```
install.packages("quantmod")

# Load required libraries
library(quantmod)
library(ggplot2)

# Specify the ticker symbol of the company (AAPL for Apple Inc.)
ticker <- "AAPL"

# Set the start and end dates for the historical data
start_date <- as.Date("2020-01-01")
end_date <- Sys.Date()  # Today's date

# Retrieve historical stock price data
getSymbols(ticker, src = "yahoo", from = start_date, to = end_date)

# Plot the stock prices over time
ggplot(data = as.data.frame(AAPL), aes(x = index(AAPL), y = AAPL$AAPL.Close)) +
  geom_line() +
  labs(title = "Apple Inc. Stock Prices",
       x = "Date",
       y = "Price (USD)")

# Calculate daily returns
AAPL_returns <- diff(log(AAPL$AAPL.Close))

# Plot the daily returns over time
ggplot(data = data.frame(Date = index(AAPL)[-1], Returns = AAPL_returns), aes(x = Date,
y = Returns)) +
  geom_line() +
  labs(title = "Apple Inc. Daily Returns",
       x = "Date",
       y = "Daily Returns")

# Decompose the time series into trend, seasonal, and irregular components
AAPL_decomp <- decompose(AAPL$AAPL.Close)

# Plot the decomposed components
plot(AAPL_decomp)

# Test for stationarity
adf.test(AAPL$AAPL.Close)
```