**Data Structures**

**global feature DB:**

1. feature\_id\_vec, vector<feature \*>, each entry is a pointer to ith feature object .

2. BRIEF descriptor

**Feature:**

1. feature\_id, int
2. exist\_in\_frame, vector<bool>, if this feature exist in frame i.
3. xycoord, vector<tuple<int, int>>, index i is frame index, tuple stores x,y coord

**global keyframe DB:**

1. frame id vector, vector<feature \*>

**frame:**

1. R, 3x3 matrix, world coord orientation

2. T, 3x1 vec, world coord position

3. BAed, bool, if this frame was bundle adjusted

4. feature\_id\_vec, vector<int>, stores the id of all features that exist in this frame

5. Loop\_close\_with, vector<int>, stores id of all frames that loops to this frame

6. Frame\_id, int