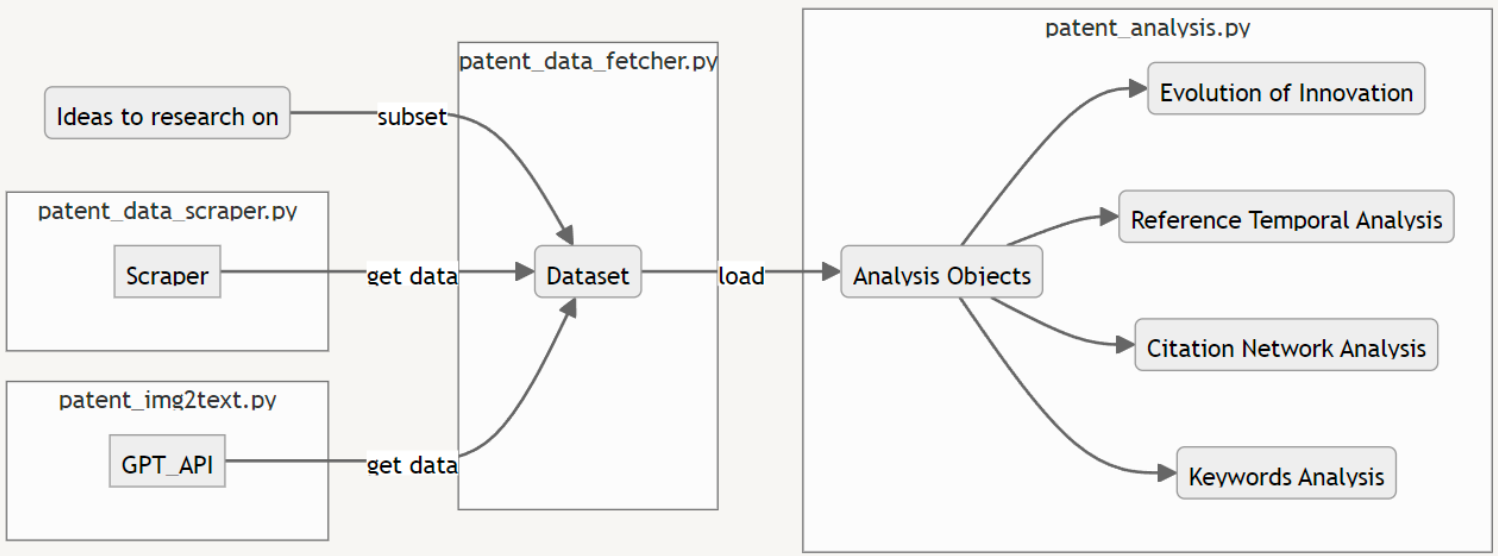
Package - How to Use



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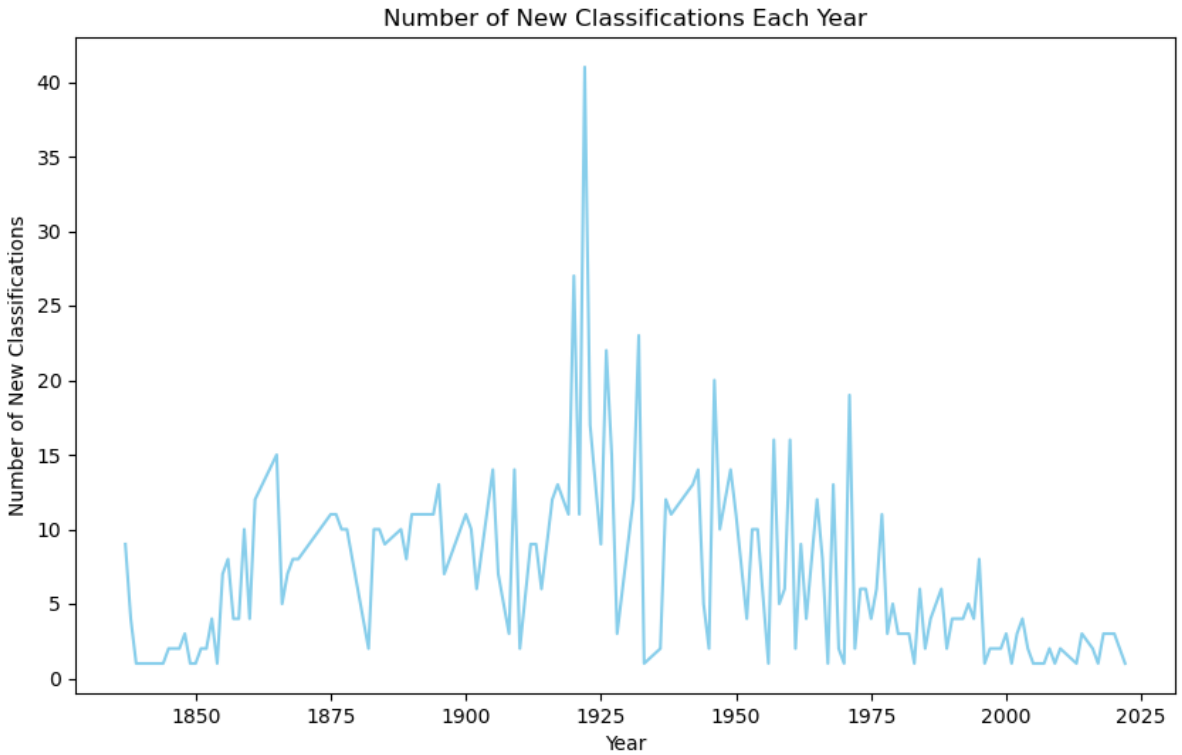
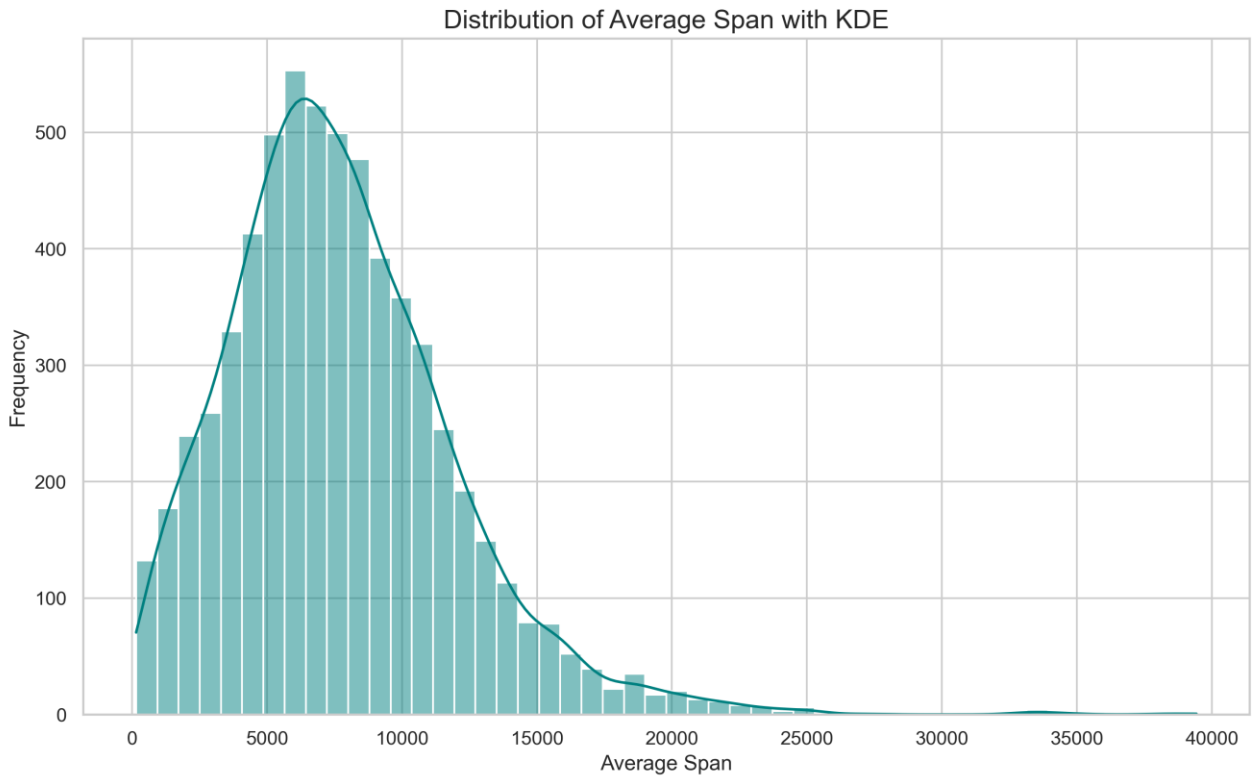


Evolution of Innovation:

Tracking the Surge in Patent Classifications from 1850 to 2025

The graph is a time series plot showing the "Number of New Classifications Each Year" from approximately 1850 to 2025. This graph represents the sum of the count of the first patent in each patent sub-sub-sub-classifications under F41(e.g. F41 A 3/01).

Each point on the line indicates the number of new categories that were introduced in a particular year. There is a particularly notable spike around 1925 where the number of patents jumps to its maximum on the chart, exceeding 40 patents in that year.



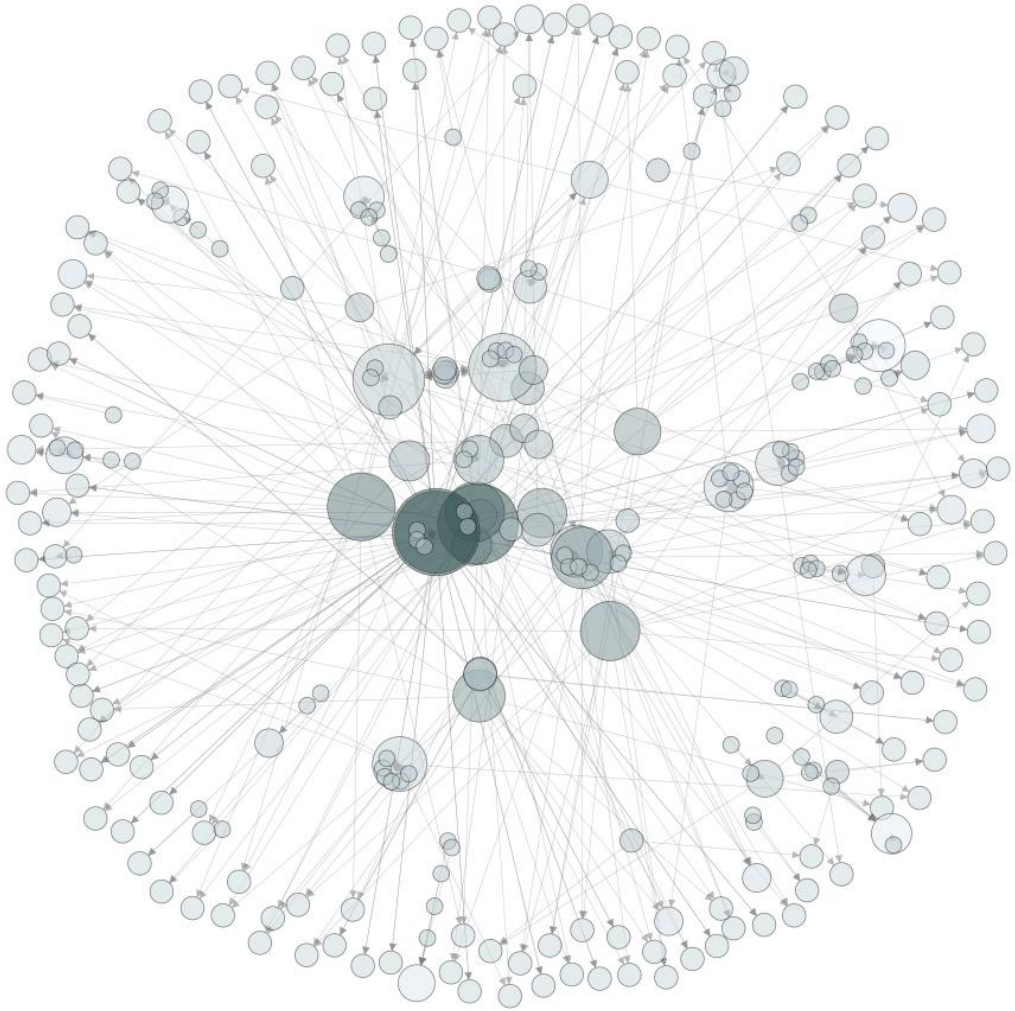
Temporal Dynamics of Patent References:

A Distribution Analysis

The graph is a histogram overlaid with a Kernel Density Estimate (KDE) plot, representing the distribution of time spans for patent references.

The x-axis, labeled "Average Span", indicates the number of days back. The y-axis, labeled "Frequency", indicates the number of instances (patents) that have reference spans across that many days.

The majority of the data is concentrated towards the left side of the graph, which implies that shorter time spans are much more common than longer ones. There are very few instances with a high average span, as indicated by the long tail of the KDE curve approaching the right end of the x-axis.



Patent Citation Network Visualization

This visualization presents a directed network graph of patents, showcasing the intricate web of citations among a selected subset of patent IDs. This network visually quantifies the impact and relevance of each patent within the selected subset. It provides insights into the structure of patent interconnections and identifying key patents that serve as crucial nodes in the dissemination of technological and innovative knowledge.

- **Directionality:** Arrows depict citations from child to parent patents, clarifying the direction of influence.
- **Node Size:** Reflects each patent's citation activity, with larger nodes indicating greater involvement in the citation network.
- **Color Intensity:** Deeper colors denote patents more frequently cited, underscoring their significance or foundational impact.
- **Layout:** The spring layout algorithm groups related patents and enhances clarity, facilitating the identification of innovation clusters.