Light curve analysis in the search for exoplanets

This dashboard visualizes flux measurements from thousands of stars observed by NASA's Kepler mission. Each star is classified based on whether it is confirmed to host at least one exoplanet (label = 2) or not (label = 1).

The light intensity (flux) of each star was recorded over time. Periodic dimming in the flux suggests the presence of an orbiting body — a candidate exoplanet. Confirmed exoplanet systems are the result of continued observation and multi-wavelength verification.

This analysis helps us understand how flux behavior correlates with the presence of exoplanets, supporting future automated detection efforts in astrophysics.

Total Stars Analysed 🌟

570

TotalStars

% Exoplanet Stars 🪐

0.01

% Exoplanet Stars

Average light flux on exoplanets 🌱

0.88

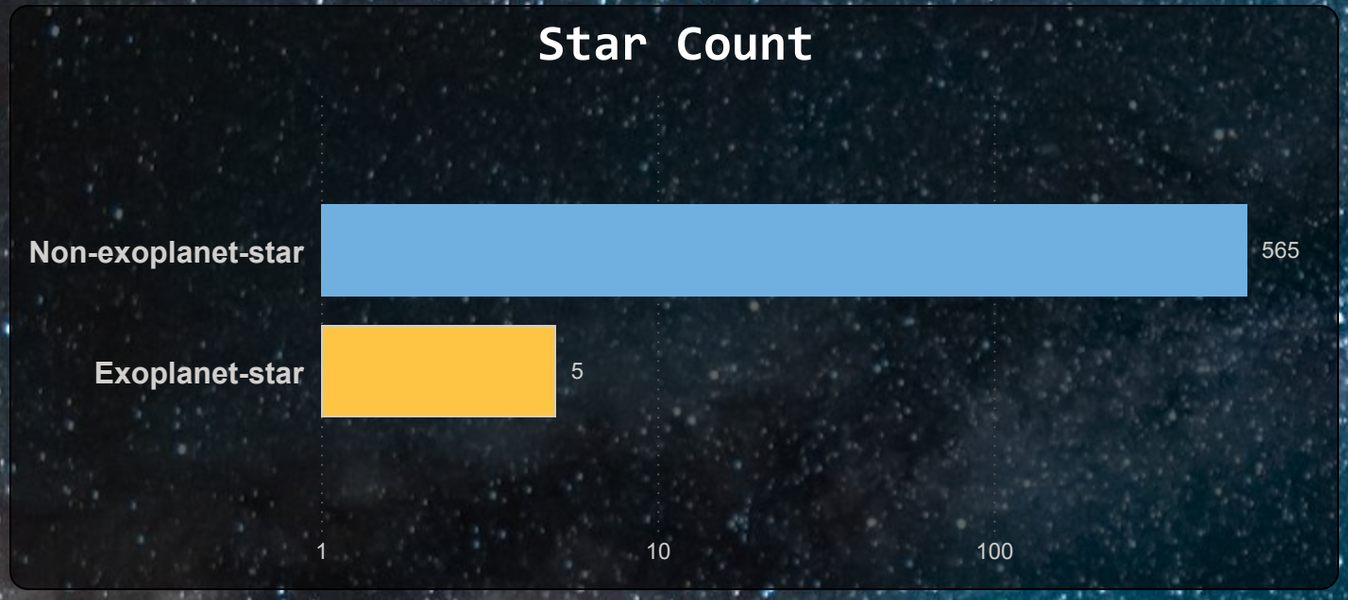
AvgFlux_Exoplanet

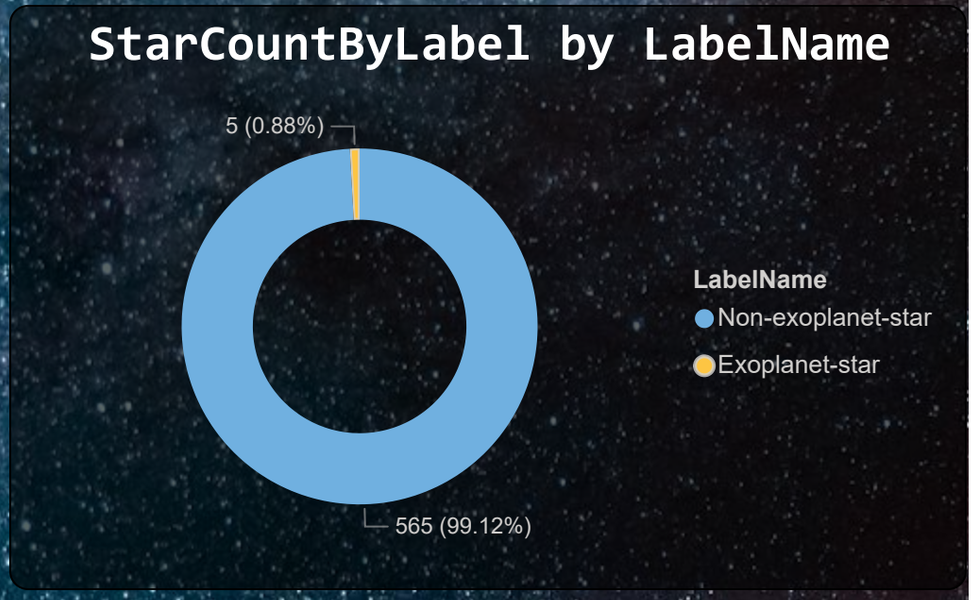
Average light flux on non-exoplanets 🍄

-23.92

AvgFlux_NoExoplanet

Planet Detection Analysis 🔬



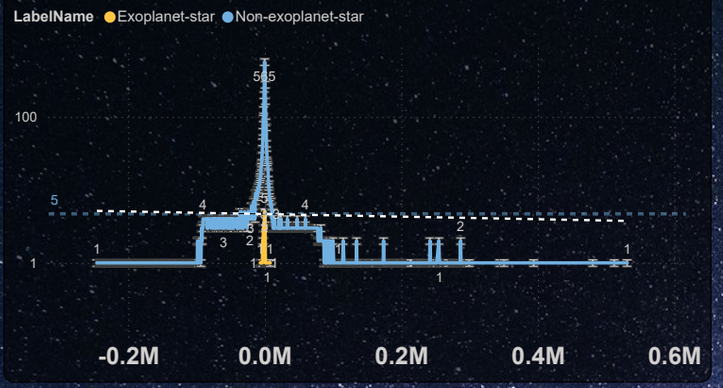


As you can see from the Kepler mission's results, a vanishingly small fraction of observed stars are found to host exoplanets—less than 1%. Specifically, 99.12% of the stars surveyed do not appear to have detectable exoplanets. This overwhelmingly low percentage is primarily due to several factors: the limitations of our current detection methods, which are more sensitive to larger planets and those in shorter orbits; the vastness of space meaning that even with many stars, the probability of one aligning perfectly for a transit detection is low; and the inherent rarity of planetary systems aligning precisely from our vantage point for transit detection, even if they exist. Furthermore, many stars may simply not possess planets, or their planets may be too small or too far from their host star to be currently detectable.

Flux Distribution

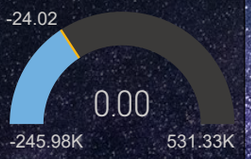
This dashboard explores the variation in star brightness (flux) observed by NASA's Kepler mission. Each star is labeled depending on whether it hosts at least one confirmed exoplanet. Flux variation patterns may suggest the presence of orbiting bodies like planets

Distribution of Stellar Flux



-246,000.00 555,454.87

High Flux %



Max Flux

531.33K

Max of Flux

Minimum Flux

-245.98K

Min of Flux

Average Flux

-24.02

Average of Flux