**Data Collection and Preprocessing Phase**

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| Date | 20 November 2025 |
| Team ID | 740018 |
| Project Title | Deepfruitveg:Automated Fruit And Vegetables Identification |
| Maximum Marks | 6 Marks |

**Preprocessing Template**

Preprocessing in Deepfruitveg involves tasks like image resizing, normalization, and noise reduction to improve the quality of input images. Additionally, data augmentation techniques such as rotation, flipping, and cropping are applied to increase dataset diversity, ensuring the deep learning model can generalize well and handle varying environmental conditions.

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| **Section** | **Description** |
| Resizing | Resizing images to a uniform size to ensure consistency and to make them compatible with the model's input requirements, improving computational efficiency. |
| Normalization | Scaling pixel values to a standard range (e.g., 0 to 1 or -1 to 1) to ensure uniformity across the dataset and improve model convergence during training. |
| Data Augmentation | Applying techniques like rotation, flipping, cropping, and scaling to artificially increase dataset size and variability, helping the model generalize better |
| Color Space Conversion | Converting images to different color spaces (e.g., RGB to HSV or Grayscale) to emphasize specific features like color or brightness, aiding in better identification and classification. |
| Image Cropping | Cropping regions of interest from images to focus on specific parts of the produce, removing unnecessary background and reducing computational load for model training. |
| Batch Normalization | Normalizing the output of each layer within the network during training to accelerate convergence, reduce overfitting, and stabilize the learning process. |
| **Data Preprocessing Code Screenshots** | |
| Resizing |  |
| Normalization |  |
| Data Augmentation |  |
| Color Space Conversion |  |
| Image Cropping |  |
| Batch Normalization |  |