**4. Risk Assessment & Mitigation Plan – Identifying risks and solutions**

**Risk Assessment & Mitigation Plan: Land Type Classification using Sentinel-2 Satellite Images**

**1. Risk: Data Quality Issues**

* **Description**: The dataset may have imbalanced classes, missing data, or mislabeled images.
* **Mitigation**: Perform thorough EDA to identify and address data quality issues. Use data augmentation techniques to balance classes.

**2. Risk: Model Overfitting**

* **Description**: The model may perform well on training data but poorly on unseen data.
* **Mitigation**: Use techniques like cross-validation, early stopping, and dropout to prevent overfitting.

**3. Risk: Deployment Challenges**

* **Description**: The model may face issues during deployment, such as compatibility problems or scalability issues.
* **Mitigation**: Test the deployment pipeline thoroughly in a staging environment before going live. Use containerization tools like Docker for compatibility.

**4. Risk: Model Drift**

* **Description**: The model’s performance may degrade over time due to changes in land use patterns.
* **Mitigation**: Set up monitoring tools to detect model drift and implement a retraining strategy with new data.