**Requirement**

Given an address application is able to

1. Locate the address
2. Show address on map
3. Standardize address
4. Persist unique address identifier for reinsurance / endorsement

**Process Details**

1. Call PBBI service.
2. If the confidence score is 100% accept the address as the address of interest. Else
3. Call Google places api with various combinations of location name, account name, address line, city, state and country till
4. There is a match with places id for existing address or location name for new address or devise an algorithm to confirm 100% match.
5. If there is no match which can be considered 100% in step 4, devise an algorithm to find partial match.
6. Display the addresses with fully matched or partial on map.
7. If a complete match is found or a partial match is selected as a complete match,
   1. Call PBBI service to get a standardized address for the address of interest.
   2. Save the corresponding place id in the database.

**Address Matching Algorithm**

1. PBBI confidence score of 100% or Match of place id or location name is deemed as 100% match.
2. If the location name matches without city, state, country, then its 100% match
3. If the location name matches without English articles such as the and a / an, then its 100% match
4. If a 100% match is not found with google place searches with combinations of location name, account name, address line, city, state and country, we proceed to the next step and all the matches are considered partial.
5. If a word in location has a number at starting and/or ending position, create search strings without the number and with the number splitted from the word.
6. If there is a non alphanumeric character such as underscore, hyphen etc in the location name, split the location name with that character as delimiter.
7. Perform Google places search with the search strings from step 5 and 6.
8. From all the responses obtained so far, if any one matches by a word with location name, it's considered a partial match.

**Ballpark Estimate**

1. **Algorithm Analysis and Approval [ Spike  ]**
2. Algorithm for address matching is finalized here along with process flow.
3. For any algorithm to be considered, large number of addresses will be verified manually.
4. Algorithm finalization criteria to be decided here and these criteria will be used to finalize an algorithm.
5. This step is crucial as without approval the design and development cannot be done.

**Effort**: 2 Resources 8 Weeks [considering back and forth communication, meetings, delays etc]

1. **High level Application Design And Approval**

**Decision will be taken for**

1. How the application will interface with other applications in the AIG
2. How many API is needed
3. Should we consider batch to process addresses with right match
4. How many DB interactions are needed
5. Data model
6. Request and response between applications

**Effort**: 2 Resources 4 Weeks

1. **Low Level Design**
   1. UI Screen Design
   2. Application Component Design
      1. Every third party api call is expressed with common interface
      2. Every algorithm step is expressed with common interface
      3. Step ii and iii allow us to add new api calls and / algorithm steps without impacting the structure of the application
      4. POC code is integrated in the application

**Effort:** 2 Resources 4 Weeks

1. **Construction And JUnit Cases**

**API**

1. Locate And Standardize address
2. Update DB with address identifier

**Batch [Spring Batch]**

1. Locate And Standardize address

**Effort:** 2 Resources 6 Weeks, either batch or API to locate address

1. **Dev OPS**
   1. Build pipeline
   2. Deployment pipeline
   3. Sonar Qube

**Effort:** 1 Resource 2 Weeks

1. **Integration Testing**

Clarity will come after high level design

**Effort:** 2 Resource 2 Weeks

**Assumption**

* Human intervention is not eliminated by 100%.
* English addresses are located better than non English addresses as spelling cannot be guaranteed for non English addresses. For non-English addresses different process flow and algorithm might be necessary.
* Only after spike analysis and approval, design and development will take place.
* The estimates are in congruence with the above mentioned process flow and algorithm steps.