SOFTWARE DEVELOPER

SKILLS TASK

24 April 2025

Provided:

3x data_x.geojson files

1x map.tiff file

Submission:

Due: 27 April 2025 at 12h00

Email: development@pacsys.co.za

BASIC TASK:

Overview
Develop a Windows-based application with the following functionality and user workflow:

1. Initial Setup

- Upon first launch, the application prompts the user to specify a default directory for file storage.

- This directory selection will be saved for future sessions, with an option to modify it later via the application settings.

2. Mode Selection

- After setting the default directory, the user is presented with two options: *Live Tracking* and *Historical Tracking*.

- Only *Historical Tracking* is enabled; *Live Tracking* will be disabled for this task.

3. File Selection and Mapping

- When *Historical Tracking* is selected:

    o The user is prompted to select a .tiff file followed by a .geojson file.

    o The application will render the selected .geojson data onto the map using the coordinates from the .tiff file.

4. Data Interaction

- Users can view an attribute table displaying all data from the .geojson file.

- Within the map view, the user can change both the .tiff and .geojson files as needed.

5. Deployment

- The application must be built as a standalone executable for Windows.

ADVANCED FEATURES (not required):

The following enhancements are optional for this task:

- **Interactive Map Navigation**
  Users can zoom in/out and pan across the map to explore data in more detail.

- **Directional Indicators**
  Each data point includes a directional arrow based on the "TN Bearing" attribute, visually representing its orientation relative to True North.

- **Interactive Data Exploration**
  An interactive cursor feature allows users to click on or hover over a data point to display all associated attribute information in a user-friendly format (e.g., tooltip, sidebar, or pop-up window).

TIPS:

- **Data Alignment Validation**
  To ensure accurate spatial alignment of the data points with the underlying map, the .geojson file can be uploaded to *Google Earth Pro* for visual verification.

- **Design Flexibility**
  You are encouraged to incorporate additional user-friendly features and apply creative design enhancements. These additions, while optional, will positively contribute to the overall assessment of the application's usability and presentation.

- **Map Alternatives**
  You are welcome to explore alternative mapping solutions that support offline functionality, rather than relying on the TIFF files.