**Assignment for Research Projects**

**Objective**

Attenuation Relations between Iran and Sharjah horizontal peak ground acceleration

**Data Description**

Dataset consist of 130 earthquakes and 31 variables for the BHRC (Iran) dataset and for the UOSS (Sharjah) dataset there are 130 earthquakes and 25 variable, after removing all the earthquake without time series we finally get 89 earthquake records, These dataset consist details of the earthquake i.e. earthquake number, station name, Un.PGA, time series, longitude, latitude, magnitude type, epicentral distance, depth and effective duration, vs30 (m/s) and fault type etc.  Finally we Apply input from Iran data to 10 developed attenuation equations from literature and compare the output.

**Dependent Variable**

Peak ground acceleration, Horizontal peak ground acceleration

**Independent Variable**

earthquake number, station name, Un.PGA, time series, longitude, latitude, magnitude type, epicentral distance, depth and effective duration, vs30 (m/s) and fault type etc.

**Proposed model**

**Ensemble methods** is a machine learning technique that combines several base models in order to produce one optimal predictive model. We will design and implement a cutting edge advanced statistical model using random forest algorithm and get the output for the same technique after that, we use another technique to build a new model using KNN and the third model is build using logistic regression. Then we will compare the result of all these algorithm, finally we will build a new model by combining all these three techniques together (Ensemble Technique), so that we can get a more accurate model for our research work.

**Alternative model:**

To build a new model using deep learning using tensorflow framework techniques for the best prediction result.

**Attachments**

* “Data”: containing excel
* “Reference Paper”: containing reference paper
* Draft

**Timeline**

* 8 Days. Sooner is better.

**What to send?**

Send your submission to below email:

1. Completed draft
2. Source codes if any
3. Analytics ready data
4. Your CV
5. Send your submission to [uday@blackcoffer.com](mailto:uday@blackcoffer.com)
6. Fill this google form: <https://forms.gle/4ssH3UKJjNTkUon46>
7. Inform us at [uday@blackcoffer.com](mailto:uday@blackcoffer.com)

Drop message at Skype id "usravidas" if you have any questions regarding assignment.