

## 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.