leaseName, Date startDate, Date endDate, Decimal leaseAmount,
String tenantId) {

        // Ensure that the start date is before the end date

        if (startDate >= endDate) {

            throw new IllegalArgumentException('Start date must be before the end date');

        }

        // Create a new Lease record

        Lease__c newLease = new Lease__c(

            Name = leaseName,

            Start_Date__c = startDate,

            End_Date__c = endDate,

            Lease_Amount__c = leaseAmount,

            Tenant_c = tenantId, // Assuming Tenant_c is a lookup field to the Tenant object

            Lease_Status__c = 'Active' // Default status

        );

        try {

            insert newLease;

        } catch (DmlException e) {

            System.debug('Error occurred while creating the lease: ' + e.getMessage());

            throw e;

        }
    }
}

```

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}
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```
// Update the Lease Status
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```
public static void updateLeaseStatus(Id leaseId, String newStatus) {
```

```
    // Validate the status value
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```
    List<String> validStatuses = new List<String>{'Active', 'Terminated', 'Expired', 'Renewed'};
```

```
    if (!validStatuses.contains(newStatus)) {
```

```
        throw new IllegalArgumentException('Invalid lease status');
```

```
    }
```

```
// Fetch the Lease record
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```
Lease_c leaseRecord = [SELECT Id, Lease_Statusc FROM Lease_c WHERE Id = :leaseId LIMIT 1];
```

```
if (leaseRecord != null) {
```

```
    leaseRecord.Lease_Status__c = newStatus;
```

```
    try {
```

```
        update leaseRecord;
```

```
    } catch (DmlException e) {
```

```
        System.debug('Error occurred while updating the lease status: ' + e.getMessage());
```

```
        throw e;
```

```
    }
```

```
} else {
```

```
    throw new NullPointerException('Lease record not found');
```

```
}
```

```
}
```

```

// Calculate the remaining months for the lease

public static Integer calculateRemainingMonths(Id leaseId) {

    Lease_c leaseRecord = [SELECT Id, Start_Datec, End_Datec FROM Lease_c WHERE Id = :leaseId LIMIT
1];

    if (leaseRecord == null) {

        throw new NullPointerException('Lease record not found');

    }

    Date today = Date.today();

    Date leaseEndDate = leaseRecord.End_Date__c;

    if (leaseEndDate < today) {

        return 0; // Lease has expired

    }

    Integer remainingMonths = leaseEndDate.month() - today.month() + (12 * (leaseEndDate.year() -
today.year()));

    return remainingMonths;

}

// Terminate the Lease if the End Date is reached

public static void terminateLeaseIfExpired() {

    // Fetch all leases that have expired

    List<Lease_c> leasesToTerminate = [SELECT Id, Lease_Statusc, End_Datec FROM Leasec WHERE
End_Datec <= :Date.today() AND Lease_Status_c != 'Terminated'];

    for (Lease__c lease : leasesToTerminate) {

```

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        lease.Lease_Status__c = 'Expired';
    }

    // Update leases
    if (!leasesToTerminate.isEmpty()) {
        try {
            update leasesToTerminate;
        } catch (DmlException e) {
            System.debug('Error occurred while terminating expired leases: ' + e.getMessage());
            throw e;
        }
    }
}

// Extend Lease for a specified number of months
public static void extendLease(Id leaseId, Integer extensionMonths) {
    if (extensionMonths <= 0) {
        throw new IllegalArgumentException('Extension months should be greater than zero');
    }

    // Fetch the Lease record
    Lease__c leaseRecord = [SELECT Id, End_Datec FROM Lease__c WHERE Id = :leaseId LIMIT 1];
    if (leaseRecord == null) {
        throw new NullPointerException('Lease record not found');
    }
}

```

```

// Calculate the new end date by adding the extension months

Date newEndDate = leaseRecord.End_Date__c.addMonths(extensionMonths);

leaseRecord.End_Date__c = newEndDate;


// Update the lease record

try {

    update leaseRecord;

} catch (DmlException e) {

    System.debug('Error occurred while extending the lease: ' + e.getMessage());

    throw e;

}

}


// Calculate total lease amount for a given period (e.g., monthly)

public static Decimal calculateTotalLeaseAmount(Id leaseId, Integer months) {

    Lease__c leaseRecord = [SELECT Id, Lease_Amountc, Start_Datec, End_Datec FROM Lease__c WHERE
Id = :leaseId LIMIT 1];

    if (leaseRecord == null) {

        throw new NullPointerException('Lease record not found');

    }


// Ensure the months don't exceed the lease duration

Date today = Date.today();

Date leaseEndDate = leaseRecord.End_Date__c;

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```
    if (leaseEndDate < today) {  
        throw new InvalidArgumentException('Lease has expired, cannot calculate future lease  
amounts');  
    }  
  
    // Calculate the total lease amount for the given period  
    Decimal totalAmount = leaseRecord.Lease_Amount__c * months;  
    return totalAmount;  
}  
  
// Helper class to handle invalid arguments  
public class InvalidArgumentException extends Exception {}  
}
```