**Data Collection and Preprocessing Phase**

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| Date | 12 july 2024 |
| Team ID | SWTID1720084639 |
| Project Title | **Beneath The Waves: Unraveling Coral Mysteries Through Deep Learning** |
| Maximum Marks | 6 Marks |

**Preprocessing Template**

The images will be preprocessed by resizing, normalizing, augmenting, denoising, adjusting contrast, detecting edges, converting color space, cropping, batch normalizing, and whitening data. These steps will enhance data quality, promote model generalization, and improve convergence during neural network training, ensuring robust and efficient performance across various computer vision tasks.

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| **Section** | **Description** |
| Data Overview | Our project leverages a dataset obtained from Kaggle, named  '**Corals Image Classification’**. This dataset comprises 923 images featuring  corals at various stages: Bleached and Healthy. |
| Resizing | ImageDataGenerator resizes images to a standard size (e.g.,  299 x 299 pixels) during training for consistency and potentially  improved model performance. This helps the model learn  features effectively regardless of slight variations in original  image sizes. |
| Normalization | ImageDataGenerator (rescale=l./255) already normalizes the  pixel values to the specific range of 0 to I |
| Data Augmentation | ImageDataGenerator to artificially create variations of coral  images during training. This includes techniques like random  rotations and horizontal flipping. This helps the model learn  robust features and improve its generalizability to unseen  coral images. |
| Denoising | NA |
| Edge Detection | NA |
| Color Space Conversion | NA |
| Image Cropping | NA |
| Batch Normalization | - |
| **Data Preprocessing Code Screenshots** | |
| Loading Data |  |
| Resizing |  |
| Normalization |  |
| Data Augmentation |  |
| Denoising | NA |
| Edge Detection | NA |
| Color Space Conversion | NA |
| Image Cropping | NA |
| Batch Normalization |  |