Solar Scape

Database Design:

Data Model and Schema:

Collections:

* Users:
  + \_id (ObjectID)
  + username (string)
  + email (string)
  + password (hashed string)
  + preferences (array)
  + savedLocations (array of references to Location documents)
  + assessmentHistory (array of references to Assessment documents)
* Locations:
  + \_id (ObjectID)
  + coordinates (GeoJSON Point)
  + address (string)
  + region (string)
  + climateData (array of objects containing climate data points)
* SolarData:
  + \_id (ObjectID)
  + timestamp (ISODate)
  + location\_id (reference to Location document)
  + ghi (number)
  + dni (number)
  + dhi (number)
  + temperature (number)
  + windspeed (number)
* Assessments:
  + \_id (ObjectID)
  + user\_id (reference to User document)
  + location\_id (reference to Location document)
  + solarData\_id (reference to SolarData document)
  + timestamp (ISODate)
  + dataLayers (array of strings)
  + analysisParameters (array of objects)
  + generatedResults (array of objects containing analysis results)

Relationships:

* User >has many< Assessments (embedded references in User documents)
* Assessment >references< Location (single reference in Assessment document)
* Assessment >references< SolarData (single reference in Assessment document)

Additional Considerations:

* Data Validation: Implementing validation rules for data integrity and consistency.

ERD

