**DAILY ASSESSMENT FORMAT**

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| **Date:** | **27/07/2020** | **Name:** | **Lavanya B** |
| **Course:** | **Basic statistics** | **USN:** | **4al17ec043** |
| **Topic:** | **Week 3** | **Semester & Section:** | **6th A** |
| **Github Repository:** | **Lavanya-B** |  |  |

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| **SESSION DETAILS** |
| **Image of session** |
| **Report**  **Data collection Edit**  **Sampling Edit**  **When full census data cannot be collected, statisticians collect sample data by developing specific experiment designs and survey samples. Statistics itself also provides tools for prediction and forecasting through statistical models. The idea of making inferences based on sampled data began around the mid-1600s in connection with estimating populations and developing precursors of life insurance.**  **To use a sample as a guide to an entire population, it is important that it truly represents the overall population. Representative sampling assures that inferences and conclusions can safely extend from the sample to the population as a whole. A major problem lies in determining the extent that the sample chosen is actually representative. Statistics offers methods to estimate and correct for any bias within the sample and data collection procedures. There are also methods of experimental design for experiments that can lessen these issues at the outset of a study, strengthening its capability to discern truths about the population.**  **Sampling theory is part of the mathematical discipline of probability theory. Probability is used in mathematical statistics to study the sampling distributions of sample statistics and, more generally, the properties of statistical procedures. The use of any statistical method is valid when the system or population under consideration satisfies the assumptions of the method. The difference in point of view between classic probability theory and sampling theory is, roughly, that probability theory starts from the given parameters of a total population to deduce probabilities that pertain to samples. Statistical inference, however, moves in the opposite direction—inductively inferring from samples to the parameters of a larger or total population.**  **Experiments Edit**  **The basic steps of a statistical experiment are:**   1. **Planning the research, including finding the number of replicates of the study, using the following information: preliminary estimates regarding the size of treatment effects, alternative hypotheses, and the estimated experimental variability. Consideration of the selection of experimental subjects and the ethics of research is necessary. Statisticians recommend that experiments compare (at least) one new treatment with a standard treatment or control, to allow an unbiased estimate of the difference in treatment effects.** 2. **Design of experiments, using blocking to reduce the influence of confounding variables, and randomized assignment of treatments to subjects to allow unbiased estimates of treatment effects and experimental error. At this stage, the experimenters and statisticians write the experimental protocol that will guide the performance of the experiment and which specifies the primary analysis of the experimental data.** 3. **Performing the experiment following the experimental protocol and analyzing the data following the experimental protocol.** 4. **Further examining the data set in secondary analyses, to suggest new hypotheses for future study.** |