**GIS Intern Task Sheet (Interview Selection)**

Dear Candidate,

As part of your internship selection process, please complete the following GIS tasks using **any GIS software of your choice** (QGIS, ArcGIS, etc.). All datasets are freely available and links are provided. Submit your results in the requested formats.

**Task 1: Administrative Mapping (Basic)**

**Dataset:** India States Shapefile (SimpleMaps)  
Link: <https://simplemaps.com/gis/country/in>

* Load the dataset in GIS.
* Reproject the shapefile into **WGS 84 / UTM Zone 44N (EPSG:32644)**.
* Create a **choropleth map** of India showing **state population (attribute included in dataset)**.
* Export as **PDF Map Layout** (include title, scale bar, legend, north arrow).

**Deliverables:**

* Reprojected shapefile (GeoPackage or Shapefile).
* Map in PDF format.

**Task 2: Buffer & Spatial Analysis (Intermediate)**

**Datasets:**

* India Roads (OpenStreetMap – Geofabrik Extracts)  
  Link: <https://download.geofabrik.de/asia/india.html>
* India Administrative Boundaries (GADM)   
  Link: <https://gadm.org/download_country.html>

Steps:

1. Load **India roads shapefile** and **state boundaries**.
2. Select one state of your choice (e.g., Andhra Pradesh).
3. Create a **5 km buffer around National Highways** in that state.
4. Clip the buffer with the state boundary.
5. Calculate the **total buffer area** in sq. km.

**Deliverables:**

* Map layout (PDF).
* Attribute table with calculated buffer area.

**Task 3: Raster Analysis (Intermediate)**

**Dataset:** SRTM DEM (30m resolution) – USGS Earth Explorer  
Link: <https://earthexplorer.usgs.gov/>

Steps:

1. Download DEM for a district of your choice.
2. Derive **slope** and **contours (10m interval)**.
3. Identify and highlight areas with **slope > 15°**.

**Deliverables:**

* Map layout (PDF) with slope zones and contours.
* Raster output (GeoTIFF).

**Task 4: UAV/Drone Data Processing (Advanced)**

**Dataset Options:**

* Globhe Sample Drone Data (RGB, DSM, NDVI, Thermal, etc.)  
  Link: <https://www.globhe.com/sample-drone-data>
* Pix4D Sample Photogrammetry Datasets  
  Link: <https://support.pix4d.com/hc/en-us/articles/360000235126>

Steps:

1. Load the UAV orthomosaic (RGB).
2. Digitize **building footprints** in a selected area.
3. If NDVI raster is available, classify vegetation into **Low, Medium, High** classes.

**Deliverables:**

* Building footprint vector file (Shapefile/GeoPackage).
* Classified NDVI raster (GeoTIFF).
* Map layout (PDF).

**Submission Guidelines**

* Please compress all your deliverables into a single folder (ZIP).
* Name format: YourName\_GISIntern\_Tasks.zip.
* Include: shapefiles/GeoPackages, rasters, map layouts (PDFs), and a short report (1 page) describing your workflow.

**Selection Criteria:**

* Accuracy of spatial analysis.
* Quality of maps (layout, labeling, symbology).
* Completeness of deliverables.
* Creativity in presenting results.