The Analysis of Mineral Ores

The goal of this project is to analyze the mineral ores dataset to get a deeper understanding of which of these mineral ores exist at most and what kind of metals can be extracted. At first, python's environment being set up for data analysis with loading the necessary library, including pandas, and matplotlib. The dataset is being read through ‘pandas’ data frame module and then handling the missing values. Since the objective of this project is to know which mineral ores are present on earth at most, we need to group data by rock type column with pandas ‘groupby’ function. We notice that the number of rock types is reached 3 thousand but we are interested in the top 7 of these mineral ores. In this case, we export the rock type and its frequency to the database for easier selection. After that, we imported ‘create_engine’ class from sqlalchemy to connect to the database and execute SQL queries which produced the top 7 mineral ores. Using a comprehension dictionary for the return query, make it much easier for visualizing as shown in the first figure. Next, we focus on the top 4 of these minerals which include limestone, andesite, gravel, and diorite for 5 selected countries. As shown from the second figure, the United States has a higher quantity of these mineral ores especially limestone. Finally, we compare the quantity of gold and silver metals found in these mineral ores. For limestone, the quantity of silver is larger than gold. In contrast, diorite has more amount of gold than silver even though this type of mineral ore occurs less on the earth.

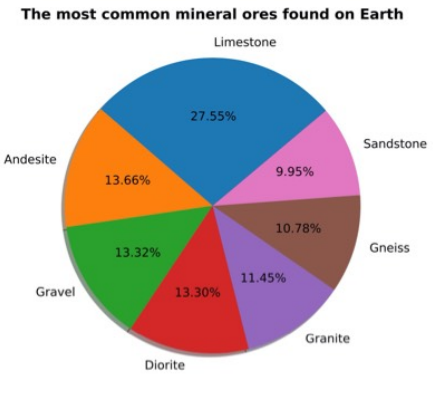

Figure. 1

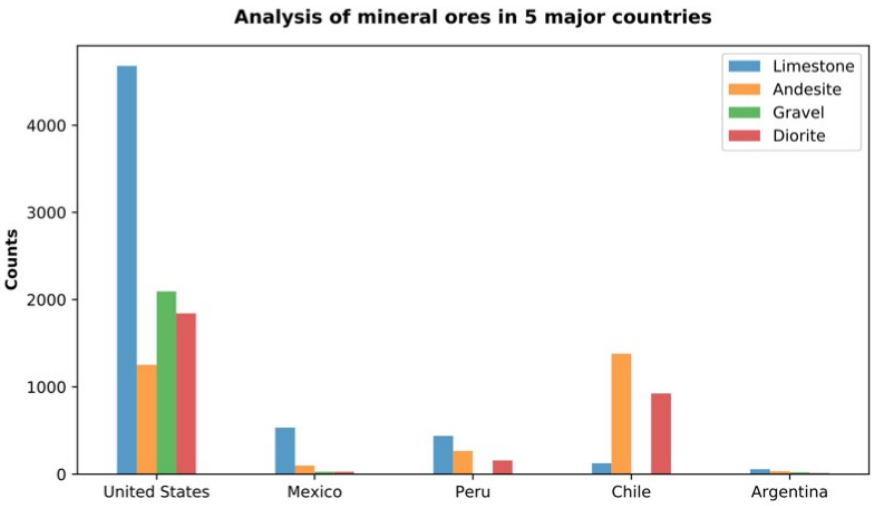

Figure. 2