

Retrieving Repository Information

- **Search Repositories:** Use the `/search/repositories` endpoint to find repositories based on keywords.
 - **Keywords Search:** Search repositories using specific keywords in the `q` parameter.
 - *Example:* `q=machine+learning+python` returns repositories related to machine learning and python
 - **Language Filter:** Filter results by programming language.
 - *Example:* `q=language:java`.
 - **Stars and Forks:** Filter repositories based on the number of stars or forks.
 - *Example:* `q=stars:>1000` retrieves repositories with more than 1000 stars.

Sorting and Ordering Results

- **Sort Parameters:** Use `sort` and `order` parameters to organize search results.
 - **Sort Options:** `stars`, `forks`, `updated`.
 - **Order:** `asc` (ascending) or `desc` (descending).
 - *Example:* `sort=stars&order=desc` sorts repositories by star count in descending order.

Accessing Repository Details

- **Repository Data:** Retrieve detailed information about repositories, such as name, description, URL, language, stars, forks, and owner information.
- **Direct Links:** Extract repository URLs for easy navigation to the GitHub page.

Pagination and Result Limits

- **Pagination:** Control the number of results per page using `per_page` and navigate through pages with `page`.
 - *Example:* `per_page=30&page=2`.

Limitations of the GitHub API

Rate Limiting

- **Unauthenticated Requests:**
 - Limited to **10 requests per minute**.
 - Suitable for testing but not for production applications.

- **Authenticated Requests:**
 - Increases the limit to **up to 5,000 requests per hour**.
 - Requires a Personal Access Token (PAT).

Search Result Limits

- **Maximum Results:**
 - The API returns up to **1,000 results** for any search query.
 - Cannot retrieve more than 1,000 items even with pagination.

Complex Queries Limitations

- **Query Length:**
 - There's a limit on the length and complexity of search queries.
 - Overly complex queries may result in errors or timeouts.

Access Restrictions

- **Private Repositories:**
 - Information on private repositories is accessible only with appropriate permissions.
 - Requires authentication with scopes that have access to private data.

Benefits of Authentication

- **Increased Rate Limits:**
 - Authenticated requests allow up to **5,000 requests per hour**.
 - Essential for applications that require frequent API calls.

Project : Team -2

Keyword-Based Search and Categorization:

- Use the search API to retrieve repositories based on user-input keywords.
- Categorize projects by analyzing repository metadata.

Making Projects Searchable:

- Implement a search feature that queries the GitHub API with user keywords.
- Use filters and sorting to refine search results.

Direct Navigation to GitHub Pages:

- Extract repository URLs from API responses for easy access.

