Project Problem Framing and Def

General Concepts

- The heart attack refers to the **death of heart muscle cells** due to prolonged oxygen deprivation caused by the blockage.
- *heart attack* occurs when the blood flow to a part of the heart muscle is blocked. generally by a blood clot.
- Without oxygen, heart cells begin to die within minutes, causing permanent damage.

1. Empathize with users:

Ones of the common problems that the people face when dealing with the heart attack:

- **Delayed Recognition of Symptoms**: Many people mistake heart attack symptoms (e.g., chest pain, shortness of breath, nausea) for less serious issues like indigestion, delaying emergency care.
- **Silent Heart Attacks**: Some experience "silent" heart attacks with minimal or no symptoms, often overlooked until later damage is detected.

2. Problem Definition and Framing

Objective: Address the delayed detection of heart attacks

- **The 5 whys**:
    1. Why does the disease (heart attack) happen?
       → A blood clot blocks blood flow to the heart muscle.
    2. Why does a blood clot happen?
       → Plaque (fatty deposits) in the artery ruptures, triggering clot formation.
    3. Why do individuals get this disease?
       → high cholesterol, hypertension, smoking, or diabetes.
    4. Why do people struggle to detect the disease earlier?
       → insufficient tools for early risk detection.

5. Why not build an AI model that predicts the status of the heart?
   → needs technical expertise.

The root cause: missing of tools that detects the disease earlier.
The 5W:

- **Who**:
  - Individuals at risk of heart disease (e.g., those with hypertension, diabetes, obesity, or family history).
    - Older adults (45+ for men, 55+ for women).
- **What**:
  - Delayed detection of the heart attack.
- **When**:
  - 24/7
- **Where**:
  - Usage context: daily life (home, work, exercise ...)
- **Why**:
  - Late detection of heart attacks can lead to damages in the heart muscle, which can be a reason of dying.
- **Problem Statement**: "At-risk adults are currently lacking a reliable way to detect the onset of a heart attack during their normal daily routines, 24/7, which leads to delayed treatment and often results in severe cardiac damage or fatality.