1. Problem Statement & Objectives

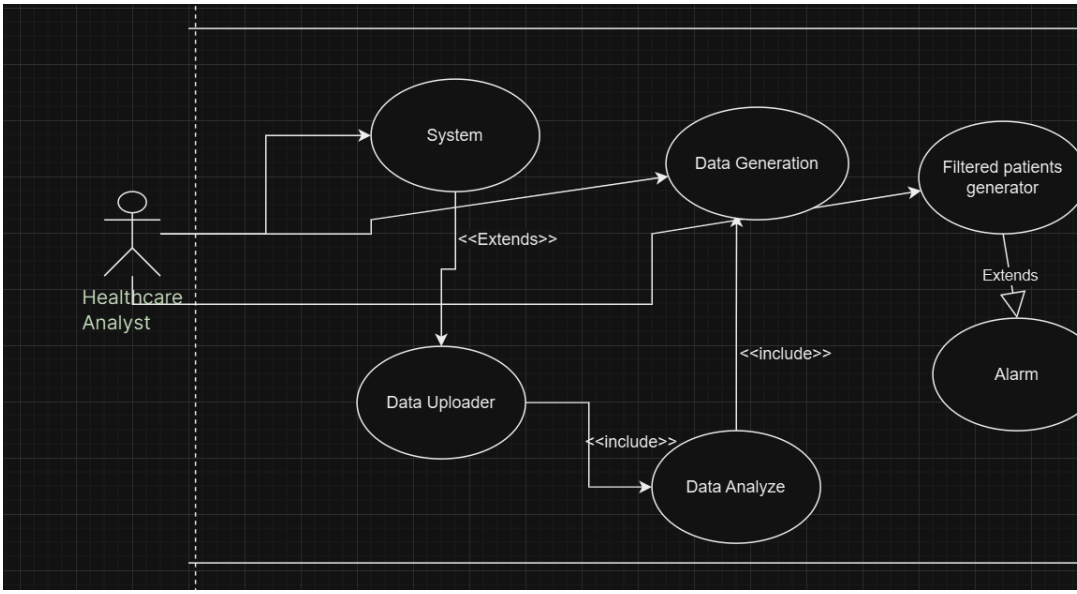
- Problem Statement: The healthcare industry lacks efficient tools to analyze large datasets for identifying health trends and risk factors specially in heart diseases, which hinders preventive healthcare efforts.

- Objectives:

    - Develop a tool that provides insights into patient health metrics.
    - Develop a tool that predict a heart diseases.
    - Focus on analyzing blood pressure and cholesterol levels.
    - Enable healthcare analysts to make data-driven decisions.

2. Use Case Diagram & Descriptions

- Use Case Diagram:
    - Actors:
        - Healthcare Analyst: Uses the system to analyze data.
        - System: Processes and analyzes the data.
    - Interactions:
        - Data upload
        - Data analysis
        - Report generation



3. Functional & Non-Functional Requirements

- Functional: As detailed in the Requirements Gathering document.
- Non-Functional: As detailed in the Requirements Gathering document.

4. Software Architecture

- Architecture Style: Microservices

- Components:
  - Data Ingestion Service:
    - Function: Handles data upload and preprocessing.
    - Technology: Python with Pandas for data manipulation.
  - Analysis Service:
    - Function: Performs statistical analysis and generates insights.
    - Technology: R or Python with libraries like NumPy and SciPy.
  - Visualization Service:
    - Function: Creates charts and graphs for data representation.
    - Technology: D3.js or Matplotlib for visualizations.
  - User Interface:
    - Function: Provides a web-based interface for user interaction.
    - Technology: React.js or Angular for front-end development.