1. Introduction (1 page)

- Briefly introduce subsidence and uplift phenomena and their impact on civil and environmental engineering projects (e.g., infrastructure damage, instability).
- Highlight the application of DInSAR for monitoring ground deformation.
- State the project objective: To monitor subsidence/uplift in a specific area using DInSAR with two Sentinel-1 images.

2. Methodology (1-1.5 pages)

- Describe the DInSAR technique:
    - Explain the concept of Synthetic Aperture Radar (SAR) and its ability to measure phase changes.
    - Briefly explain the principle behind interferometry and how it reveals ground deformation.
    - Mention limitations of DInSAR (e.g., atmospheric effects, vegetation cover).
- Data Acquisition:
    - Specify the chosen area for subsidence/uplift monitoring.
    - Explain the criteria for selecting two Sentinel-1 images (e.g., perpendicular orbit tracks for better coherence, dates with minimal time difference for accurate deformation measurement).
    - Mention the source for obtaining Sentinel-1 data (e.g., ESA Open Access Hub https://scihub.copernicus.eu/).
- Software:
    - Specify the software used for DInSAR processing (e.g., open-source SNAP by ESA https://eo4society.esa.int/resources/snap/).
    - Briefly outline the main processing steps:
        - Pre-processing (e.g., radiometric calibration, speckle filtering)
        - Co-registration (aligning the two images)
        - Interferogram generation (calculating phase difference)
        - Topographic phase removal (using a Digital Elevation Model - DEM)
        - Phase unwrapping (correcting phase ambiguity) - a critical step
        - (Optional) Atmospheric correction (reducing atmospheric effects)
- Analysis:
    - Explain how to interpret the final differential interferogram for identifying areas of subsidence (red fringes) and uplift (blue fringes).
    - Mention any additional analysis techniques used (e.g., profile extraction across specific locations).

3. Results and Discussion (1.5-2 pages)

- Present the key findings:
    - Include a map or image of the final differential interferogram.
    - Highlight areas with clear subsidence/uplift signatures.
    - If possible, quantify the amount of deformation using phase-to-displacement conversion (consider mentioning challenges in this conversion).
- Discuss the results:
    - Analyze the spatial distribution of subsidence/uplift.
    - Relate the findings to potential causes of ground deformation in the chosen area (e.g., presence of mines, groundwater extraction, etc.).
    - Discuss the limitations encountered during the analysis (e.g., data quality issues, atmospheric effects).

4. Conclusion (0.5-1 page)

- Summarize the main findings:
    - Briefly reiterate the ability of DInSAR with Sentinel-1 imagery to monitor subsidence/uplift.
    - Emphasize the identified areas of deformation.
- Highlight the significance of the project:
    - How these results can be valuable for civil and environmental engineering practices (e.g., infrastructure risk assessment, mitigation strategies).
- Briefly mention suggestions for future work:
    - Include additional Sentinel-1 images for time series analysis.
    - Explore incorporating other remote sensing data (e.g., InSAR from other satellites, LiDAR) for a more comprehensive assessment.

5. References (0.5 pages)

- Include all references cited within the report (e.g., scientific articles on DInSAR, user manuals for the software used).