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