Classifications

Data Visualization

Line Charts

- Line Charts
  - Line charts are used to plot data points, connected by straight lines, to show trends over a continuous variable.
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  - Line charts are used to plot data points, connected by straight lines, to show trends over a continuous variable.
- Multi-Axis
  - Multi-axis charts allow for the plotting of two different variables on different scales, enabling comparison of their trends and relationships.
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- Stacked Area
  - Stacked area charts show the cumulative total of multiple datasets over time, with each dataset represented by a different color.
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- Stacked Bar
  - Stacked bar charts show the total of multiple datasets, with each dataset represented by a different color within the bar.
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Bar Charts

- Bar Charts
  - Bar charts are used to compare discrete categories.
  - Bar charts are used to compare discrete categories.
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  - Bar charts are used to compare discrete categories.
  - Bar charts are used to compare discrete categories.
- Grouped Bar Charts
  - Grouped bar charts are used to compare multiple categories across different groups.
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Pie Charts

- Pie Charts
  - Pie charts are used to show the proportions of different categories in a dataset.
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  - Pie charts are used to show the proportions of different categories in a dataset.
- Donut Charts
  - Donut charts are similar to pie charts, but with a hole in the center, which can be used to display additional information.
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  - Donut charts are similar to pie charts, but with a hole in the center, which can be used to display additional information.
- Sunburst Charts
  - Sunburst charts are used to show hierarchical data, with each level represented by a different ring.
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- Treemaps
  - Treemaps are used to show hierarchical data, with each level represented by a different color.
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Data probability and sampling theory

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  - Treemaps are used to show hierarchical data, with each level represented by a different color.
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Logistic Regression

Multinomial Logistic Regression

- Multinomial Logistic Regression
  - Multinomial logistic regression is used when the dependent variable has more than two categories.
  - Multinomial logistic regression is used when the dependent variable has more than two categories.
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  - Multinomial logistic regression is used when the dependent variable has more than two categories.
  - Multinomial logistic regression is used when the dependent variable has more than two categories.
- Ordinal Logistic Regression
  - Ordinal logistic regression is used when the dependent variable has ordinal categories.
  - Ordinal logistic regression is used when the dependent variable has ordinal categories.
  - Ordinal logistic regression is used when the dependent variable has ordinal categories.
  - Ordinal logistic regression is used when the dependent variable has ordinal categories.
  - Ordinal logistic regression is used when the dependent variable has ordinal categories.
- Binary Logistic Regression
  - Binary logistic regression is used when the dependent variable has two categories.
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  - Binary logistic regression is used when the dependent variable has two categories.
- Assumptions
  - Assumptions of logistic regression include linearity, independence, and absence of multicollinearity.
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- Odds Ratio
  - The odds ratio is a measure of association between a predictor variable and the outcome.
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Statistical Inference and Estimation

Confidence Intervals

- Confidence Intervals
  - Confidence intervals provide a range of values that are likely to contain the true population parameter.
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  - Confidence intervals provide a range of values that are likely to contain the true population parameter.
- Confidence Intervals for Proportions
  - Confidence intervals for proportions are used to estimate the proportion of a population that has a certain characteristic.
  - Confidence intervals for proportions are used to estimate the proportion of a population that has a certain characteristic.
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  - Confidence intervals for proportions are used to estimate the proportion of a population that has a certain characteristic.
  - Confidence intervals for proportions are used to estimate the proportion of a population that has a certain characteristic.
- Confidence Intervals for Means
  - Confidence intervals for means are used to estimate the mean of a population.
  - Confidence intervals for means are used to estimate the mean of a population.
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  - Confidence intervals for means are used to estimate the mean of a population.
  - Confidence intervals for means are used to estimate the mean of a population.
- Confidence Intervals for Variances
  - Confidence intervals for variances are used to estimate the variance of a population.
  - Confidence intervals for variances are used to estimate the variance of a population.
  - Confidence intervals for variances are used to estimate the variance of a population.
  - Confidence intervals for variances are used to estimate the variance of a population.
  - Confidence intervals for variances are used to estimate the variance of a population.
- Confidence Intervals for Regression
  - Confidence intervals for regression are used to estimate the relationship between variables.
  - Confidence intervals for regression are used to estimate the relationship between variables.
  - Confidence intervals for regression are used to estimate the relationship between variables.
  - Confidence intervals for regression are used to estimate the relationship between variables.
  - Confidence intervals for regression are used to estimate the relationship between variables.
- Interpretation
  - Confidence intervals provide a range of values that are likely to contain the true population parameter.
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  - Confidence intervals provide a range of values that are likely to contain the true population parameter.
  - Confidence intervals provide a range of values that are likely to contain the true population parameter.
- Confidence Level
  - The confidence level is the probability that the confidence interval will contain the true population parameter.
  - The confidence level is the probability that the confidence interval will contain the true population parameter.
  - The confidence level is the probability that the confidence interval will contain the true population parameter.
  - The confidence level is the probability that the confidence interval will contain the true population parameter.
  - The confidence level is the probability that the confidence interval will contain the true population parameter.
- Confidence Level and Sample Size
  - The confidence level and sample size are related to the width of the confidence interval.
  - The confidence level and sample size are related to the width of the confidence interval.
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  - The confidence level and sample size are related to the width of the confidence interval.

Hypothesis Testing

- Hypothesis Testing
  - Hypothesis testing is used to make decisions about the population based on sample data.
  - Hypothesis testing is used to make decisions about the population based on sample data.
  - Hypothesis testing is used to make decisions about the population based on sample data.
  - Hypothesis testing is used to make decisions about the population based on sample data.
  - Hypothesis testing is used to make decisions about the population based on sample data.
- Null Hypothesis
  - The null hypothesis is the default assumption that there is no effect or no difference.
  - The null hypothesis is the default assumption that there is no effect or no difference.
  - The null hypothesis is the default assumption that there is no effect or no difference.
  - The null hypothesis is the default assumption that there is no effect or no difference.
  - The null hypothesis is the default assumption that there is no effect or no difference.
- Alternative Hypothesis
  - The alternative hypothesis is the hypothesis that there is an effect or a difference.
  - The alternative hypothesis is the hypothesis that there is an effect or a difference.
  - The alternative hypothesis is the hypothesis that there is an effect or a difference.
  - The alternative hypothesis is the hypothesis that there is an effect or a difference.
  - The alternative hypothesis is the hypothesis that there is an effect or a difference.
- Type I Error
  - Type I error is the rejection of the null hypothesis when it is true.
  - Type I error is the rejection of the null hypothesis when it is true.
  - Type I error is the rejection of the null hypothesis when it is true.
  - Type I error is the rejection of the null hypothesis when it is true.
  - Type I error is the rejection of the null hypothesis when it is true.
- Type II Error
  - Type II error is the acceptance of the null hypothesis when it is false.
  - Type II error is the acceptance of the null hypothesis when it is false.
  - Type II error is the acceptance of the null hypothesis when it is false.
  - Type II error is the acceptance of the null hypothesis when it is false.
  - Type II error is the acceptance of the null hypothesis when it is false.
- Significance Level
  - The significance level is the probability of rejecting the null hypothesis when it is true.
  - The significance level is the probability of rejecting the null hypothesis when it is true.
  - The significance level is the probability of rejecting the null hypothesis when it is true.
  - The significance level is the probability of rejecting the null hypothesis when it is true.
  - The significance level is the probability of rejecting the null hypothesis when it is true.
- Power of a Test
  - The power of a test is the probability of rejecting the null hypothesis when it is false.
  - The power of a test is the probability of rejecting the null hypothesis when it is false.
  - The power of a test is the probability of rejecting the null hypothesis when it is false.
  - The power of a test is the probability of rejecting the null hypothesis when it is false.
  - The power of a test is the probability of rejecting the null hypothesis when it is false.
- Factors Affecting Power
  - Factors affecting power include sample size, effect size, and significance level.
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  - Factors affecting power include sample size, effect size, and significance level.
  - Factors affecting power include sample size, effect size, and significance level.
- Power and Sample Size
  - Power and sample size are related, with larger sample sizes increasing the power of a test.
  - Power and sample size are related, with larger sample sizes increasing the power of a test.
  - Power and sample size are related, with larger sample sizes increasing the power of a test.
  - Power and sample size are related, with larger sample sizes increasing the power of a test.
  - Power and sample size are related, with larger sample sizes increasing the power of a test.
- Power and Significance Level
  - Power and significance level are related, with higher significance levels increasing the power of a test.
  - Power and significance level are related, with higher significance levels increasing the power of a test.
  - Power and significance level are related, with higher significance levels increasing the power of a test.
  - Power and significance level are related, with higher significance levels increasing the power of a test.
  - Power and significance level are related, with higher significance levels increasing the power of a test.

Regression Analysis

- Regression Analysis
  - Regression analysis is used to model the relationship between variables.
  - Regression analysis is used to model the relationship between variables.
  - Regression analysis is used to model the relationship between variables.
  - Regression analysis is used to model the relationship between variables.
  - Regression analysis is used to model the relationship between variables.
- Linear Regression
  - Linear regression is used when the relationship between variables is linear.
  - Linear regression is used when the relationship between variables is linear.
  - Linear regression is used when the relationship between variables is linear.
  - Linear regression is used when the relationship between variables is linear.
  - Linear regression is used when the relationship between variables is linear.
- Multiple Linear Regression
  - Multiple linear regression is used when there are multiple independent variables.
  - Multiple linear regression is used when there are multiple independent variables.
  - Multiple linear regression is used when there are multiple independent variables.
  - Multiple linear regression is used when there are multiple independent variables.
  - Multiple linear regression is used when there are multiple independent variables.
- Assumptions
  - Assumptions of linear regression include linearity, independence, and absence of multicollinearity.
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- Residuals
  - Residuals are the differences between the observed and predicted values.
  - Residuals are the differences between the observed and predicted values.
  - Residuals are the differences between the observed and predicted values.
  - Residuals are the differences between the observed and predicted values.
  - Residuals are the differences between the observed and predicted values.
- Residual Analysis
  - Residual analysis is used to check the assumptions of linear regression.
  - Residual analysis is used to check the assumptions of linear regression.
  - Residual analysis is used to check the assumptions of linear regression.
  - Residual analysis is used to check the assumptions of linear regression.
  - Residual analysis is used to check the assumptions of linear regression.
- Multicollinearity
  - Multicollinearity is the presence of high correlation among independent variables.
  - Multicollinearity is the presence of high correlation among independent variables.
  - Multicollinearity is the presence of high correlation among independent variables.
  - Multicollinearity is the presence of high correlation among independent variables.
  - Multicollinearity is the presence of high correlation among independent variables.
- Variance Inflation Factor (VIF)
  - The variance inflation factor (VIF) is a measure of multicollinearity.
  - The variance inflation factor (VIF) is a measure of multicollinearity.
  - The variance inflation factor (VIF) is a measure of multicollinearity.
  - The variance inflation factor (VIF) is a measure of multicollinearity.
  - The variance inflation factor (VIF) is a measure of multicollinearity.
- Logistic Regression
  - Logistic regression is used when the dependent variable is binary.
  - Logistic regression is used when the dependent variable is binary.
  - Logistic regression is used when the dependent variable is binary.
  - Logistic regression is used when the dependent variable is binary.
  - Logistic regression is used when the dependent variable is binary.
- Odds Ratio
  - The odds ratio is a measure of association between a predictor variable and the outcome.
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