**Ai for AgriTech Hackathon Annotations File**

**What Are Annotations?**

Annotations = Tagged data for training AI models.

For your project, it may include:

|  |  |  |
| --- | --- | --- |
| Type | Task | Tool |
| Image Classification | Label a whole image (e.g., "Tomato - Healthy", "Tomato - Blight") | Folder-based organization |
| Object Detection | Draw boxes on pests, leaves, animals in an image | LabelImg, Roboflow |
| Semantic Segmentation | Label each pixel (advanced) | CVAT, Labelbox |

**1. Annotations for Image Classification (e.g., Leaf Disease)**

Method:

Organize images into folders by class name.

dataset/

├── train/

│ ├── healthy/

│ ├── blight/

│ └── spot/

└── validation/

├── healthy/

├── blight/

└── spot/

The folder name is the label – no extra annotation tool needed.

**2. Annotations for Object Detection (e.g., rats at night, pests on plant)**

Tools You Can Use:

LabelImg (Offline Tool)

* Free & open-source
* Labels using bounding boxes
* Saves in Pascal VOC (XML) or YOLO (TXT) format

Install:

bash

pip install labelImg

labelImg

Use:

* Open image folder
* Draw boxes around pests/rats/animals
* Save annotation file

Roboflow (Online Tool)

* Web-based
* Free for small datasets
* Supports export to YOLO, COCO, VOC

**3. Annotation Format for CNN Training**

Based on your model type:

|  |  |  |
| --- | --- | --- |
| Task | Format Needed | Common Use |
| Classification | Folder name = label | Used in your CNN project |
| Detection | YOLO .txt, COCO .json, Pascal VOC .xml | Used in object detection (rats, animals) |
| Segmentation | .png mask or .json | For advanced AI, e.g., segmenting plant parts |

**Example Annotation for Detection (YOLO Format)**

**For 1 object in an image:**

0 0.5 0.5 0.4 0.4

This means:

* 0 = class ID
* 0.5 0.5 = center of object (x, y)
* 0.4 0.4 = width and height (relative to image size)

**Project Model Diagram and Concept Image**

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