Project name: KAGGLE-VOLCANOES

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**Task 2. Business understanding** (400-800 words)

**Keep the report concise and feel free to state that some aspect is not relevant in your project.** If your project is not meant to benefit a ‘business’, then please specify who will benefit from the project and perform business understanding from their perspective. For instance, this could be either one or multiple individuals, organizations, or societies. **Please focus on the goals that you plan to directly contribute to, not on the generic goals** (like making the world a better place).

* Identifying business goals
  + The project is about predicting volcanic eruptions like today scientists are predicting the weather. Even one foreseen volcanic eruption means that people living in that area can evacuate in time and that possibly saves thousands of lives. Eruptions are challenging to predict because the patterns of seismicity are different for types of volcanoes and therefore difficult to interpret. For very active volcanoes scientists can only predict eruptions few minutes in advance and that is not enough for saving lives.

Just in 2019 there were 73 confirmed eruptions, currently there are many volcanoes with continuing eruptions and each day there could be a new one without a warning.

* + Our project is not meant for a certain business, but rather is meant for societies living in such areas that possibly could be affected by volcanic eruptions. Especially for these communities that live near (very) active volcanoes.
  + Business success criteria
* Assessing your situation
  + For resources we have the data given in the Kaggle competition. In addition to that we have a chance to discuss with other competitors and also ask from the authors of the Kaggle competition from the National Institute of Geophysics and Volcanology.
  + The Kaggle competition that we are competing in with our project is ending on 30th of December 2020, but because our course has it’s own deadline before that then the competitions actual deadline is not valid for us. It is said in the competition rules that we can use the given data for any purpose and also use other external data from the Internet for the competition that is available to all participants.
  + We did not find any risks or continqencies that could cause a delay the completion.
  + Terminology that is relevant to our project:

volcanic eruptions - occurs when magma is released from a volcano;

magma - a hot fluid or semi-fluid material below or within the earth's crust from which lava and other igneous rock is formed on cooling;

seismic signals/waveforms/activity - an elastic wave in the earth produced by an earthquake or other means;

seismic sensors - an instrument to measure the ground motion when it is shaken by a perturbation;

active volcano - a volcano that has had at least one eruption during the past 10,000 years;

dormant volcano - an active volcano that is not erupting, but supposed to erupt again.

* + Costs and benefits
* Defining your data-mining goals
  + Data-mining goals
  + Data-mining success criteria

**Task 3. Data understanding** (400-800 words)

* Gathering data
  + Outline data requirements
  + Verify data availability
  + Define selection criteria
* Describing data
* Exploring data
* Verifying data quality

**Task 4. Planning the project** (100-300 words)

* Make a detailed plan of your project with a list of tasks. There should be at least 5 tasks. Specify how many hours each team member is going to contribute to each task.
* List the methods and tools that you plan to use. Add any comments about the tasks that you think are important to clarify.