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Statistics in oil and Engineering field

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Mathematics plays a critical role in engineering because it requires individuals to collect data and perform statistical analysis to be able to identify better methods of processing as well as reducing on the cost. Therefore, being in the oil and engineering field, I have to consider several statistical techniques that play a significant role in the industry. The oil and gas industry is concerned with two things, the upstream comprised of finding oil deposits and obtaining the crude oil out of the ground which is the processing part. Thus, the hydrocarbon necessitates the procedures of exploration and recovery. Besides, the second stage is downstream which concentrates on changing the crude oil to products that can be used. The processes involved in the conversion of the products include refining and petrochemicals that are then delivered to the

consumers. The whole process requires some statistical analysis. The techniques selected are forecasting, data and statistics and sampling and sampling distributions.

Data and statistics is an essential technique that must be possessed by oil engineers because the whole process requires the use of data. Data is a single piece of realistic information recorded and utilized for the aim of analysis. Sumbal et al. (2017) argued that technology advancement has resulted in the emergence of big data analytics due to immense data that requires analysis in industries, and the oil industry is no exception. Engineers have collected enormous data that is stored and thus calls to be realized, combined, stored, examined and perfected to yield positive results. The capability to access and develop conclusions from the immense data sets obtained by engineers enables oil companies to operate proficiently and lucratively. Furthermore, through better data and statistics techniques exhibited by engineers, oil companies can run effectively by employing hasty predictions based on probable data and maintain their costs low by utilizing their achievement without interfering with any differences in the assessment of the data.

Another statistical technique that is mostly related to my oil and engineering field is forecasting. Forecasting technique is the utilization of past data to make informed predictions that will provide estimates in obtaining the direction of future trends. The oil industry will require immense capital to set the required machines, therefore, through forecasting engineers can determine the future of the process. Additionally, the main purpose of forecasting is to help in the allocation of budgets and plan for the projected expenses for the impending time. According to Hodges et al. (2015), forecasting allows engineers to enhance their product performance in case of several failure scenarios occur. Hence, precautionary measures are important in the supply chain process, as there is a need to avoid the likelihood of service outage.

Before oil is extracted proper sampling techniques are needed. Therefore, as an oil and engineering student, there is a need for sampling and sampling distribution techniques. The sampling distribution is a probability distribution of a statistic attained from a bigger number of samples strained from a definite population. For that reason, the purpose of this knowledge will help in distributing occurrences of a variety of results that could likely happen for a statistic. Fitch and Troyer (2004), argued that suitable oil sampling is vital to an efficient oil analysis plan because the poor representative sample will result in unsuccessful analysis. Thus, the technique will allow the engineer to obtain a sample based on maximized data density as well as based on data linked with many standards' such as dryness of the oil, the availability of wear particles produced by the machinery and reduction of extracts.

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