Task 6: Reconstruction of 3d image using two 2d image

We can divide the entire procedure into 2 main parts :

1.Sparse reconstructions :

=**Definition:** Sparse reconstruction involves estimating a **coarse 3D structure** of a scene by using a **limited set of key feature points** extracted from multiple 2D images. It provides an initial estimate of both **camera poses** and **3D point locations** , serving as a foundation for more detailed reconstructions.

(It is basically an estimation of the 3d structure from limited corresponding points from the given 2d image.)

Q: What are key feature points?

Feature points (also called **key points**) are distinctive points in an image that can be reliably detected and matched across multiple images. These points typically have **unique textures, corners, or edges**, making them easy to track between images for tasks like **3D reconstruction, object detection, and tracking**.

1.Sparse Reconstruction

2.Dense reconstructions :

=**Definition:** Dense reconstruction is a way to create a **detailed 3D model** of a scene using multiple images. Instead of just using a few important points (like in sparse reconstruction), it tries to estimate the **depth for every pixel** in the image.

(Creates a detailed 3D model by estimating the 3D coordinates for every pixel in the input images.)

2. Dense reconstruction