Task - Sit-to-Stand Frailty Test Project

Task 1: Research Task

Goal: Improve how the test results are interpreted and used.

What to do:

- Review CDC STEADI guidance and related sources for the 30-second chair stand test.

  The project already asks for the patient's age and gender and compares their chair stand score with CDC STEADI reference values. This helps decide if the score is normal or below average for that age group. This part matches CDC guidance.However, according to the CDC, the 30-second chair stand test should not be used on its own to decide fall risk. In real settings, doctors also look at things like balance, walking, and whether the person has fallen before. The current project does not include this extra information yet.

- Look specifically at how scores are interpreted across age groups.

  Age plays a big role in how chair stand results should be read. As people get older, the expected number of stands naturally goes down. A score that is normal for someone in their late 80s might be considered low for someone in their early 60s. Because of this, scores should always be compared to age-specific ranges instead of using one fixed cutoff for everyone.

- Identify limitations of using this test alone and what signals are commonly used alongside it.

  The chair stand test mainly measures leg strength. It does not show the full picture of a person's fall risk. For example, two people of the same age might get the same score, but one may walk steadily and have no fall history, while the other may feel unsteady and have fallen before. Even though their scores match, their real fall risk is different. This is why the CDC recommends using the chair stand test together with other checks like balance, walking stability, and past falls, instead of relying on this test alone.

Deliverable:

- A short markdown or document file that we could add to the repo, for example:
- Clear score ranges by age

  The **official CDC STEADI cut-offs** for the 30-second chair stand test, in simple form(reference1, reference 2)

Age (years)	Men: below average	Women: below average
60–64	Less than 14	Less than 12
65–69	Less than 12	Less than 11
70–74	Less than 12	Less than 10
75–79	Less than 11	Less than 10
80–84	Less than 10	Less than 9
85–89	Less than 8	Less than 8
90–94	Less than 7	Less than 4

- Notes on when results should be treated with caution

  Results should be used with caution if the test was not done correctly, such as using an unstable chair, pushing with hands, stopping early, or testing in an unsafe space. Caution is also needed if the person felt dizzy, afraid of falling, or recently had serious falls. Missing information like age outside the normal range or unknown sex can also affect accuracy. If the test is done over video, poor camera view or unsafe surroundings can make the result less reliable. CDC guidance stresses that safety always comes first and that results should be reviewed along with medical history, fall history, and other risk factors not just the number of stands.(reference1, reference 2)

- Suggestions for additional data points we may want to store later

  In the future, the project could collect more context, such as:

  - Chair type and height
  - Whether the area was clear and safe
  - What footwear was used
  - Whether hands or walking aids were used
  - If the person stopped early and why
  - Any wobbling or near falls
  - Simple questions about past falls, walking aids, health conditions, or medications

Task 2: Improvement Task

Goal: Make the test output more useful beyond the live screen.

- Generate a simple, plain-language summary of results after a completed test.

You do not need to refactor the whole codebase. A clean, minimal change is enough.

Expectations

- Focus on clarity and usefulness, not volume of code

  After the test, the system should show a short and clear message, such as:"You completed X chair stands in 30 seconds. For your age and sex, this score is within/below the expected range. A below-average score means weaker leg strength and may increase the chance of falls, especially if you feel unsteady or have fallen before. This test is a screening tool, not a diagnosis. Consider sharing the result with a healthcare professional."(example)

- Focus on having the code run irrespective of platform used

  The test code can return one plain text message like:"You did X stands. This is within/below the typical range for your age and sex."This way, the same message works on a website, mobile app, or command line, and the platform controls how it looks.

- Include a short note explaining what you did and why it helps the project

  CDC STEADI guidance was reviewed to understand how the chair stand test should be interpreted for different ages and sexes, and why the test should not be used by itself.This helped confirm that the project already handles age- and sex-based scoring correctly, while also showing what is missing, such as balance and fall history. Adding clearer explanations and a simple result summary makes the tool safer, easier to understand, and more useful in real-world use.

  SUMMURY:

This document reviews CDC STEADI guidance to explain how 30-second chair stand test results should be interpreted. While the project already compares scores using age and sex, the test should not be used alone to judge fall risk. The document highlights age-specific score ranges, situations where results need caution, and extra data that could improve accuracy later. It also suggests adding a short, plain-language result summary after each test so users can better understand their results across any platform.