# **Model**

*Package in package ''*

Model

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

## **ClassPackage**

*Package in package 'Model'*

ClassPackage

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

### **ClassPackage diagram**

*Class diagram in package 'ClassPackage'*

ClassPackage

Version 1.0

sul10 created on 2024-11-19. Last modified 2024-11-20



ClassPackage

### **AnalysisData**

*Class in package 'ClassPackage'*

AnalysisData

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| changeLogs : Private  [ Is static False. Containment is Not Specified. ] |
| performanceMetrics : Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) records | |
| Source: Public log (Class) AnalysisData  Cardinality: [0..1] | Target: Public eventGenerator (Class) LightingController  Cardinality: [1] |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

| **OPERATIONS** |
| --- |
| generateReport () : void Public  Properties:  ea\_guid = {3571F080-717F-43fc-A3F9-E2D9D8BCACB1}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| recordChanges () : void Public  Properties:  ea\_guid = {A6085099-8638-4142-9A2C-E2B6037F480D}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **GameEnvironment**

*Class in package 'ClassPackage'*

GameEnvironment

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentGame : Private  [ Is static False. Containment is Not Specified. ] |
| environmentSettings : Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) synchronizes | |
| Source: Public environment (Class) GameEnvironment  Cardinality: [1] | Target: Public syncController (Class) GameSyncController  Cardinality: [1] |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| analyzeGameState () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| fetchGameData () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **GameSyncController**

*Class in package 'ClassPackage'*

GameSyncController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) synchronizes | |
| Source: Public environment (Class) GameEnvironment  Cardinality: [1] | Target: Public syncController (Class) GameSyncController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| syncWithGame () : void Public  Properties:  ea\_guid = {8A367939-2EEC-4419-A0D6-9406654767C2}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| triggerLightingChange () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **IoTLightingDevice**

*Class in package 'ClassPackage'*

IoTLightingDevice

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentBrightness : byte Private  [ Is static False. Containment is Not Specified. ] |
| currentColor : byte Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| deviceID : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| status : int Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

| **OPERATIONS** |
| --- |
| turnOff () : void Public  Properties:  ea\_guid = {B1CB2666-E135-42ad-B3C8-FCB4C49ED2FE}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| turnOn () : void Public  Properties:  ea\_guid = {41EC6555-7224-4e9c-B4F8-2D7079D34747}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| updateFirmware () : void Public  Properties:  ea\_guid = {99322E0D-0096-43f5-A38D-6B9F486AFD00}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **LightingConfiguration**

*Class in package 'ClassPackage'*

LightingConfiguration

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| brightnessPattern : Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| colorPattern : Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| presetID : Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| loadPreset () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| savePreset () : void Public  Properties:  ea\_guid = {49B0FAD1-DC8D-48be-BEF3-A31F2D7F7241}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **LightingController**

*Class in package 'ClassPackage'*

LightingController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) records | |
| Source: Public log (Class) AnalysisData  Cardinality: [0..1] | Target: Public eventGenerator (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| adjustLighting () : void Public  Properties:  ea\_guid = {5E02FEDA-B57D-4ac0-B020-B4B1C62AD37A}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| applyUserSettings () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **SystemController**

*Class in package 'ClassPackage'*

SystemController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| handleDeviceRegistration (deviceID : char ) : boolean Public  Properties:  ea\_guid = {3DC63AB9-F33B-4aec-8010-97976E26D272}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| manageLogin (id : char , password : char ) : boolean Public  Properties:  ea\_guid = {447D8E5D-C22C-4944-8A89-BBC901CD0D5E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **User**

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **DesktopApp**

*Interface in package 'ClassPackage'*

DesktopApp

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

Extends UserInterface

| **OUTGOING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  OverridesGuid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayGraphicalDashboard () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  OverridesGuid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **MobileApp**

*Interface in package 'ClassPackage'*

MobileApp

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

Extends UserInterface

| **OUTGOING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  OverridesGuid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  OverridesGuid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| sendPushNotification () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

### **UserInterface**

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

## **SequencePackage**

*Package in package 'Model'*

SequencePackage

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-26. Last modified 2024-11-26

### **InteractionFragment1**

*InteractionFragment in package 'SequencePackage'*

InteractionFragment1

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

### **InteractionFragment2**

*InteractionFragment in package 'SequencePackage'*

InteractionFragment2

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

### **InteractionFragment3**

*InteractionFragment in package 'SequencePackage'*

InteractionFragment3

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

### **InteractionFragment4**

*InteractionFragment in package 'SequencePackage'*

InteractionFragment4

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

### **InteractionFragment5**

*InteractionFragment in package 'SequencePackage'*

InteractionFragment5

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

## **UsecasePackage**

*Package in package 'Model'*

UsecasePackage

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-11. Last modified 2024-11-11

### **UsecasePackage diagram**

*Use Case diagram in package 'UsecasePackage'*

UsecasePackage

Version 1.0

sul10 created on 2024-11-11. Last modified 2024-11-12



UsecasePackage

*Text in package 'UsecasePackage'*

<Extension Condition>

사용자가 설정 임의로 추가시

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

Extends

### **IoT 조명 기기**

*Actor in package 'UsecasePackage'*

IoT 조명 기기

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **OUTGOING BEHAVIORAL RELATIONSHIPS** |
| --- |
| Name: "Device is On"  Sequence from IoT 조명 기기 to LightingController |

| **INCOMING BEHAVIORAL RELATIONSHIPS** |
| --- |
| Name: turnOn()  Sequence from LightingController to IoT 조명 기기 |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) IoT 조명 기기 | Target: Public (UseCase) 조명 변화 기록 및 분석 |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) 조명 On/Off | Target: Public (Actor) IoT 조명 기기 |

|  |  |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) IoT 기기 소프트웨어 업데이트 | Target: Public (Actor) IoT 조명 기기 |

|  |  |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) 게임 환경 자동설정 | Target: Public (Actor) IoT 조명 기기 |

|  |  |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) IoT 기기 상태 확인 | Target: Public (Actor) IoT 조명 기기 |

### **게임 환경**

*Actor in package 'UsecasePackage'*

게임 환경

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) 게임 환경 자동설정 | Target: Public (Actor) 게임 환경 |

### **사용자**

*Actor in package 'UsecasePackage'*

I don't know at all.

사용자

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-11. Last modified 2024-11-11

| **OUTGOING BEHAVIORAL RELATIONSHIPS** |
| --- |
| Name: acceptUserInput()  Sequence from 사용자 to UserInterface |
| Name: acceptUserInput()  Sequence from 사용자 to UserInterface |

| **INCOMING BEHAVIORAL RELATIONSHIPS** |
| --- |
| Name: displayStatus()  Sequence from UserInterface to 사용자 |

|  |
| --- |
| Name: displayStatus()  Sequence from UserInterface to 사용자 |

|  |
| --- |
| Name: displayStatus()  Sequence from UserInterface to 사용자 |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) 게임 환경 임의설정 |

|  |  |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) IoT 기기 제어 |

|  |  |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) IoT 기기 상태 확인 |

|  |  |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) 조명 변화 기록 및 분석 |

|  |  |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) IoT 기기 등록 |

|  |  |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) IoT 기기 소프트웨어 업데이트 | Target: Public (Actor) 사용자 |

### **IoT 기기 등록**

*UseCase in package 'UsecasePackage'*

<개요>

사용자가 IoT 조명 기기를 스마트 게임 환경 시스템에 등록하기 위해 고유 기기 iD를 입력함.

<관련 액터>

사용자

<우선 순위>

높음

IoT 기기 등록

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-11. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Performance. 신뢰성, 보안성  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path  사용자가 시스템에 로그인함  사용자가 IoT 조명 기기의 고유 ID를 입력함  시스템이 기기를 검증하고 사용자의 계정에 등록함 |
| Alternate. Alternate Path  기기 ID가 이미 등록되어 있는 경우, 시스템은 사용자에게 알림 |

|  |
| --- |
| Exception. Exception Path  기기 ID가 잘못된 경우, 시스템이 재입력을 요청함. |

| **CONSTRAINTS** |
| --- |
| Post-condition. 기기가 등록되어 사용자의 대시보드에 표시됨.  [ Approved, Weight is 0. ] |
| Pre-condition. 사용자가 로그인하고 고유 IoT 기기 ID를 보유함.  [ Approved, Weight is 0. ] |

| **CONNECTORS** |
| --- |
| **Include** «include» Source -> Destination  From: IoT 기기 등록 : UseCase, Public  To: 시스템 로그인 : UseCase, Public |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) IoT 기기 등록 |

#### ***IoT 기기 등록 diagram***

*Interaction diagram in package 'UsecasePackage'*

IoT 기기 등록

Version 1.0

sul10 created on 2024-11-26. Last modified 2024-11-29



IoT 기기 등록

#### ***SystemController***

*Class in package 'ClassPackage'*

SystemController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| handleDeviceRegistration (deviceID : char ) : boolean Public  Properties:  ea\_guid = {3DC63AB9-F33B-4aec-8010-97976E26D272}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| manageLogin (id : char , password : char ) : boolean Public  Properties:  ea\_guid = {447D8E5D-C22C-4944-8A89-BBC901CD0D5E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***InteractionFragment1***

*InteractionFragment in package 'SequencePackage'*

InteractionFragment1

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from '사용자' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'handleDeviceRegistration(char)'** from 'UserInterface' sent to 'SystemController'.  Synchronous Call. Returns boolean.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 'true'** from 'SystemController' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 'displayStatus()'** from 'UserInterface' sent to '사용자'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 'false'** from 'SystemController' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 'displayStatus()'** from 'UserInterface' sent to '사용자'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

### **IoT 기기 상태 확인**

*UseCase in package 'UsecasePackage'*

<개요>

사용자가 등록된 IoT 기기의 실시간 상태를 모니터링할 수 있음.

<관련 액터>

사용자

<우선순위>

중간

IoT 기기 상태 확인

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Performance. 가용성, 성능  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path  사용자가 대시보드에서 기기 상태에 접근함.  시스템이 색상, 밝기 및 연결 상태를 표시함. |
| Alternate. Alternate Path  기기가 오프라인일 경우, 시스템은 마지막 상태를 표시함. |

|  |
| --- |
| Exception. Exception Path  상태 조회 오류 시 재시도 요청. |

| **CONSTRAINTS** |
| --- |
| Post-condition. 기기의 상태 정보가 표시됨  [ Approved, Weight is 0. ] |
| Pre-condition. 기기가 등록됨  [ Approved, Weight is 0. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) IoT 기기 상태 확인 | Target: Public (Actor) IoT 조명 기기 |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) IoT 기기 상태 확인 |

#### ***IoT 기기 상태 확인 diagram***

*Interaction diagram in package 'UsecasePackage'*

IoT 기기 상태 확인

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



IoT 기기 상태 확인

#### ***LightingController***

*Class in package 'ClassPackage'*

LightingController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) records | |
| Source: Public log (Class) AnalysisData  Cardinality: [0..1] | Target: Public eventGenerator (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| adjustLighting () : void Public  Properties:  ea\_guid = {5E02FEDA-B57D-4ac0-B020-B4B1C62AD37A}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| applyUserSettings () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from '사용자' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'adjustLighting()'** from 'UserInterface' sent to 'LightingController'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 'turnOn()'** from 'LightingController' sent to 'IoT 조명 기기'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 '"Device is On"'** from 'IoT 조명 기기' sent to 'LightingController'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 '"Device is On"'** from 'LightingController' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 'displayStatus()'** from 'UserInterface' sent to '사용자'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

### **IoT 기기 소프트웨어 업데이트**

*UseCase in package 'UsecasePackage'*

<개요>

시스템이 IoT 기기의 최신 소프트웨어를 유지하도록 지원하며, 사용자에게 자동 또는 수동 업데이트 옵션을 제공.

<관련 액터>

사용자, IoT 조명 기기

<우선순위>

중간

IoT 기기 소프트웨어 업데이트

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Performance. 성능, 신뢰성  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path   1. 시스템이 연결된 IoT 기기의 소프트웨어 버전을 확인. 2. 새로운 버전이 있는 경우, 사용자에게 업데이트 여부를 물어봄. 3. 사용자가 업데이트를 승인하면 시스템이 최신 소프트웨어를 다운로드하고 IoT 기기에 설치. 4. 성공적으로 업데이트가 완료되면 사용자에게 알림 |
| Alternate. Alternate Path  소프트웨어가 이미 최신 버전일 경우, 시스템이 사용자에게 최신 상태임을 알림. |

|  |
| --- |
| Exception. Exception Path  업데이트 중 네트워크 연결 문제가 발생하면 업데이트를 중단하고 사용자에게 오류 메시지 표시. |

| **CONSTRAINTS** |
| --- |
| Post-condition. 기기가 최신 소프트웨어 버전을 유지하며 정상 동작해야 함.  [ Approved, Weight is 0. ] |
| Pre-condition. 사용자가 시스템에 로그인해야 함.  [ Approved, Weight is 0. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) IoT 기기 소프트웨어 업데이트 | Target: Public (Actor) 사용자 |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) IoT 기기 소프트웨어 업데이트 | Target: Public (Actor) IoT 조명 기기 |

#### ***IoT 기기 소프트웨어 업데이트 diagram***

*Interaction diagram in package 'UsecasePackage'*

IoT 기기 소프트웨어 업데이트

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



IoT 기기 소프트웨어 업데이트

#### ***IoTLightingDevice***

*Class in package 'ClassPackage'*

IoTLightingDevice

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentBrightness : byte Private  [ Is static False. Containment is Not Specified. ] |
| currentColor : byte Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| deviceID : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| status : int Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

| **OPERATIONS** |
| --- |
| turnOff () : void Public  Properties:  ea\_guid = {B1CB2666-E135-42ad-B3C8-FCB4C49ED2FE}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| turnOn () : void Public  Properties:  ea\_guid = {41EC6555-7224-4e9c-B4F8-2D7079D34747}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| updateFirmware () : void Public  Properties:  ea\_guid = {99322E0D-0096-43f5-A38D-6B9F486AFD00}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***User***

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***InteractionFragment2***

*InteractionFragment in package 'SequencePackage'*

InteractionFragment2

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from 'User' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'updateFirmware()'** from 'UserInterface' sent to 'IoTLightingDevice'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 '"Firmware Update Failed"'** from 'IoTLightingDevice' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 '"Firmware Update Successful"'** from 'IoTLightingDevice' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

### **IoT 기기 제어**

*UseCase in package 'UsecasePackage'*

<개요>

사용자가 IoT 조명 기기를 수동 또는 자동 설정을 통해 제어할 수 있도록 함.

<관련 액터>

사용자

<우선순위>

높음

IoT 기기 제어

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Performance. 성능, 안정성, 보안성  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path  사용자가 대시보드에서 기기를 선택함.  사용자가 전원 켜기/끄기, 밝기 및 색상 설정을 조정할 수 있음. |
| Alternate. Alternate Path  기기가 오프라인일 경우, 시스템은 사용자에게 상태를 알림. |

|  |
| --- |
| Exception. Exception Path  제어 변경 중 시스템 오류 발생 시 재시도 요청. |

| **CONSTRAINTS** |
| --- |
| Post-condition. 기기에 원하는 설정이 적용됨  [ Approved, Weight is 0. ] |
| Pre-condition. 기기가 등록되고 온라인 상태임  [ Approved, Weight is 0. ] |

| **CONNECTORS** |
| --- |
| **Include** «include» Source -> Destination  From: IoT 기기 제어 : UseCase, Public  To: 시스템 로그인 : UseCase, Public |
| **Include** «include» Source -> Destination  From: IoT 기기 제어 : UseCase, Public  To: 조명 On/Off : UseCase, Public |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) IoT 기기 제어 |

#### ***IoT 기기 제어 diagram***

*Interaction diagram in package 'UsecasePackage'*

IoT 기기 제어

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



IoT 기기 제어

#### ***IoTLightingDevice***

*Class in package 'ClassPackage'*

IoTLightingDevice

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentBrightness : byte Private  [ Is static False. Containment is Not Specified. ] |
| currentColor : byte Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| deviceID : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| status : int Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

| **OPERATIONS** |
| --- |
| turnOff () : void Public  Properties:  ea\_guid = {B1CB2666-E135-42ad-B3C8-FCB4C49ED2FE}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| turnOn () : void Public  Properties:  ea\_guid = {41EC6555-7224-4e9c-B4F8-2D7079D34747}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| updateFirmware () : void Public  Properties:  ea\_guid = {99322E0D-0096-43f5-A38D-6B9F486AFD00}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***User***

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from 'User' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'turnOn()'** from 'UserInterface' sent to 'IoTLightingDevice'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 '"Device Turned On"'** from 'IoTLightingDevice' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 'displayStauts()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

### **게임 환경 임의설정**

*UseCase in package 'UsecasePackage'*

<개요>사용자가 게임 장르에 맞는 조명 설정을 사전에 저장하고 불러오는 기능.

<관련 액터>

사용자

<우선순위>

중간

게임 환경 임의설정

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Validate. 신뢰성, 가용성  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path   1. 사용자가 설정 메뉴에서 게임 장르 또는 테마에 맞는 조명 설정을 선택. 2. 사용자 맞춤 조명 패턴 및 색상 설정을 저장. 3. 게임 시작 시, 해당 설정을 불러와 자동 적용. |
| Alternate. Alternate Path  사용자가 이미 존재하는 설정을 수정하여 새로운 설정을 저장. |

|  |
| --- |
| Exception. Exception Path  설정 저장 중 오류 발생 시, 시스템이 사용자에게 오류 알림 표시. |

| **CONSTRAINTS** |
| --- |
| Post-condition. 설정된 조명이 게임 시작 시 적용되어야 함.  [ Approved, Weight is 0. ] |
| Pre-condition. 사전 설정 메뉴에서 조명 설정을 저장해야 함.  [ Approved, Weight is 0. ] |

| **CONNECTORS** |
| --- |
| **Extend** «extend» Source -> Destination  From: 게임 환경 임의설정 : UseCase, Public  To: 게임 환경 자동설정 : UseCase, Public |
| **Extend** «extend» Source -> Destination  From: 조명 환경 설정 추가 : UseCase, Public  To: 게임 환경 임의설정 : UseCase, Public |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) 게임 환경 임의설정 |

#### ***게임 환경 임의설정 diagram***

*Interaction diagram in package 'UsecasePackage'*

게임 환경 임의설정

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



게임 환경 임의설정

#### ***LightingConfiguration***

*Class in package 'ClassPackage'*

LightingConfiguration

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| brightnessPattern : Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| colorPattern : Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| presetID : Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| loadPreset () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| savePreset () : void Public  Properties:  ea\_guid = {49B0FAD1-DC8D-48be-BEF3-A31F2D7F7241}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***User***

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from 'User' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'savePreset()'** from 'UserInterface' sent to 'LightingConfiguration'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 '"Preset Saved"'** from 'LightingConfiguration' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

### **게임 환경 자동설정**

*UseCase in package 'UsecasePackage'*

<개요>

게임 환경에 따라 방의 조명을 자동으로 변경함.

<관련 액터>

게임 환경

<우선순위>

높음

게임 환경 자동설정

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Performance. 성능, 신뢰성  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path  시스템이 게임 환경의 변화를 감지함(예: 동굴, 건물).  시스템이 조명 색상과 밝기를 1초 이내로 조정함. |
| Alternate. Alternate Path  게임이 동적 조명을 지원하지 않는 경우, 기본 설정이 적용됨. |

|  |
| --- |
| Exception. Exception Path  조명 조절 실패 시 오류를 기록하고 이전 상태로 복원. |

| **CONSTRAINTS** |
| --- |
| Post-condition. 조명 설정이 게임 환경과 일치함.  [ Approved, Weight is 0. ] |
| Pre-condition. 기기가 등록되고 게임이 호환 가능함.  [ Approved, Weight is 0. ] |

| **CONNECTORS** |
| --- |
| **Extend** «extend» Source -> Destination  From: 게임 환경 임의설정 : UseCase, Public  To: 게임 환경 자동설정 : UseCase, Public |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) 게임 환경 자동설정 | Target: Public (Actor) 게임 환경 |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) 게임 환경 자동설정 | Target: Public (Actor) IoT 조명 기기 |

#### ***게임 환경 자동설정 diagram***

*Interaction diagram in package 'UsecasePackage'*

게임 환경 자동설정

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



게임 환경 자동설정

#### ***GameEnvironment***

*Class in package 'ClassPackage'*

GameEnvironment

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentGame : Private  [ Is static False. Containment is Not Specified. ] |
| environmentSettings : Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) synchronizes | |
| Source: Public environment (Class) GameEnvironment  Cardinality: [1] | Target: Public syncController (Class) GameSyncController  Cardinality: [1] |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| analyzeGameState () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| fetchGameData () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***GameSyncController***

*Class in package 'ClassPackage'*

GameSyncController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) synchronizes | |
| Source: Public environment (Class) GameEnvironment  Cardinality: [1] | Target: Public syncController (Class) GameSyncController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| syncWithGame () : void Public  Properties:  ea\_guid = {8A367939-2EEC-4419-A0D6-9406654767C2}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| triggerLightingChange () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***IoTLightingDevice***

*Class in package 'ClassPackage'*

IoTLightingDevice

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentBrightness : byte Private  [ Is static False. Containment is Not Specified. ] |
| currentColor : byte Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| deviceID : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| status : int Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

| **OPERATIONS** |
| --- |
| turnOff () : void Public  Properties:  ea\_guid = {B1CB2666-E135-42ad-B3C8-FCB4C49ED2FE}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| turnOn () : void Public  Properties:  ea\_guid = {41EC6555-7224-4e9c-B4F8-2D7079D34747}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| updateFirmware () : void Public  Properties:  ea\_guid = {99322E0D-0096-43f5-A38D-6B9F486AFD00}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***LightingController***

*Class in package 'ClassPackage'*

LightingController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) records | |
| Source: Public log (Class) AnalysisData  Cardinality: [0..1] | Target: Public eventGenerator (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| adjustLighting () : void Public  Properties:  ea\_guid = {5E02FEDA-B57D-4ac0-B020-B4B1C62AD37A}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| applyUserSettings () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'syncWithGame()'** from 'GameEnvironment' sent to 'GameSyncController'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'triggerLightingChange()'** from 'GameSyncController' sent to 'LightingController'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 'adjustingLighting()'** from 'LightingController' sent to 'IoTLightingDevice'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 ''** from 'IoTLightingDevice' sent to 'LightingController'.  Synchronous Call. Returns "Lighting Adjusted".  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 ''** from 'LightingController' sent to 'GameSyncController'.  Synchronous Call. Returns "Lighting Adjusted".  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 ''** from 'GameSyncController' sent to 'GameEnvironment'.  Synchronous Call. Returns "Lighting Synced".  [ Return is False. Iteration is False. New group is False. ] |

### **시스템 로그인**

*UseCase in package 'UsecasePackage'*

<개요>

사용자가 시스템에 접근할 수 있도록 인증 절차를 제공.

<관련 액터>

사용자

<우선순위>

높음

시스템 로그인

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Validate. 보안성, 신뢰성  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path   1. 사용자가 ID와 비밀번호를 입력하여 로그인 시도. 2. 시스템이 사용자 정보를 확인하여 인증. 3. 인증이 성공하면 시스템에 접근 권한 부여. |
| Alternate. Alternate Path  사용자가 비밀번호를 잊어버린 경우, 비밀번호 재설정 절차를 안내. |

|  |
| --- |
| Exception. Exception Path  인증 실패 시, 사용자에게 오류 메시지를 표시하고 로그인 재시도 기회 제공. |

| **CONSTRAINTS** |
| --- |
| Post-condition. 사용자에게 시스템 기능 접근 권한 부여.  [ Approved, Weight is 0. ] |
| Pre-condition. 시스템 접근 전, ID와 비밀번호를 알고 있어야 함.  [ Approved, Weight is 0. ] |

| **CONNECTORS** |
| --- |
| **Include** «include» Source -> Destination  From: IoT 기기 등록 : UseCase, Public  To: 시스템 로그인 : UseCase, Public |
| **Include** «include» Source -> Destination  From: IoT 기기 제어 : UseCase, Public  To: 시스템 로그인 : UseCase, Public |

#### ***시스템 로그인 diagram***

*Interaction diagram in package 'UsecasePackage'*

시스템 로그인

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



시스템 로그인

#### ***SystemController***

*Class in package 'ClassPackage'*

SystemController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| handleDeviceRegistration (deviceID : char ) : boolean Public  Properties:  ea\_guid = {3DC63AB9-F33B-4aec-8010-97976E26D272}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| manageLogin (id : char , password : char ) : boolean Public  Properties:  ea\_guid = {447D8E5D-C22C-4944-8A89-BBC901CD0D5E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***User***

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***InteractionFragment4***

*InteractionFragment in package 'SequencePackage'*

InteractionFragment4

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from 'User' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'manageLogin(char, char)'** from 'UserInterface' sent to 'SystemController'.  Synchronous Call. Returns boolean.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 ''** from 'SystemController' sent to 'UserInterface'.  Synchronous Call. Returns true.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 ''** from 'SystemController' sent to 'UserInterface'.  Synchronous Call. Returns false.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

### **조명 On/Off**

*UseCase in package 'UsecasePackage'*

<개요>

사용자가 IoT 조명을 켜거나 끌 수 있는 기본 기능.

<관련 액터>

사용자, IoT 조명 기기

<우선순위>

높음

조명 On/Off

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Performance. 성능, 신뢰성  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path   1. 시스템이 선택된 IoT 기기의 전원을 켜거나 끔. 2. 조명 상태가 변경되면 사용자에게 알림. |
| Alternate. Alternate Path  사용자가 모바일 앱을 통해 On/Off 기능을 실행. |

|  |
| --- |
| Exception. Exception  네트워크 오류 발생 시 조명 상태 변경이 실패하고 사용자에게 오류 알림 표시. |

| **CONSTRAINTS** |
| --- |
| Post-condition. IoT 기기의 상태가 사용자가 요청한 대로 유지되어야 함.  [ Approved, Weight is 0. ] |
| Pre-condition. 시스템에 로그인하여 조명 제어 권한을 얻어야 함.  [ Approved, Weight is 0. ] |

| **CONNECTORS** |
| --- |
| **Include** «include» Source -> Destination  From: IoT 기기 제어 : UseCase, Public  To: 조명 On/Off : UseCase, Public |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (UseCase) 조명 On/Off | Target: Public (Actor) IoT 조명 기기 |

#### ***조명 Off diagram***

*Interaction diagram in package 'UsecasePackage'*

조명 Off

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



조명 Off

#### ***IoTLightingDevice***

*Class in package 'ClassPackage'*

IoTLightingDevice

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentBrightness : byte Private  [ Is static False. Containment is Not Specified. ] |
| currentColor : byte Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| deviceID : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| status : int Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

| **OPERATIONS** |
| --- |
| turnOff () : void Public  Properties:  ea\_guid = {B1CB2666-E135-42ad-B3C8-FCB4C49ED2FE}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| turnOn () : void Public  Properties:  ea\_guid = {41EC6555-7224-4e9c-B4F8-2D7079D34747}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| updateFirmware () : void Public  Properties:  ea\_guid = {99322E0D-0096-43f5-A38D-6B9F486AFD00}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***LightingController***

*Class in package 'ClassPackage'*

LightingController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) records | |
| Source: Public log (Class) AnalysisData  Cardinality: [0..1] | Target: Public eventGenerator (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| adjustLighting () : void Public  Properties:  ea\_guid = {5E02FEDA-B57D-4ac0-B020-B4B1C62AD37A}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| applyUserSettings () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***User***

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from 'User' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'adjustLighting()'** from 'UserInterface' sent to 'LightingController'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 'turnOff()'** from 'LightingController' sent to 'IoTLightingDevice'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 ''** from 'IoTLightingDevice' sent to 'LightingController'.  Synchronous Call. Returns "Light Off".  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 ''** from 'LightingController' sent to 'UserInterface'.  Synchronous Call. Returns "Light Off".  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

#### ***조명 On diagram***

*Interaction diagram in package 'UsecasePackage'*

조명 On

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



조명 On

#### ***IoTLightingDevice***

*Class in package 'ClassPackage'*

IoTLightingDevice

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentBrightness : byte Private  [ Is static False. Containment is Not Specified. ] |
| currentColor : byte Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| deviceID : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| status : int Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

| **OPERATIONS** |
| --- |
| turnOff () : void Public  Properties:  ea\_guid = {B1CB2666-E135-42ad-B3C8-FCB4C49ED2FE}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| turnOn () : void Public  Properties:  ea\_guid = {41EC6555-7224-4e9c-B4F8-2D7079D34747}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| updateFirmware () : void Public  Properties:  ea\_guid = {99322E0D-0096-43f5-A38D-6B9F486AFD00}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***LightingController***

*Class in package 'ClassPackage'*

LightingController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) records | |
| Source: Public log (Class) AnalysisData  Cardinality: [0..1] | Target: Public eventGenerator (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| adjustLighting () : void Public  Properties:  ea\_guid = {5E02FEDA-B57D-4ac0-B020-B4B1C62AD37A}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| applyUserSettings () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***User***

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from 'User' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'adjustLighting()'** from 'UserInterface' sent to 'LightingController'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 'turnOn()'** from 'LightingController' sent to 'IoTLightingDevice'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 ''** from 'IoTLightingDevice' sent to 'LightingController'.  Synchronous Call. Returns "Light On".  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 ''** from 'LightingController' sent to 'UserInterface'.  Synchronous Call. Returns "Light On".  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

### **조명 변화 기록 및 분석**

*UseCase in package 'UsecasePackage'*

<개요>

시스템이 게임 환경에 따른 조명 변화를 기록하고 사용자에게 분석 결과를 제공.

<관련 액터>

사용자, IoT 조명 기기

<우선순위>

중간

조명 변화 기록 및 분석

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **RESPONSIBILITIES (INTERNAL REQUIREMENTS)** |
| --- |
| Performance. 신뢰성  [ Proposed, Medium difficulty. ] |

| **SCENARIOS** |
| --- |
| Basic Path. Basic Path   1. 사용자가 게임을 시작하면 시스템이 조명 변화를 기록하기 시작. 2. 시스템은 각 게임 환경에 따라 조명 색상, 밝기 등의 변화를 저장. 3. 사용자가 분석 결과를 요청하면 시스템이 기록 데이터를 분석하여 사용자에게 제공. |
| Alternate. Alternate Path  사용자가 분석 기능을 비활성화할 경우, 기록이 저장되지 않음. |

|  |
| --- |
| Exception. Exception Path  기록 저장 중 오류 발생 시, 시스템이 자동 복구를 시도하거나 사용자에게 오류 알림 표시. |

| **CONSTRAINTS** |
| --- |
| Post-condition. 조명 변화 데이터가 기록되어 분석 결과를 제공 가능해야 함.  [ Approved, Weight is 0. ] |
| Pre-condition. 사용자가 게임을 실행 중이어야 함.  [ Approved, Weight is 0. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) | |
| Source: Public (Actor) IoT 조명 기기 | Target: Public (UseCase) 조명 변화 기록 및 분석 |
| Association (direction: Unspecified) | |
| Source: Public (Actor) 사용자 | Target: Public (UseCase) 조명 변화 기록 및 분석 |

#### ***조명 변화 기록 및 분석 diagram***

*Interaction diagram in package 'UsecasePackage'*

조명 변화 기록 및 분석

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



조명 변화 기록 및 분석

#### ***AnalysisData***

*Class in package 'ClassPackage'*

AnalysisData

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| changeLogs : Private  [ Is static False. Containment is Not Specified. ] |
| performanceMetrics : Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) records | |
| Source: Public log (Class) AnalysisData  Cardinality: [0..1] | Target: Public eventGenerator (Class) LightingController  Cardinality: [1] |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

| **OPERATIONS** |
| --- |
| generateReport () : void Public  Properties:  ea\_guid = {3571F080-717F-43fc-A3F9-E2D9D8BCACB1}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| recordChanges () : void Public  Properties:  ea\_guid = {A6085099-8638-4142-9A2C-E2B6037F480D}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***GameEnvironment***

*Class in package 'ClassPackage'*

GameEnvironment

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| currentGame : Private  [ Is static False. Containment is Not Specified. ] |
| environmentSettings : Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) synchronizes | |
| Source: Public environment (Class) GameEnvironment  Cardinality: [1] | Target: Public syncController (Class) GameSyncController  Cardinality: [1] |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| analyzeGameState () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| fetchGameData () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***LightingController***

*Class in package 'ClassPackage'*

LightingController

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) controls | |
| Source: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] | Target: Public lightingManager (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) changeLighting | |
| Source: Public gameEnvironment (Class) GameEnvironment  Cardinality: [1..\*] | Target: Public lightingController (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) records | |
| Source: Public log (Class) AnalysisData  Cardinality: [0..1] | Target: Public eventGenerator (Class) LightingController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| adjustLighting () : void Public  Properties:  ea\_guid = {5E02FEDA-B57D-4ac0-B020-B4B1C62AD37A}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| applyUserSettings () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***User***

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***InteractionFragment3***

*InteractionFragment in package 'SequencePackage'*

InteractionFragment3

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'adjustLighting()'** from 'GameEnvironment' sent to 'LightingController'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'recordChanges()'** from 'LightingController' sent to 'AnalysisData'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 'acceptUserInput()'** from 'User' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 'generateReport()'** from 'UserInterface' sent to 'AnalysisData'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 '"Report Generated"'** from 'AnalysisData' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

### **조명 환경 설정 추가**

*UseCase in package 'UsecasePackage'*

조명 환경 설정 추가

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

| **CONNECTORS** |
| --- |
| **Extend** «extend» Source -> Destination  From: 조명 환경 설정 추가 : UseCase, Public  To: 게임 환경 임의설정 : UseCase, Public |

#### ***조명 환경 설정 추가 diagram***

*Interaction diagram in package 'UsecasePackage'*

조명 환경 설정 추가

Version 1.0

sul10 created on 2024-11-29. Last modified 2024-11-29



조명 환경 설정 추가

#### ***LightingConfiguration***

*Class in package 'ClassPackage'*

LightingConfiguration

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| brightnessPattern : Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| colorPattern : Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| presetID : Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) applies | |
| Source: Public configurations (Class) LightingConfiguration  Cardinality: [0..\*] | Target: Public controller (Class) LightingController  Cardinality: [1] |

| **OPERATIONS** |
| --- |
| loadPreset () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| savePreset () : void Public  Properties:  ea\_guid = {49B0FAD1-DC8D-48be-BEF3-A31F2D7F7241}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***User***

*Class in package 'ClassPackage'*

User

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **ATTRIBUTES** |
| --- |
| id : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| password : char Private  [ Is static False. Containment is Not Specified. ] |

|  |
| --- |
| registeredDevices : char Private  [ Is static False. Containment is Not Specified. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) manages | |
| Source: Public owner (Class) User  Cardinality: [1] | Target: Public devices (Class) IoTLightingDevice  Cardinality: [0..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) authenticates | |
| Source: Public account (Class) User  Cardinality: [1] | Target: Public authenticator (Class) SystemController  Cardinality: [1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) provides | |
| Source: Public requester (Class) User  Cardinality: [1] | Target: Public report (Class) AnalysisData  Cardinality: [0..1] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

|  |  |
| --- | --- |
| Association (direction: Unspecified) playsIn | |
| Source: Public player (Class) User  Cardinality: [1] | Target: Public currentEnvironment (Class) GameEnvironment  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| login () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| registerDevice () : void Public  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***UserInterface***

*Interface in package 'ClassPackage'*

UserInterface

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-19. Last modified 2024-11-19

| **INCOMING STRUCTURAL RELATIONSHIPS** |
| --- |
| Generalization from MobileApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

|  |
| --- |
| Generalization from DesktopApp to UserInterface  [ Direction is 'Source -> Destination'. ] |

| **ASSOCIATIONS** | |
| --- | --- |
| Association (direction: Unspecified) interacts | |
| Source: Public user (Class) User  Cardinality: [1] | Target: Public interface (Interface) UserInterface  Cardinality: [1..\*] |

| **OPERATIONS** |
| --- |
| acceptUserInput () : void Public  Properties:  ea\_guid = {AC4EE860-B1FE-47b7-9FA4-9C36FDA08098}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

|  |
| --- |
| displayStatus () : void Public  Properties:  ea\_guid = {DC07B63C-1495-46a5-9E92-16337B3D546E}  [ Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False. ] |

#### ***InteractionFragment5***

*InteractionFragment in package 'SequencePackage'*

InteractionFragment5

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-29. Last modified 2024-11-29

|  |
| --- |
| **INTERACTION MESSAGES** |
| **1.0 'acceptUserInput()'** from 'User' sent to 'UserInterface'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |
| **1.1 'savePreset()'** from 'UserInterface' sent to 'LightingConfiguration'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.2 ''** from 'LightingConfiguration' sent to 'UserInterface'.  Synchronous Call. Returns "Preset Saved".  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.3 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.4 ''** from 'LightingConfiguration' sent to 'UserInterface'.  Synchronous Call. Returns "Save Failed".  [ Return is False. Iteration is False. New group is False. ] |

|  |
| --- |
| **1.5 'displayStatus()'** from 'UserInterface' sent to 'User'.  Synchronous Call. Returns void.  [ Return is False. Iteration is False. New group is False. ] |

*Constraint in package 'UsecasePackage'*

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12

Extends

### **InformationItem1**

*InformationItem in package 'UsecasePackage'*

InformationItem1

Version 1.0 Phase 1.0 Proposed

sul10 created on 2024-11-12. Last modified 2024-11-12