Mahidol University
Faculty of Information
and Communication Technology

Project 1
Analysis of 2 selected use cases

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Use Case Narrative

Use Case Name	Create a Science Plan
Goal in Context	Allow astronomers to create scientific plans for arranging telescope observation tasks and store the plans for subsequent execution.
Primary Actor	Astronomer
Secondary Actor	• - Gemini Telescope System • - Science Database
Precondition	• The user must have an account and be logged into the system. • Users must have permission to create scientific plans. • The telescope system and database must be available for storing scientific plans.
Trigger	Astronomers choose the "Create Science Plan" function.

Scenario (Typical Flows of Events)	1. Astronomers log in to the system. 2. Astronomers choose the "Create Science Plan" function. 3. The system displays the scientific plan input interface. 4. Astronomers input detailed information such as plan name, observation target, observation time window, etc. 5. Astronomers choose appropriate observation modes and telescope configurations. 6. Verify the input data and save the scientific plan to the database. 7. The system confirms the successful creation of the scientific plan and displays a confirmation message to the user.
Exceptions	● Incomplete or incorrect input data: The system prompts the user to correct the error and resubmit the scientific plan. ● Database unavailable: The system displays an error message to the user and allows a retry later.
Post-condition	The scientific plan is stored in the system database and available for subsequent execution.

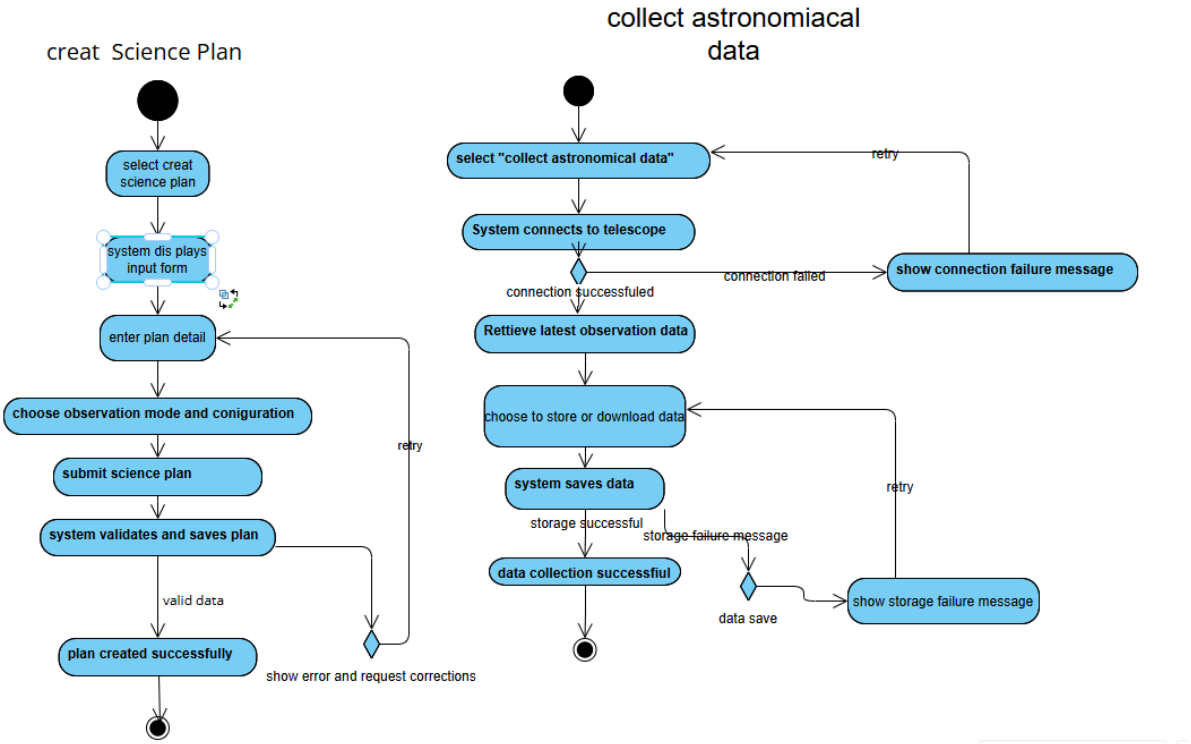
Use Case Narrative

Use Case Name	Collect Astronomical Data
Goal in Context	Assist astronomers in collecting data
Primary Actor	Science Observer
Secondary Actor	● - Gemini Telescope System

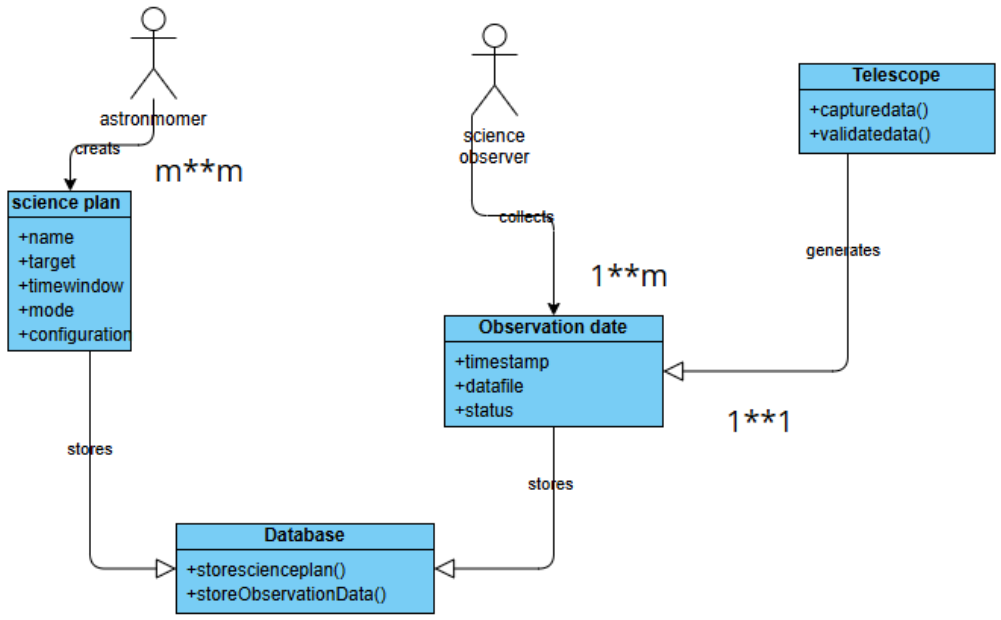
	• - Science Database
Precondition	• The user must have an account and be logged into the system. • Users must have permission to create scientific plans. • The telescope system and database must be available for storing scientific plans.
Trigger	The scientific observer selects the "Collect Astronomical Data" function.
Scenario (Typical Flows of Events)	1. Scientific observers log in to the system. 2. The observer selects the "Collect Astronomical Data" function. 3. The system requests the telescope to provide the latest observation data. 4. The telescope system returns observation data to the system. 5. The system displays a summary of data, including observation time, data file name, and data status. 6. Observers choose to store or download data. 7. The system stores data in a scientific database and confirms successful data storage.
Exceptions	• Connect to telescope data module: The system prompts a successful connection and allows the observer to operate. • Data storage successful: The system displays the stored data to the user

Post-condition	The observation data is stored in the system database for subsequent analysis.

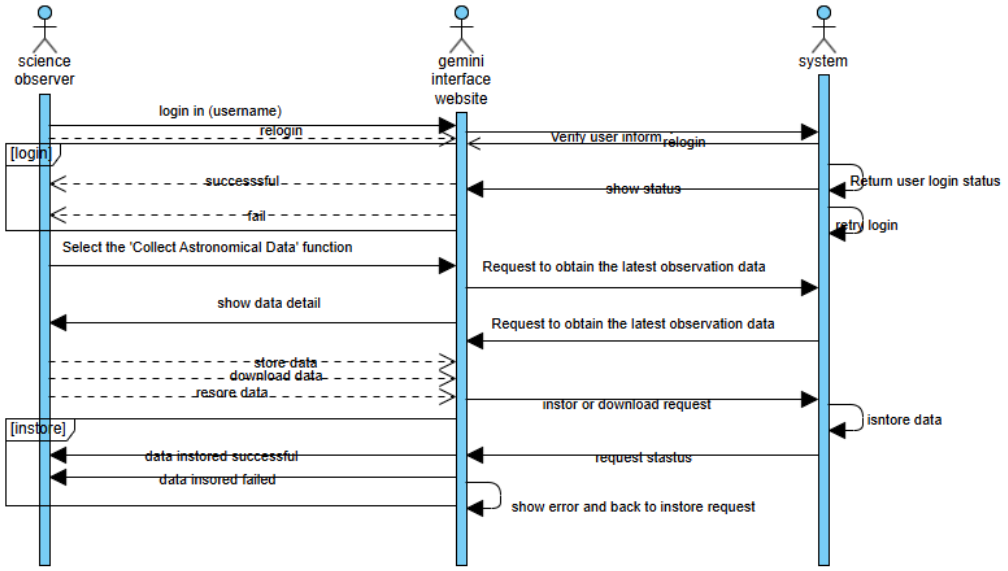
Activity diagram:



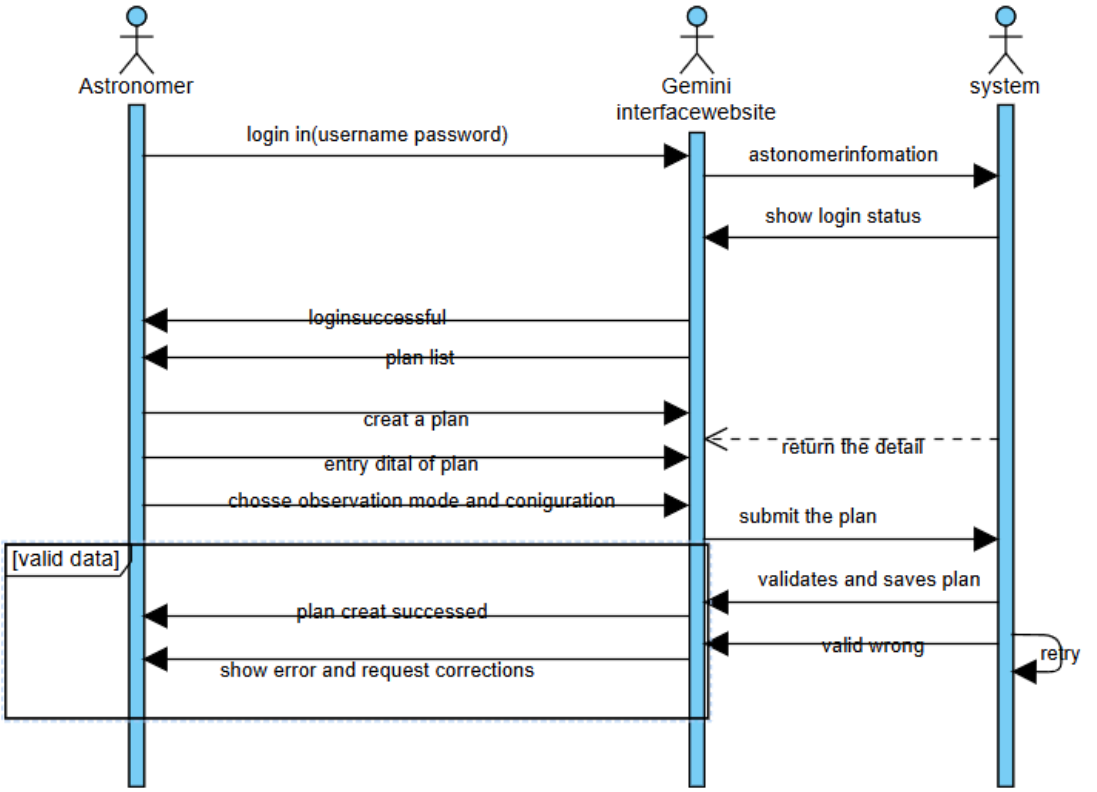
Class diagram:



Sequence Diagram:



Collect astronomical data sequence diagram



Creat Science Plansequence diagram