**Task 2: Business Understanding**

**Business Goals**

1. **Identify High-Risk Zones**: Highlight regions with frequent crashes to guide safety efforts.
2. **Analyze Weather Impact**: Understand how weather conditions influence accident risk.

**Success Criteria**

* Generate an accurate high-risk zone heatmap.
* Deliver a report correlating weather patterns with crash rates.

**Resources and Constraints**

* **Resources**: Crash dataset (3GB), weather dataset (1GB), Python, GIS tools, data science expertise.
* **Constraints**: Potential data gaps and time limitations.

**Risks and Contingencies**

* Address missing data using supplementary sources or by focusing on reliable subsets.

**Task 3: Data Understanding**

**Data Requirements and Availability**

* **Required Fields**: Crash location, severity, time, weather type.
* **Availability**: Datasets are accessible and cover relevant fields.

**Exploration and Data Quality**

* Crash data highlights weather and speeding as common factors.
* Weather data shows regional patterns, with rain and snow dominant.
* Quality checks reveal missing values, requiring imputation or exclusion.

**Task 4: Project Planning**

**Planned Tasks**

1. **Preprocessing (20 hours)**: Merge datasets and clean data.
2. **Exploratory Analysis (15 hours)**: Analyze crash and weather trends.
3. **Model Development (25 hours)**: Identify high-risk zones and weather correlations.
4. **Visualization (10 hours)**: Create heatmaps and charts.
5. **Review (10 hours)**: Validate findings and compile the report.