Operation Sentinel: A Call to Arms in the War Against Skin Cancer

(TOP SECRET MISSION)

SITUATION:

In the silent, ongoing war against cancer, the frontline is the human skin. Our enemy, malignancy, is a master of disguise. It embeds itself among the innocent, as a harmless mole, a benign mark. If left unchecked, it fortifies its position and launches a devastating attack on the host. Our greatest generals - the specialist dermatologists - are armed with advanced weaponry like dermatoscopes, but they cannot be everywhere at once. Millions lack access, leaving them vulnerable. The time between the enemy's first appearance and its detection is critical. A delay can be, and often is, fatal.

MISSION:

This is where you come in. You are being called upon not just as a data scientist, but as a weapon smith. We need a digital scout that can operate on the frontlines. It must be lightweight, agile, and able to analyse intel gathered. Your creation will be the first to raise the alarm and to ensure that every suspicious case is escalated to a human specialist before the enemy becomes entrenched.

AVAILABLE INTEL:

To prepare you for this mission, we have compiled critical intelligence data from thousands of field agents across multiple continents.

subject_data.csv: This is your field report. It contains vital subject intel - age, gender, etc.
metadata.csv: This contains definitions to support your subject_data.
images.hdf5: This file contains the raw visual intel, tagged with its unique identifier.

OBJECTIVE:

Your primary objective is to build a system that can use the available intel and differentiate friend from foe. For every potential threat identified by its isic_id, you must assign a threat level (target) - 0 (confirmed benign) and 1 (confirmed malignant).

Good luck, soldier!!

To the AMs:

- The PS, at its core, is a binary classification task. You can approach this problem in any way you feel like.
- There isn't any metric that we are going to judge you particularly against. It's up to you, what methods you use, what metric you would define to defend your approach.
- Reach out to your mentors if you are unable to understand the PS (do not ask for suggestions on how to solve the PS)
- Have regular meetings (preferably offline) with your teammates to have better coordination. This hackathon is mostly to improve your teamwork rather than to assess individual skills.
- Deliverables: A 20-minute presentation (number of slides is up to you), and neatly documented code on GitHub.
- Deadline: 14th August EOD.
- Presentation: The exact time and venue will be shared soon.