Emergency System (ES) Documentation

# Overview

The Emergency System (ES) is designed to detect falls and respond appropriately by interacting with the patient and taking necessary actions based on the patient's responses. The system uses a knowledge base to determine the steps to take when a fall is detected.

# Components

## Knowledge Base

The knowledge base is a dictionary that defines the steps and responses for different scenarios. It includes:

* - fall\_detected: Initial step when a fall is detected.
* - call\_family: Step to call a family member if the patient needs assistance.
* - call\_911: Step to call emergency services if necessary.

Each step contains:

* - question: The question to ask the patient.
* - responses: Possible responses from the patient and corresponding actions.
* - next\_step: The next step to take based on the response.

## Sensor Data Simulation

The get\_sensor\_data function simulates data from sensors (e.g., camera, microphone) to detect whether a fall has occurred. It randomly returns either "fall" or "no\_fall".

## Patient Response Simulation

The get\_patient\_response function simulates responses from the patient. It randomly returns "yes", "no", or an empty string.

## Inference Engine

The inference\_engine function processes the sensor data and follows the steps defined in the knowledge base. It:

1. 1. Checks if a fall is detected.
2. 2. Asks the patient a question based on the current step.
3. 3. Processes the patient's response.
4. 4. Takes the appropriate action based on the response.
5. 5. Moves to the next step if necessary.

## Main Logic

The main function:

1. 1. Gets sensor data.
2. 2. Passes the sensor data to the inference engine for processing.

# Usage

To run the Emergency System, execute the es.py script. The system will simulate fall detection and respond accordingly based on the predefined knowledge base.