**Usecase ID:** UC\_001  
**Usecase Name:** Register (Add) Users  
**Actors:** Administrator  
**Importance Level:** High  
**Usecase Description:**  
This use case enables administrators to register new users into the system.  
**Pre-condition:**  
The administrator must be logged into the system.  
**Post-condition:**  
The new user is successfully registered in the system.

**Basic Course of Action:**

1. The administrator accesses the system by visiting the website (Get Web).
2. The administrator logs into the system using their credentials.
3. After successful login, the administrator navigates to the specified button for registering users.
4. The administrator enters the new user's details (username, password, role, security level).
5. The system validates the entered data.
6. If the data is valid, the system registers the new user.

**Alternative Course of Action:**  
If the entered username is already in use:

1. The system prompts the administrator to choose a different username.
2. The administrator selects a unique username for the new user.
3. The system revalidates the entered data.
4. If the data is now valid, the system registers the new user.
5. If the data remains invalid, the system displays an error message, and the process stops.

**Relationship:**

1. Generalization: None
2. Association: Admin
3. Include: None
4. Extends: None

**Usecase ID:** UC\_002  
**Usecase Name:** Login  
**Actors:** All Users (Administrator, Analyst, Operator, First Responder)  
**Importance Level:** High  
**Usecase Description:**  
This use case enables users to log into the system using their credentials.  
**Pre-condition:**  
The user must access the system interface (e.g., website).  
**Post-condition:**  
The user is successfully logged into the system.

**Basic Course of Action:**

1. The user accesses the system by visiting the website (Get Web).
2. The user enters their username and password.
3. The system validates the entered credentials.
4. If the credentials are correct, the system logs the user into the system interface.

**Alternative Course of Action:**  
If the entered credentials are incorrect:

1. The system displays an error message indicating invalid credentials.
2. The user is prompted to re-enter their username and password.
3. The user re-enters their credentials.
4. Steps 3-4 are repeated until the correct credentials are provided, or the user chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: All Users (Administrator, Analyst, Operator, First Responder)
3. Include: None
4. Extends: None

**Usecase ID:** UC\_003  
**Usecase Name:** Logout  
**Actors:** All Users (Administrator, Analyst, Operator, First Responder)  
**Importance Level:** Medium  
**Usecase Description:**  
This use case enables users to log out of the system, terminating their current session.  
**Pre-condition:**  
The user must be logged into the system.  
**Post-condition:**  
The user is successfully logged out of the system.

**Basic Course of Action:**

1. The user selects the option to log out from the system interface.
2. The system terminates the user's session and redirects them to the login page.

**Alternative Course of Action:**  
None.

**Relationship:**

1. Generalization: None
2. Association: All Users (Administrator, Analyst, Operator, First Responder)
3. Include: None
4. Extends: None

**Usecase ID:** UC\_004  
**Usecase Name:** Generating Reports  
**Actors:** Analyst  
**Importance Level:** High  
**Usecase Description:**  
This use case enables analysts to generate reports based on surveillance findings, spatial analysis results, and causality insights.  
**Pre-condition:**  
The analyst must be logged into the system.  
**Post-condition:**  
The report is successfully generated.

**Basic Course of Action:**

1. The analyst accesses the system by visiting the website (Get Web).
2. The analyst logs into the system using their credentials.
3. After successful login, the analyst navigates to the specified button for generating reports.
4. The analyst enters the required report details and findings into the designated fields.
5. The system validates the entered data.
6. If the data is complete, the system generates the report.

**Alternative Course of Action:**  
If the entered data is incomplete or invalid:

1. The system prompts the analyst to correct the errors in the entered data.
2. The analyst corrects the errors and resubmits the report details.
3. The system revalidates the corrected data.
4. If the data is now complete and valid, the system generates the report.
5. If the data remains incomplete or invalid, the system displays an error message, and the process stops.

**Relationship:**

1. Generalization: None
2. Association: Analyst
3. Include: Identify Correlations and Trends to Feed the AI, Configure Parameters
4. Extends: None

**Usecase ID:** UC\_005  
**Usecase Name:** Analyze Footage  
**Actors:** Analyst  
**Importance Level:** High  
**Usecase Description:**  
This use case enables analysts to analyze footage captured by surveillance systems.  
**Pre-condition:**  
The analyst must be logged into the system.  
**Post-condition:**  
The footage is successfully analyzed by the analyst.

**Basic Course of Action:**

1. The analyst accesses the system by visiting the website (Get Web).
2. The analyst logs into the system using their credentials.
3. After successful login, the analyst navigates to the specified button for analyzing footage.
4. The analyst selects the footage to be analyzed from the available options.
5. The system processes the selected footage for analysis.

**Alternative Course of Action:**  
If the selected footage is corrupt or inaccessible:

1. The system displays an error message indicating the issue with the footage.
2. The analyst selects an alternative footage for analysis.
3. Steps 4-5 are repeated until a suitable footage is selected, or the analyst chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: Analyst
3. Include: None
4. Extends: Send Compressed Footage (Image)

**Usecase ID:** UC\_006  
**Usecase Name:** Conduct Data Mining  
**Actors:** Analyst  
**Importance Level:** High  
**Usecase Description:**  
This use case enables analysts to conduct data mining operations on the system's database.  
**Pre-condition:**  
The analyst must be logged into the system.  
**Post-condition:**  
The data mining operation is successfully completed by the analyst.

**Basic Course of Action:**

1. The analyst accesses the system by visiting the website (Get Web).
2. The analyst logs into the system using their credentials.
3. After successful login, the analyst navigates to the specified button for conducting data mining.
4. The analyst enters the search criteria for the data mining operation.
5. The system processes the entered criteria and retrieves relevant data.

**Alternative Course of Action:**  
If the entered search criteria yield no results:

1. The system displays a message indicating that no data matches the specified criteria.
2. The analyst modifies the search criteria to broaden the search.
3. Steps 4-5 are repeated until relevant data is retrieved, or the analyst chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: Analyst
3. Include: None
4. Extends: Send Compressed Footage (Image)

**Usecase ID:** UC\_007  
**Usecase Name:** Extract Image from Satellite Image Module  
**Actors:** Analyst  
**Importance Level:** Medium  
**Usecase Description:**  
This use case enables analysts to extract images from the satellite image processing module for further analysis.  
**Pre-condition:**  
The analyst must be logged into the system.  
**Post-condition:**  
The image is successfully extracted from the satellite image processing module.

**Basic Course of Action:**

1. The analyst accesses the system by visiting the website (Get Web).
2. The analyst logs into the system using their credentials.
3. After successful login, the analyst navigates to the specified button for extracting images.
4. The analyst selects the desired image from the satellite image processing module.
5. The system retrieves and displays the selected image for further analysis.

**Alternative Course of Action:**  
If the selected image is unavailable or corrupt:

1. The system displays an error message indicating the issue with the image.
2. The analyst selects an alternative image for extraction.
3. Steps 4-5 are repeated until a suitable image is selected, or the analyst chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: Analyst
3. Include: None
4. Extends: None

**Usecase ID:** UC\_008  
**Usecase Name:** Identify Correlations and Trends to Feed the AI  
**Actors:** Analyst  
**Importance Level:** High  
**Usecase Description:**  
This use case enables analysts to identify correlations and trends in surveillance data to improve AI algorithms.  
**Pre-condition:**  
The analyst must be logged into the system.  
**Post-condition:**  
The correlations and trends are successfully identified and fed into the AI algorithms.

**Basic Course of Action:**

1. The analyst accesses the system by visiting the website (Get Web).
2. The analyst logs into the system using their credentials.
3. After successful login, the analyst navigates to the specified button for identifying correlations and trends.
4. The analyst selects the relevant data sets for analysis.
5. The system processes the selected data sets to identify correlations and trends.

**Alternative Course of Action:**  
If the selected data sets are insufficient or irrelevant:

1. The system displays a message indicating that the selected data sets are not suitable for analysis.
2. The analyst selects alternative data sets for analysis.
3. Steps 4-5 are repeated until suitable data sets are selected, or the analyst chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: Analyst
3. Include: None
4. Extends: None

**Usecase ID:** UC\_009  
**Usecase Name:** Access and Review Reports  
**Actors:** Operator  
**Importance Level:** High  
**Usecase Description:**  
This use case enables operators to access and review generated reports within the system.  
**Pre-condition:**  
The operator must be logged into the system.  
**Post-condition:**  
The operator successfully accesses and reviews the requested reports.

**Basic Course of Action:**

1. The operator accesses the system by visiting the website (Get Web).
2. The operator logs into the system using their credentials.
3. After successful login, the operator navigates to the specified button for accessing reports.
4. The operator selects the desired report from the available options.
5. The system retrieves and displays the selected report for review by the operator.

**Alternative Course of Action:**  
If the selected report is unavailable or inaccessible:

1. The system displays an error message indicating the issue with accessing the report.
2. The operator selects an alternative report for review.
3. Steps 4-5 are repeated until a suitable report is selected, or the operator chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: Operator
3. Include: Set Casualty Rate
4. Extends: None

**Usecase ID:** UC\_010  
**Usecase Name:** Set Casualty Rate  
**Actors:** Operator  
**Importance Level:** Medium  
**Usecase Description:**  
This use case enables operators to set the casualty rate threshold within the system.  
**Pre-condition:**  
The operator must be logged into the system.  
**Post-condition:**  
The casualty rate threshold is successfully set within the system.

**Basic Course of Action:**

1. The operator accesses the system by visiting the website (Get Web).
2. The operator logs into the system using their credentials.
3. After successful login, the operator navigates to the specified button for setting the casualty rate.
4. The operator enters the desired casualty rate threshold into the designated field.
5. The system validates the entered threshold and updates the casualty rate accordingly.

**Alternative Course of Action:**  
If the entered threshold is invalid or out of range:

1. The system displays an error message indicating the issue with the entered threshold.
2. The operator adjusts the threshold to fall within the valid range.
3. Steps 4-5 are repeated until a valid threshold is entered, or the operator chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: Operator
3. Include: None
4. Extends: None

**Usecase ID:** UC\_011  
**Usecase Name:** Assign First Responders  
**Actors:** Operator  
**Importance Level:** High  
**Usecase Description:**  
This use case enables operators to assign first responders to specific incidents or tasks within the system.  
**Pre-condition:**  
The operator must be logged into the system.  
**Post-condition:**  
First responders are successfully assigned to the specified incidents or tasks.

**Basic Course of Action:**

1. The operator accesses the system by visiting the website (Get Web).
2. The operator logs into the system using their credentials.
3. After successful login, the operator navigates to the specified button for assigning first responders.
4. The operator selects the incident or task to which first responders need to be assigned.
5. The operator assigns the appropriate first responders to the selected incident or task.

**Alternative Course of Action:**  
If the selected incident or task has no available first responders:

1. The system displays a message indicating that no first responders are currently available.
2. The operator selects an alternative incident or task for assignment.
3. Steps 4-5 are repeated until first responders are successfully assigned, or the operator chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: Operator
3. Include: None
4. Extends: Access and Review Reports

**Usecase ID:** UC\_012  
**Usecase Name:** Access Report  
**Actors:** First Responder  
**Importance Level:** High  
**Usecase Description:**  
This use case enables first responders to access and view reports related to specific incidents or tasks within the system.  
**Pre-condition:**  
The first responder must be logged into the system.  
**Post-condition:**  
The first responder successfully accesses and views the requested reports.

**Basic Course of Action:**

1. The first responder accesses the system by visiting the website (Get Web).
2. The first responder logs into the system using their credentials.
3. After successful login, the first responder navigates to the specified button for accessing reports.
4. The first responder selects the desired report from the available options.
5. The system retrieves and displays the selected report for viewing by the first responder.

**Alternative Course of Action:**  
If the selected report is unavailable or inaccessible:

1. The system displays an error message indicating the issue with accessing the report.
2. The first responder selects an alternative report for viewing.
3. Steps 4-5 are repeated until a suitable report is selected, or the first responder chooses to exit.

**Relationship:**

1. Generalization: None
2. Association: First Responder
3. Include: None
4. Extends: Save Report

**Usecase ID:** UC\_013  
**Usecase Name:** Save Report  
**Actors:** First Responder  
**Importance Level:** Medium  
**Usecase Description:**  
This use case enables first responders to save reports related to specific incidents or tasks within the system.  
**Pre-condition:**  
The first responder must be logged into the system.  
**Post-condition:**  
The report is successfully saved by the first responder for future reference.

**Basic Course of Action:**

1. The first responder accesses the system by visiting the website (Get Web).
2. The first responder logs into the system using their credentials.
3. After successful login, the first responder navigates to the specified button for saving reports.
4. The first responder selects the report to be saved from the available options.
5. The first responder saves the selected report to their designated folder or location within the system.

**Alternative Course of Action:**  
If the selected report cannot be saved due to system error:

1. The system displays an error message indicating the issue with saving the report.
2. The first responder attempts to save the report again.
3. If the issue persists, the first responder contacts the system administrator for assistance.

**Relationship:**

1. Generalization: None
2. Association: First Responder
3. Include: None
4. Extends: None

**Usecase ID:** UC\_014  
**Usecase Name:** Raise Issue to Operator  
**Actors:** First Responder  
**Importance Level:** High  
**Usecase Description:**  
This use case enables first responders to raise issues or concerns to the operator for further action within the system.  
**Pre-condition:**  
The first responder must be logged into the system.  
**Post-condition:**  
The issue or concern raised by the first responder is successfully communicated to the operator for resolution.

**Basic Course of Action:**

1. The first responder accesses the system by visiting the website (Get Web).
2. The first responder logs into the system using their credentials.
3. After successful login, the first responder navigates to the specified button for raising issues.
4. The first responder describes the issue or concern in detail in the provided form or dialogue box.
5. The system notifies the operator about the raised issue or concern.

**Alternative Course of Action:**  
If the issue cannot be raised due to system error:

1. The system displays an error message indicating the issue with raising the concern.
2. The first responder contacts the operator directly via alternative communication channels (e.g., phone, email) to report the issue.
3. If necessary, the first responder escalates the issue to higher authorities within the organization.

**Relationship:**

1. Generalization: None
2. Association: First Responder
3. Include: None
4. Extends: None

**Usecase ID: UC\_015 - Upload Ground Footage**

* **Actors:** First Responder
* **Importance Level:** Medium
* **Description:** First responders upload ground footage or additional evidence related to specific incidents.
* **Pre-condition:** First responder logged in.
* **Post-condition:** Footage uploaded and associated with the relevant incident.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to upload button.
  4. Select footage to upload.
  5. System processes and uploads footage.
* **Alternative Course of Action:**
  1. If files are corrupted or incompatible:
     1. System displays error.
     2. Responder selects alternative files.
     3. Repeat steps 4-5.
* **Relationship:**

1. Generalization: None
2. Association: First Responder
3. Include: None
4. Extends: None

**Usecase ID: UC\_016 - Send Searched Data**

* **Actors:** Data Mining Engine
* **Importance Level:** High
* **Description:** Engine sends searched data results to requesting user or component.
* **Pre-condition:** Engine has database access.
* **Post-condition:** Searched data successfully transmitted.
* **Basic Course of Action:**
  1. Receive search query.
  2. Process query against database.
  3. Retrieve relevant data.
  4. Format and transmit results.
* **Alternative Course of Action:**
  1. If query execution fails:
     1. Engine generates error.
     2. User refines query or contacts admin.
* **Relationship:**

1. Generalization: None
2. Association: First Responder
3. Include: None
4. Extends: Conduct Data Mining

**Usecase ID: UC\_017 - Send Compressed Footage (Image)**

* **Actors:** Satellite Image Processing Module
* **Importance Level:** High
* **Description:** The satellite image processing module sends compressed footage (image) data to the requesting user or system component.
* **Pre-condition:** The satellite image processing module has access to the relevant image data and compression algorithms.
* **Post-condition:** Compressed footage (image) data is successfully transmitted to the requesting user or system component.
* **Basic Course of Action:**
  1. Receive request for compressed footage (image).
  2. Retrieve relevant footage (image) data.
  3. Apply compression algorithm to the footage (image) data.
  4. Transmit the compressed footage (image) data to the requesting user or system component.
* **Alternative Course of Action:**
  1. If compression process fails:
     1. Generate an error message indicating the issue.
     2. Retry the compression process.
     3. If unsuccessful, notify the requesting user or system component of the failure.
* **Relationship:**

1. Generalization: None
2. Association: First Responder
3. Include: None
4. Extends: Conduct Data Mining

**Usecase ID: UC\_018 - Configure Parameters**

* **Actors:** Analyst
* **Importance Level:** Medium
* **Description:** Analysts configure system parameters to tailor the system to their needs.
* **Pre-condition:** Analyst is logged in.
* **Post-condition:** Parameters are successfully configured.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to parameter configuration.
  4. Adjust parameters as needed.
  5. Save changes.
* **Alternative Course of Action:**
  1. None.
* **Relationship:**

1. Generalization: None
2. Association: First Responder
3. Include: None
4. Extends: Conduct Data Mining

**Use case Documentation**

**Usecase ID: UC\_001 - Register (Add) Users**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Administrator |
| **Importance Level** | High |
| **Description** | Enables administrators to register new users into the system. |
| **Pre-condition** | Administrator must be logged into the system. |
| **Post-condition** | New user is successfully registered in the system. |
| **Basic Course of Action** | * 1. Access system.   2. Log in.   3. Navigate to register users.   4. Enter user details.   5. Validate and register user. |
| **Alternative Course of Action** | If username is already in use:   * + 1. Choose a different username.     2. Re-enter user details. |
| **Relationship** | Generalization: None  Association: Analyst  Include: None  Extends: |

* **Actors:** Analyst
* **Importance Level:** High
* **Description:** Administrators add new users to the system.
* **Pre-condition:** Administrator is logged in.
* **Post-condition:** New user is successfully registered.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to user registration.
  4. Enter new user details.
  5. System validates data.
  6. If valid, register new user.
* **Alternative Course of Action:**
  1. If username already exists:
     1. System prompts for unique username.
     2. Admin selects new username.
     3. Repeat steps 5-6.

**Usecase ID: UC\_002 - Login**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | All Users (Administrator, Analyst, Operator, First Responder) |
| **Importance Level** | High |
| **Description** | Enables users to log into the system using their credentials. |
| **Pre-condition** | User must access the system interface. |
| **Post-condition** | User is successfully logged into the system. |
| **Basic Course of Action** | * 1. Access system.   2. Enter username and password.   3. Validate credentials.   4. Log into system. |
| **Alternative Course of Action** | If credentials are incorrect:  1. Display error message.  2. Re-enter credentials. |
| **Relationship** | Generalization: None  Association: Administrator, Analyst, Operator, First Responder  Include: None  Extends: None |

* **Actors:** All Users
* **Importance Level:** High
* **Description:** Users log into the system.
* **Pre-condition:** User accesses system.
* **Post-condition:** User is successfully logged in.
* **Basic Course of Action:**
  1. Access system.
  2. Enter username and password.
  3. System validates credentials.
  4. If correct, user logged in.
* **Alternative Course of Action:**
  1. If credentials incorrect:
     1. System displays error.
     2. User re-enters credentials.
     3. Repeat steps 3-4.

**Usecase ID: UC\_003 - Logout**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | All Users (Administrator, Analyst, Operator, First Responder) |
| **Importance Level** | Medium |
| **Description** | Enables users to log out of the system, terminating their current session. |
| **Pre-condition** | User must be logged into the system. |
| **Post-condition** | User is successfully logged out of the system. |
| **Basic Course of Action** | * + 1. Select logout option.     2. Terminate session. |
| **Alternative Course of Action** | None. |
| **Relationship** | Generalization: None  Association: Administrator, Analyst, Operator, First Responder  Include: None  Extends: None |

* **Actors:** All Users
* **Importance Level:** Medium
* **Description:** Users log out of the system, terminating their session.
* **Pre-condition:** User is logged in.
* **Post-condition:** User is successfully logged out.
* **Basic Course of Action:**
  1. User selects logout option.
  2. System terminates session and redirects to login page.
* **Alternative Course of Action:**
  1. None.

**Usecase ID: UC\_004 - Generating Reports**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Analyst |
| **Importance Level** | High |
| **Description** | Enables analysts to generate reports based on surveillance findings, spatial analysis results, and causality insights. |
| **Pre-condition** | Analyst must be logged into the system. |
| **Post-condition** | Report is successfully generated. |
| **Basic Course of Action** | * + 1. Access system.     2. Log in.     3. Navigate to generate report.     4. Enter report details.     5. Validate and generate report. |
| **Alternative Course of Action** | If entered data is incomplete or invalid:  1. Prompt analyst to correct errors.  2. Correct errors and resubmit. |
| **Relationship** | Generalization: None  Association: Analyst  Include: Identify Correlations and Trends to Feed the AI, Configure Parameters  Extends: None |

* **Actors:** Analyst
* **Importance Level:** High
* **Description:** Analysts generate reports based on surveillance findings and data analysis.
* **Pre-condition:** Analyst is logged in.
* **Post-condition:** Report is successfully generated.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to report generation.
  4. Enter report details and findings.
  5. System validates data.
  6. If valid, generate report.
* **Alternative Course of Action:**
  1. If data incomplete or invalid:
     1. System prompts for correction.
     2. Analyst corrects data.
     3. Repeat steps 5-6.

**Usecase ID: UC\_004 - Generating Reports**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Analyst |
| **Importance Level** | High |
| **Description** | Enables analysts to generate reports based on surveillance findings, spatial analysis results, and causality insights. |
| **Pre-condition** | Analyst must be logged into the system. |
| **Post-condition** | Report is successfully generated. |
| **Basic Course of Action** | * + 1. Access system.     2. Log in.     3. Navigate to generate report.     4. Enter report details.     5. Validate and generate report. |
| **Alternative Course of Action** | If entered data is incomplete or invalid:  1. Prompt analyst to correct errors.  2. Correct errors and resubmit. |
| **Relationship** | Generalization: None  Association: Analyst  Include: Identify Correlations and Trends to Feed the AI, Configure Parameters  Extends: None |

**Usecase ID: UC\_005 - Analyze Footage**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Analyst |
| **Importance Level** | High |
| **Description** | Enables analysts to analyze footage captured by surveillance systems. |
| **Pre-condition** | Analyst must be logged into the system. |
| **Post-condition** | Footage is successfully analyzed by the analyst. |
| **Basic Course of Action** | * 1. Access system.   2. Log in.   3. Navigate to analyze footage.   4. Select footage for analysis.   5. Process selected footage. |
| **Alternative Course of Action** | If selected footage is corrupt or inaccessible:  1. Display error message.  2. Select alternative footage. |
| **Relationship** | Generalization: None  Association: Analyst  Include: None  Extends: Send Compressed Footage (Image) |

* **Actors:** Analyst
* **Importance Level:** High
* **Description:** Analysts analyze footage captured by surveillance systems.
* **Pre-condition:** Analyst is logged in.
* **Post-condition:** Footage is successfully analyzed.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to footage analysis.
  4. Select footage for analysis.
  5. System processes selected footage.
* **Alternative Course of Action:**
  1. If selected footage is corrupt or inaccessible:
     1. System displays error.
     2. Analyst selects alternative footage.
     3. Repeat steps 4-5.

**Usecase ID: UC\_006 - Conduct Data Mining**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Analyst |
| **Importance Level** | High |
| **Description** | Enables analysts to conduct data mining operations on the system's database. |
| **Pre-condition** | Analyst must be logged into the system. |
| **Post-condition** | Data mining operation is successfully completed by the analyst. |
| **Basic Course of Action** | * + 1. Access system.     2. Log in.     3. Navigate to conduct data mining.     4. Enter search criteria.     5. Process data. |
| **Alternative Course of Action** | If entered search criteria yield no results:  1. Display message indicating no matching data.  2. Modify search criteria. |
| **Relationship** | Generalization: None  Association: Analyst  Include: None  Extends: Send Compressed Footage (Image) |

* **Actors:** Analyst
* **Importance Level:** High
* **Description:** Analysts conduct data mining operations on the system's database.
* **Pre-condition:** Analyst is logged in.
* **Post-condition:** Data mining operation is successfully completed.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to data mining.
  4. Enter search criteria.
  5. System retrieves relevant data.
* **Alternative Course of Action:**
  1. If entered search criteria yield no results:
     1. System displays message.
     2. Analyst modifies search criteria.
     3. Repeat steps 4-5.

**Usecase ID: UC\_007 - Extract Image from Satellite Image Module**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Analyst |
| **Importance Level** | Medium |
| **Description** | Enables analysts to extract images from the satellite image processing module for further analysis. |
| **Pre-condition** | Analyst must be logged into the system. |
| **Post-condition** | Image is successfully extracted from the satellite image processing module. |
| **Basic Course of Action** | * + 1. Access system.     2. Log in.     3. Navigate to extract images.     4. Select desired image.     5. Retrieve and display image. |
| **Alternative Course of Action** | If selected image is unavailable or corrupt:  1. Display error message.  2. Select alternative image. |
| **Relationship** | Generalization: None  Association:  Analyst Include: None  Extends: None |

* **Actors:** Analyst
* **Importance Level:** Medium
* **Description:** Analysts extract images from the satellite image processing module for further analysis.
* **Pre-condition:** Analyst is logged in.
* **Post-condition:** Image is successfully extracted.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to image extraction feature.
  4. Select image from satellite module.
  5. System retrieves and displays selected image.
* **Alternative Course of Action:**
  1. If selected image is unavailable or corrupt:
     1. System displays error message.
     2. Analyst selects alternative image.
     3. Repeat steps 4-5.

**Usecase ID: UC\_008 - Identify Correlations and Trends to Feed the AI**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Analyst |
| **Importance Level** | High |
| **Description** | Enables analysts to identify correlations and trends in surveillance data to improve AI algorithms. |
| **Pre-condition** | Analyst must be logged into the system. |
| **Post-condition** | Correlations and trends are successfully identified and fed into the AI algorithms. |
| **Basic Course of Action** | 1. Access system. <br> 2. Log in. <br> 3. Navigate to identify correlations and trends. <br> 4. Select data sets. <br> 5. Process data for analysis. |
| **Alternative Course of Action** | If selected data sets are insufficient or irrelevant: <br> 1. Display message indicating unsuitability. <br> 2. Modify search criteria. |
| **Relationship** | Generalization: None <br> Association: Analyst <br> Include: None <br> Extends: None |

* **Actors:** Analyst
* **Importance Level:** High
* **Description:** Analysts identify correlations and trends in surveillance data to improve AI algorithms.
* **Pre-condition:** Analyst is logged in.
* **Post-condition:** Correlations and trends are successfully identified and fed into the AI.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to correlation identification.
  4. Select relevant data sets.
  5. System processes data to identify correlations and trends.
* **Alternative Course of Action:**
  1. If selected data sets are insufficient or irrelevant:
     1. System displays message.
     2. Analyst selects alternative data sets.
     3. Repeat steps 4-5.

**Usecase ID: UC\_009 - Access and Review Reports**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Operator |
| **Importance Level** | High |
| **Description** | Enables operators to access and review generated reports within the system. |
| **Pre-condition** | Operator must be logged into the system. |
| **Post-condition** | Operator successfully accesses and reviews the requested reports. |
| **Basic Course of Action** | 1. Access system.  2. Log in.  3. Navigate to access reports.  4. Select desired report.  5. Retrieve and display report. |
| **Alternative Course of Action** | If selected report is unavailable or inaccessible:  1. Display error message.  2. Select alternative report. |
| **Relationship** | Generalization: None  Association: Operator  Include: Set Casualty Rate  Extends: None |

* **Actors:** Operator
* **Importance Level:** High
* **Description:** Operators access and review generated reports within the system.
* **Pre-condition:** Operator is logged in.
* **Post-condition:** Reports are successfully accessed and reviewed.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to report access.
  4. Select report for review.
  5. System retrieves and displays selected report.
* **Alternative Course of Action:**
  1. If selected report is unavailable or inaccessible:
     1. System displays error.
     2. Operator selects alternative report.
     3. Repeat steps 4-5.

**Usecase ID: UC\_010 - Set Casualty Rate**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Operator |
| **Importance Level** | Medium |
| **Description** | Enables operators to set the casualty rate threshold within the system. |
| **Pre-condition** | Operator must be logged into the system. |
| **Post-condition** | Casualty rate threshold is successfully set within the system. |
| **Basic Course of Action** | 1. Access system. 2. Log in. 3. Navigate to set casualty rate. 4. Enter desired threshold. 5. Validate and update threshold. |
| **Alternative Course of Action** | If entered threshold is invalid or out of range:  1. Display error message.  2. Adjust threshold. |
| **Relationship** | Generalization: None  Association: Operator  Include: None  Extends: None |

* **Actors:** Operator
* **Importance Level:** Medium
* **Description:** Operators set the casualty rate threshold within the system.
* **Pre-condition:** Operator is logged in.
* **Post-condition:** Casualty rate threshold is successfully set.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to casualty rate setting.
  4. Enter desired threshold.
  5. System validates and updates threshold.
* **Alternative Course of Action:**
  1. If entered threshold is invalid or out of range:
     1. System displays error.
     2. Operator adjusts threshold.
     3. Repeat steps 4-5.

**Usecase ID: UC\_011 - Assign First Responders**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Operator |
| **Importance Level** | High |
| **Description** | Enables operators to assign first responders to specific incidents or tasks within the system. |
| **Pre-condition** | Operator must be logged into the system. |
| **Post-condition** | First responders are successfully assigned to the specified incidents or tasks. |
| **Basic Course of Action** | 1. Access system. 2. Log in. 3. Navigate to assign first responders. 4. Select incident/task. 5. Assign first responders. |
| **Alternative Course of Action** | If selected incident/task has no available first responders:  1. Display message indicating unavailability.  2. Select alternative incident/task. |
| **Relationship** | Generalization: None  Association: Operator  Include: None  Extends: Access and Review Reports |

* **Actors:** Operator
* **Importance Level:** High
* **Description:** Operators assign first responders to specific incidents or tasks within the system.
* **Pre-condition:** Operator is logged in.
* **Post-condition:** First responders are successfully assigned.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to first responder assignment.
  4. Select incident or task.
  5. Assign appropriate first responders.
* **Alternative Course of Action:**
  1. If selected incident or task has no available first responders:
     1. System displays message.
     2. Operator selects alternative incident or task.
     3. Repeat steps 4-5.

**Usecase ID: UC\_012 - Access Report**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | First Responder |
| **Importance Level** | High |
| **Description** | Enables first responders to access and view reports related to specific incidents or tasks within the system. |
| **Pre-condition** | First responder must be logged into the system. |
| **Post-condition** | First responder successfully accesses and views the requested reports. |
| **Basic Course of Action** | 1. Access system. 2. Log in. 3. Navigate to access reports. 4. Select desired report. 5. Retrieve and display report. |
| **Alternative Course of Action** | If selected report is unavailable or inaccessible:  1. Display error message.  2. Select alternative report. |
| **Relationship** | Generalization: None  Association: First Responder  Include: None  Extends: Save Report |

* **Actors:** First Responder
* **Importance Level:** High
* **Description:** First responders’ access and view reports related to specific incidents or tasks within the system.
* **Pre-condition:** First responder is logged in.
* **Post-condition:** Reports are successfully accessed and viewed.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to report access.
  4. Select report for viewing.
  5. System retrieves and displays selected report.
* **Alternative Course of Action:**
  1. If selected report is unavailable or inaccessible:
     1. System displays error.
     2. First responder selects alternative report.
     3. Repeat steps 4-5.

**Usecase ID: UC\_013 - Save Report**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | First Responder |
| **Importance Level** | Medium |
| **Description** | Enables first responders to save reports related to specific incidents or tasks within the system. |
| **Pre-condition** | First responder must be logged into the system. |
| **Post-condition** | Report is successfully saved by the first responder for future reference. |
| **Basic Course of Action** | 1. Access system. 2. Log in. 3. Navigate to save reports. 4. Select report to save. 5. Save report to designated location. |
| **Alternative Course of Action** | If report cannot be saved due to system error:  1. Display error message.  2. Retry saving report. |
| **Relationship** | Generalization: None  Association: First Responder  Include: None  Extends: None |

* **Actors:** First Responder
* **Importance Level:** Medium
* **Description:** First responders save reports for future reference or sharing within the system.
* **Pre-condition:** First responder is logged in.
* **Post-condition:** Report is successfully saved.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to report.
  4. Select report to save.
  5. Choose "Save" option.
* **Alternative Course of Action:**
  1. None.

**Usecase ID: UC\_014 - Raise Issue to Operator**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | First Responder |
| **Importance Level** | High |
| **Description** | Enables first responders to raise issues or concerns to the operator for further action within the system. |
| **Pre-condition** | First responder must be logged into the system. |
| **Post-condition** | Issue or concern raised by the first responder is successfully communicated to the operator for resolution. |
| **Basic Course of Action** | 1. Access system. < 2. Log in. 3. Navigate to raise issues. 4. Describe issue or concern. 5. Notify operator. |
| **Alternative Course of Action** | If issue cannot be raised due to system error:  1. Display error message.  2. Contact operator via alternative communication channels. |
| **Relationship** | Generalization: None  Association: First Responder  Include: None  Extends: None |

* **Actors:** First Responder
* **Importance Level:** High
* **Description:** First responders raise issues or concerns to operators for further action within the system.
* **Pre-condition:** First responder is logged in.
* **Post-condition:** Issue is successfully raised to operator.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to issue raising.
  4. Describe issue or concern.
  5. Submit issue to operator.
* **Alternative Course of Action:**
  1. None.

**Usecase ID: UC\_015 - Upload Ground Footage**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | First Responder |
| **Importance Level** | Medium |
| **Description** | First responders upload ground footage or additional evidence related to specific incidents. |
| **Pre-condition** | First responder must be logged in. |
| **Post-condition** | Footage uploaded and associated with the relevant incident. |
| **Basic Course of Action** | 1. Access system. 2. Log in. 3. 3. Navigate to upload button. 4. 4. Select footage to upload. 5. 5. Process and upload footage. |
| **Alternative Course of Action** | If files are corrupted or incompatible:  1. Display error.  2. Select alternative files.  3. Repeat upload process. |
| **Relationship** | Generalization: None  Association: First Responder  Include: None  Extends: None |

* **Actors:** First Responder
* **Importance Level:** Medium
* **Description:** First responders upload ground footage or additional evidence related to specific incidents within the system.
* **Pre-condition:** First responder is logged in.
* **Post-condition:** Ground footage or additional evidence is successfully uploaded and associated with the relevant incident within the system.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to upload feature.
  4. Select ground footage or evidence files.
  5. Upload selected files.
* **Alternative Course of Action:**
  1. If uploaded files are corrupted or incompatible:
     1. System displays error message.
     2. First responder selects alternative files.
     3. Repeat steps 4-5 until valid files are uploaded.

**Usecase ID: UC\_016 - Send Searched Data**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Data Mining Engine |
| **Importance Level** | High |
| **Description** | Engine sends searched data results to requesting user or component. |
| **Pre-condition** | Engine has database access. |
| **Post-condition** | Searched data successfully transmitted. |
| **Basic Course of Action** | 1. Receive search query. 2. Process query against database. 3. Retrieve relevant data. 4. Format and transmit results. |
| **Alternative Course of Action** | If query execution fails:  Generate error.  User refines query or contacts admin. |
| **Relationship** | Generalization: None  Association: Data Mining Engine  Include: None  Extends: None |

* **Actors:** Data Mining Engine
* **Importance Level:** High
* **Description:** Data mining engine sends searched data results to the requesting user or system component.
* **Pre-condition:** Data mining engine has access to the relevant database and query processing capabilities.
* **Post-condition:** Searched data results are successfully transmitted to the requesting user or system component.
* **Basic Course of Action:**
  1. Receive search query request.
  2. Process search query against the database.
  3. Retrieve relevant data matching the search query criteria.
  4. Format and transmit the search results to the requesting user or system component.
* **Alternative Course of Action:**
  1. If search query execution fails due to database issues or query errors:
     1. Generate an error message indicating the issue.
     2. Refine the search query or contact the system administrator for assistance.

**Usecase ID: UC\_017 - Send Compressed Footage (Image)**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Satellite Image Processing Module |
| **Importance Level** | High |
| **Description** | Module sends compressed footage (image) data to requesting user or system component. |
| **Pre-condition** | Module has access to image data and compression algorithms. |
| **Post-condition** | Compressed footage (image) data successfully transmitted. |
| **Basic Course of Action** | 1. Receive request for compressed footage. <br> 2. Retrieve relevant footage data. <br> 3. Apply compression algorithm. <br> 4. Transmit compressed data. |
| **Alternative Course of Action** | If compression process fails: <br> 1. Generate error message. <br> 2. Retry compression. |
| **Relationship** | Generalization: None <br> Association: Satellite Image Processing Module <br> Include: None <br> Extends: None |

* **Actors:** Satellite Image Processing Module
* **Importance Level:** High
* **Description:** The satellite image processing module sends compressed footage (image) data to the requesting user or system component.
* **Pre-condition:** The satellite image processing module has access to the relevant image data and compression algorithms.
* **Post-condition:** Compressed footage (image) data is successfully transmitted to the requesting user or system component.
* **Basic Course of Action:**
  1. Receive request for compressed footage (image).
  2. Retrieve relevant footage (image) data.
  3. Apply compression algorithm to the footage (image) data.
  4. Transmit the compressed footage (image) data to the requesting user or system component.
* **Alternative Course of Action:**
  1. If compression process fails:
     1. Generate an error message indicating the issue.
     2. Retry the compression process.
     3. If unsuccessful, notify the requesting user or system component of the failure.

**Usecase ID: UC\_017 - Configure Parameters**

|  |  |
| --- | --- |
| **Item** | **Description** |
| **Actors** | Analyst |
| **Importance Level** | Medium |
| **Description** | Analysts configure system parameters to tailor the system to their needs. |
| **Pre-condition** | Analyst is logged in. |
| **Post-condition** | Parameters are successfully configured. |
| **Basic Course of Action** | 1. Access system. 2. Log in. 3. Navigate to parameter configuration. 4. Adjust parameters. 5. Save changes. |
| **Alternative Course of Action** | None. |
| **Relationship** | Generalization: None  Association: Analyst  Include: None  Extends: None |

* **Actors:** Analyst
* **Importance Level:** Medium
* **Description:** Analysts configure system parameters to tailor the system to their needs.
* **Pre-condition:** Analyst is logged in.
* **Post-condition:** Parameters are successfully configured.
* **Basic Course of Action:**
  1. Access system.
  2. Log in.
  3. Navigate to parameter configuration.
  4. Adjust parameters as needed.
  5. Save changes.
* **Alternative Course of Action:**
  1. None.

**CRC Card**

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| --- |
| **Class: Analyst** |

|  |  |
| --- | --- |
| **Responsibilities** | **Collaborators** |
| Generate report | User |
| Analyze footage |  |
| Conduct data mining |  |
| Extract image |  |
| Identify correlations and trends |  |
| UserID |  |
| Username |  |
| Password |  |
| Role |  |
| SecurityLevel |  |

| **Class: Analyst**  Responsibilities:   * Analyze Footage: Operation to analyze footage data. * Conduct Data Mining: Operation to conduct data mining on available data. * Extract Image: Operation to extract images from footage data. * Identify Correlations and Trends: Operation to identify correlations and trends in data.   Collaborators:   * Report: Collaborates with the analyst class in a many-to-one relationship for generating reports.   **Class: Operator** |
| --- |

|  |  |
| --- | --- |
| **Responsibilities** | **Collaborators** |
| Access report | User |
| Set casualty rate |  |
| Assign first responder |  |
| UserID |  |
| Username |  |
| Password |  |
| Role |  |
| SecurityLevel |  |

**Class: Operator**

Responsibilities:

* Access Report: Operation to access and view reports.
* Set Casualty Rate: Operation to set the casualty rate for an incident.
* Assign First Responder: Operation to assign a first responder to an incident.

Collaborators:

* Incident: Collaborates with the operator class in a many-to-one relationship for managing incidents.

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| **Class: FirstResponder** |

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| --- | --- |
| **Responsibilities** | **Collaborators** |
| Access report | User |
| Save report |  |
| Raise issue to operator |  |
| Upload footage |  |
| UserID |  |
| Username |  |
| Password |  |
| Role |  |
| SecurityLevel |  |

**Class: First Responder**

Responsibilities:

* Save Report: Operation to save a report related to an incident.
* Raise Issue to Operator: Operation to raise issues related to an incident to the operator.
* Upload Footage: Operation to upload footage related to an incident.

Collaborators:

* Incident: Collaborates with the first responder class in a many-to-one relationship for managing incidents.

|  |  |
| --- | --- |
| **Responsibility** | **Description** |
| Perform data mining | This operation performs data mining to extract valuable insights from the data. |
| Send searched data | This operation sends the searched data to the appropriate components or users. |

|  |  |
| --- | --- |
| **Data Attributes** | **Description** |
|  | There are no specific data attributes associated with the **DataMiningEngine** class. |

|  |  |
| --- | --- |
| **Collaborators** | **Description** |
| User | Collaborates with the **DataMiningEngine** class to receive searched data. |
| Report | Collaborates with the **DataMiningEngine** class to provide data for analysis. |

**Class: Data-Mining Engine**

The Data-Mining Engine class serves as a critical component within the system, responsible for the extraction of valuable insights through data mining techniques. Its primary responsibilities include performing data mining operations and facilitating the dissemination of searched data to relevant users or components. By leveraging advanced algorithms and analytical methods, the Data-Mining Engine extracts patterns, correlations, and trends from the vast dataset available within the system.

This class collaborates closely with users and reports, receiving input data for analysis and providing valuable insights derived from the mining process. Through seamless integration with

**Class: SatelliteImageProcessingModule**

|  |  |
| --- | --- |
| **Responsibility** | **Description** |
| Process satellite images | This operation processes satellite images to extract relevant information. |
| Send compressed footage | This operation sends the compressed footage or images to the appropriate components or users. |

|  |  |
| --- | --- |
| **Data Attributes** | **Description** |
|  | There are no specific data attributes associated with the **SatelliteImageProcessingModule** class. |

|  |  |
| --- | --- |
| **Collaborators** | **Description** |
| User | Collaborates with the **SatelliteImageProcessingModule** class to receive compressed footage or images. |
| Incident | Collaborates with the **SatelliteImageProcessingModule** class to provide context for satellite images processing. |

The SatelliteImageProcessingModule class plays a pivotal role in the system's capabilities by processing satellite images to extract relevant information. Its core responsibilities include the processing of raw satellite imagery to derive actionable insights and the compression of footage or images for efficient storage and transmission.

Using advanced image processing techniques, the SatelliteImageProcessingModule enhances the system's ability to monitor and analyze events from a remote perspective, providing valuable visual data for incident management and analysis. It collaborates closely with users and incidents, receiving context and requirements for image processing and delivering compressed footage or images for further analysis or dissemination.

| **Class: Report** |
| --- |

|  |  |
| --- | --- |
| **Responsibilities** | **Collaborators** |
| Generate report | Analyst |
| Associate with incidents |  |
| ReportID |  |
| AnalystID |  |
| GeneratedDate |  |
| Content |  |

Responsibilities:

* Generate report: This operation is responsible for generating a report by the analyst.
* Associate with incidents: This operation associates the report with one or more incidents.

Data Attributes:

* ReportID: A unique identifier for each report.
* AnalystID: Identifies the analyst who generated the report.
* GeneratedDate: Date when the report was generated.
* Content: Content or details of the report.

Collaborators:

* Analyst: Collaborates with the report class to generate reports.

| **Class: Incident** |
| --- |

|  |  |
| --- | --- |
| **Responsibilities** | **Collaborators** |
| Manage incident | Operator |
| Associate with footage |  |
| IncidentID |  |
| Date |  |
| Location |  |
| Description |  |
| CasualtyRate |  |
| OperatorID |  |

Responsibilities:

* Manage incident: This operation manages the incident by the operator.
* Associate with footage: This operation associates the incident with one or more footage.

Data Attributes:

* IncidentID: A unique identifier for each incident.
* Date: Date when the incident occurred.
* Location: Location where the incident occurred.
* Description: Description of the incident.
* CasualtyRate: Casualty rate associated with the incident.
* OperatorID: Identifies the operator managing the incident.

Collaborators:

* Operator: Collaborates with the incident class to manage incidents.

| **Class: Footage** |
| --- |

|  |  |
| --- | --- |
| **Responsibilities** | **Collaborators** |
| Retrieve incident details | Incident |
| FootageID |  |
| IncidentID |  |
| FilePath |  |
| FileType |  |

Responsibilities:

* Retrieve incident details: This operation retrieves details of the incident associated with the footage.

Data Attributes:

* FootageID: A unique identifier for each footage.
* IncidentID: Identifies the incident associated with the footage.
* FilePath: Path to the file location of the footage.
* FileType: Type or format of the footage file.

Collaborators:

* Incident: Collaborates with the footage class to retrieve incident details.

**Class Diagram**

1. **User Class**: Represents a generic user of the system. It includes attributes such as UserID, Username, Password, Role, and SecurityLevel. Users can perform actions like Register, Login, Logout, ConfigureParameters, and SetSecurityClearance.
2. **Analyst Class**: Inherits from the User class and represents a specialized user responsible for generating reports, analyzing footage, conducting data mining, extracting images, and identifying correlations and trends.
3. **Operator Class**: Inherits from the User class and represents another specialized user responsible for accessing reports, setting casualty rates, and assigning first responders.
4. **FirstResponder Class**: Inherits from the User class and represents a user responsible for accessing reports, saving reports, raising issues to operators, and uploading footage.
5. **DataMiningEngine Class**: Represents a component responsible for conducting data mining operations. It has a relationship with the Analyst class, indicating that analysts utilize this engine for data analysis.
6. **SatelliteImageProcessingModule Class**: Represents a component responsible for processing satellite images. Similar to the DataMiningEngine, it has a relationship with the Analyst class.
7. **Report Class**: Represents a report generated within the system. It contains attributes such as ReportID, AnalystID (indicating the analyst who generated the report), GeneratedDate, and Content. Reports can be associated with multiple incidents.
8. **Incident Class**: Represents an incident recorded within the system. It contains attributes like IncidentID, Date, Location, Description, and CasualtyRate. Incidents can be associated with multiple footages.
9. **Footage Class**: Represents a footage captured within the system. It contains attributes like FootageID, Source (indicating whether it's from a ground responder or the data mining engine), FilePath, and FileType.

Relationships:

* **User to Report and Incident**: Users can be associated with multiple reports and incidents, following a one-to-many relationship.
* **Analyst, Operator, and FirstResponder to User**: These specialized users inherit attributes and behaviors from the generic User class, establishing an inheritance relationship.
* **Report to Analyst**: Reports are generated by analysts, following a many-to-one relationship.
* **Report to Incident**: Reports can be associated with multiple incidents, establishing a one-to-many relationship.
* **Incident to Operator**: Incidents are managed by operators, following a many-to-one relationship.
* **Incident to Footage**: Incidents can have multiple footages associated with them, following a one-to-many relationship.
* **Analyst to DataMiningEngine and SatelliteImageProcessingModule**: Analysts utilize these components for data analysis, establishing relationships between the classes.

Overall, this class diagram provides a clear representation of the system's structure, illustrating the key entities, their attributes, and their relationships.