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Fwd: R bit

1 message

Anantha Krishna J <ananthakrishnadon@gmail.com> Sat, Mar 16, 2024 at 8:48 AM
To: Deepak Sharvan <deepaksharvan1002@gmail.com>, Augustin Arul Raja <augustinarulraja@gmail.com>

---------- Forwarded message ---------
From: **Anantha Krishna J** <ananthakrishnadon@gmail.com>
Date: Fri, Mar 15, 2024, 9:58 PM
Subject: R bit
To: Anantha Krishna J <ananthakrishnadon@gmail.com>

6.Residuals:

```
library(ggplot2)

x <- c(1, 2, 3, 4, 5)

y <- c(2, 5, 3, 8, 7)

model <- lm(y ~ x)

residuals <- resid(model)

ggplot(data.frame(Fitted = fitted(model), Residuals = residuals), aes(x = Fitted, y = Residuals)) +
geom_point() +geom_hline(yintercept = 0, linetype = "dashed", color = "red") +

 labs(title = "Residuals vs Fitted Values", x = "Fitted Values", y = "Residuals")

shapiro_test <- shapiro.test(residuals)

print(shapiro_test)

qqnorm(residuals)

qqline(residuals)
```

7.Probability Distribution:

```
library(ggplot2)

library(reshape2)

generate_distributions <- function(n, mean, sd, lambda) {

  normal_data <- rnorm(n, mean, sd)

  uniform_data <- runif(n)

  exponential_data <- rexp(n, lambda)

  poisson_data <- rpois(n, lambda)

  data <- data.frame(Normal = normal_data,
                   Uniform = uniform_data,
                   Exponential = exponential_data,
                   Poisson = poisson_data)
  return(data)
}
n <- 1000
mean <- 0
sd <- 1
lambda <- 1
distributions <- generate_distributions(n, mean, sd, lambda)
distributions_melted <- melt(distributions)
ggplot(distributions_melted, aes(x = value, fill = variable)) +
  geom_density(alpha = 0.5) +
  facet_wrap(~ variable, scales = "free") +
  labs(title = "Probability Distributions",
       x = "Value",
       y = "Density")
```

8.One Way anova

```
method_A <- c(80, 85, 88, 92, 95)
method_B <- c(75, 78, 82, 87, 90)
method_C <- c(70, 72, 75, 80, 85)
data <- data.frame(
  method = factor(rep(c("A", "B", "C"), each = 5)),
  score = c(method_A, method_B, method_C)
)
str(data)
anova_result <- aov(score ~ method, data = data)
summary(anova_result)
tukey_result <- TukeyHSD(anova_result)
print(tukey_result)
```

9.Time Series

```
library(forecast)
data <- read.csv("min_temp_data.csv")
```

```
data$date <- as.Date(data$date)

plot(data$date, data$min_temperature, type = "l", xlab = "Date", ylab = "Minimum Temperature", main = "Time Series Plot")

arima_model <- auto.arima(data$min_temperature)

summary(arima_model)

future_forecast <- forecast(arima_model, h = 30) # Forecasting 30 future values (about a month)

plot(future_forecast, main = "Forecasted Minimum Temperatures")
```