**Galaxy**

**Source Code: GitHub Repository**

What is it? The source code is the human-readable version of the software written in a programming language like Python. It includes all the instructions that are executed by the computer to run the Galaxy platform.

Why it is used? The source code is the foundation of the Galaxy platform. It defines the logic and functionality of the software. It allows developers to understand, modify, and contribute to the project.

How is it created? The source code is created by a community of developers who collaborate on the Galaxy project. Contributions come from individuals or groups interested in improving or extending the platform.

**Core Executable of the software:**

What is it? The core executable for Galaxy is the compiled version of its source code, usually in Python. It's the binary file that can be executed to run the Galaxy platform.

Why it is used? End-users, such as researchers and data analysts, run the core executable to access and utilize the features of the Galaxy platform. It provides a user-friendly interface for executing bioinformatics workflows without requiring users to delve into the details of the source code.

How is it created? The core executable is created through the compilation process, converting the Python source code into an executable binary. Tools like PyInstaller or py2exe can be employed to package the Galaxy software into a standalone executable for different operating systems.

**Codebase:**

What is it? The codebase of Galaxy is the entire collection of source code files, including Python scripts, configuration files, and other dependencies that constitute the Galaxy platform.

Why it is used? The codebase defines the functionality and behaviour of the Galaxy platform. It is the foundation for running bioinformatics workflows, managing datasets, and providing a user-friendly interface.

How is it created? The codebase is created and maintained by a community of developers who contribute to the Galaxy project. It is a collaborative effort, with contributors submitting changes through pull requests on the GitHub repository.

**Implemented Software Code:**

What is it? The implemented software code of Galaxy refers to the specific instructions and logic written in the Python programming language that make up the Galaxy platform.

Why it is used? This code implements the features and functionality of Galaxy, allowing users to create, run, and share bioinformatics workflows through a user-friendly web interface.

How is it created? The implemented code is created by developers who contribute to the Galaxy project. It involves writing Python scripts, defining data processing steps, and ensuring the overall functionality of the bioinformatics platform.

**Programmers and Tools Write or Create It:**

Programmers: The Galaxy codebase is primarily written and maintained by a community of programmers, including bioinformaticians, researchers, and developers. Contributions come from individuals and organizations interested in improving the capabilities of the Galaxy platform.

Tools: While the primary creation involves manual coding, developers may use collaborative tools such as Git for version control, GitHub for hosting the codebase, and various Python development tools and libraries to enhance the efficiency of code development and testing.

**Elastic Search**

**Source Code: GitHub Repository**

What is it? The source code for Elasticsearch is the set of instructions and logic written in Java to build the Elasticsearch search and analytics engine.

Why it is used? The source code is the backbone of Elasticsearch, providing the functionality to index and search large volumes of data quickly and in near real-time. It enables users to explore and analyze their data efficiently.

How is it created? The source code is developed and maintained by the Elasticsearch community, with contributions from individual developers and organizations interested in enhancing the search capabilities.

**Core Executable of the software:**

What is it? The core executable for Elasticsearch is the compiled version of the Java source code that constitutes the Elasticsearch search and analytics engine.

Why it is used? End-users run the core executable to deploy and manage Elasticsearch instances, allowing them to index, search, and analyze large volumes of data efficiently.

How is it created? The core executable is generated through the compilation process for Java applications. In the case of Elasticsearch, the build process typically involves tools like Apache Maven, which compiles the Java source code into a runnable JAR (Java Archive) file.

**Codebase:**

What is it? The codebase of Elasticsearch is the comprehensive set of Java source code files, configuration files, and other assets that make up the Elasticsearch search and analytics engine.

Why it is used? The codebase defines the algorithms and logic behind Elasticsearch's powerful search capabilities. It provides the foundation for indexing, searching, and analyzing large volumes of data.

How is it created? The codebase is developed by the Elasticsearch community, including individual contributors and organizations. It involves writing and maintaining Java code, implementing features, and addressing issues reported by users.

**Implemented Software Code:**

What is it? The implemented software code for Elasticsearch consists of Java code that defines the search and analytics capabilities of the Elasticsearch engine.

Why it is used? This code implements the algorithms for indexing and searching large volumes of data efficiently. It enables users to perform complex queries and obtain relevant results quickly.

How is it created? The implemented code is created by developers contributing to the Elasticsearch project. It involves writing Java classes and methods that handle the core functionalities of data indexing, searching, and analysis.

**Programmers and Tools Write or Create It:**

Programmers: The Elasticsearch codebase is developed by programmers in the open-source community, including individual contributors and organizations. These programmers write Java code to implement and enhance the search and analytics capabilities of Elasticsearch.

Tools: Development tools include Java IDEs (Integrated Development Environments) like IntelliJ or Eclipse, build tools like Apache Maven, and collaborative platforms like GitHub for version control. Automated testing tools may also be employed to ensure the reliability of the codebase.