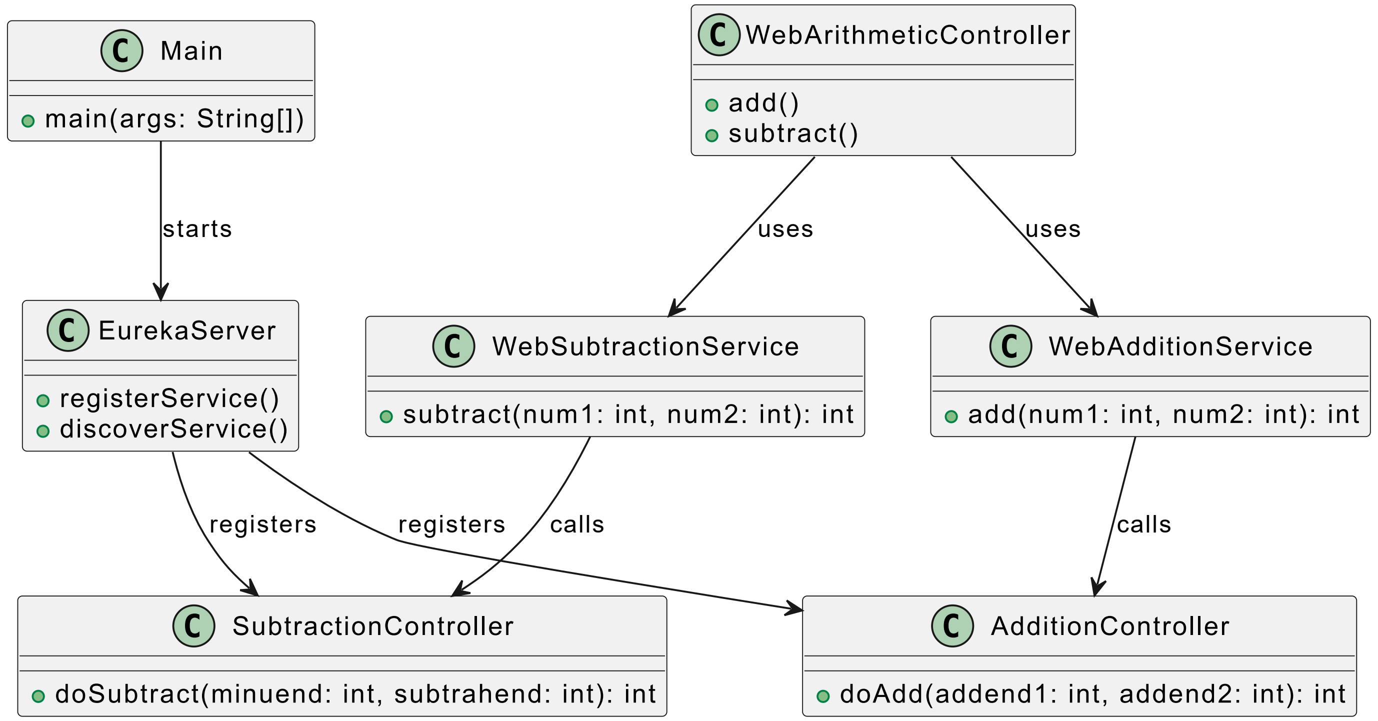
SASVA Project Scan Report

Git URL: https://github.com/shashvat12345/java-microservices.git | Branch: main

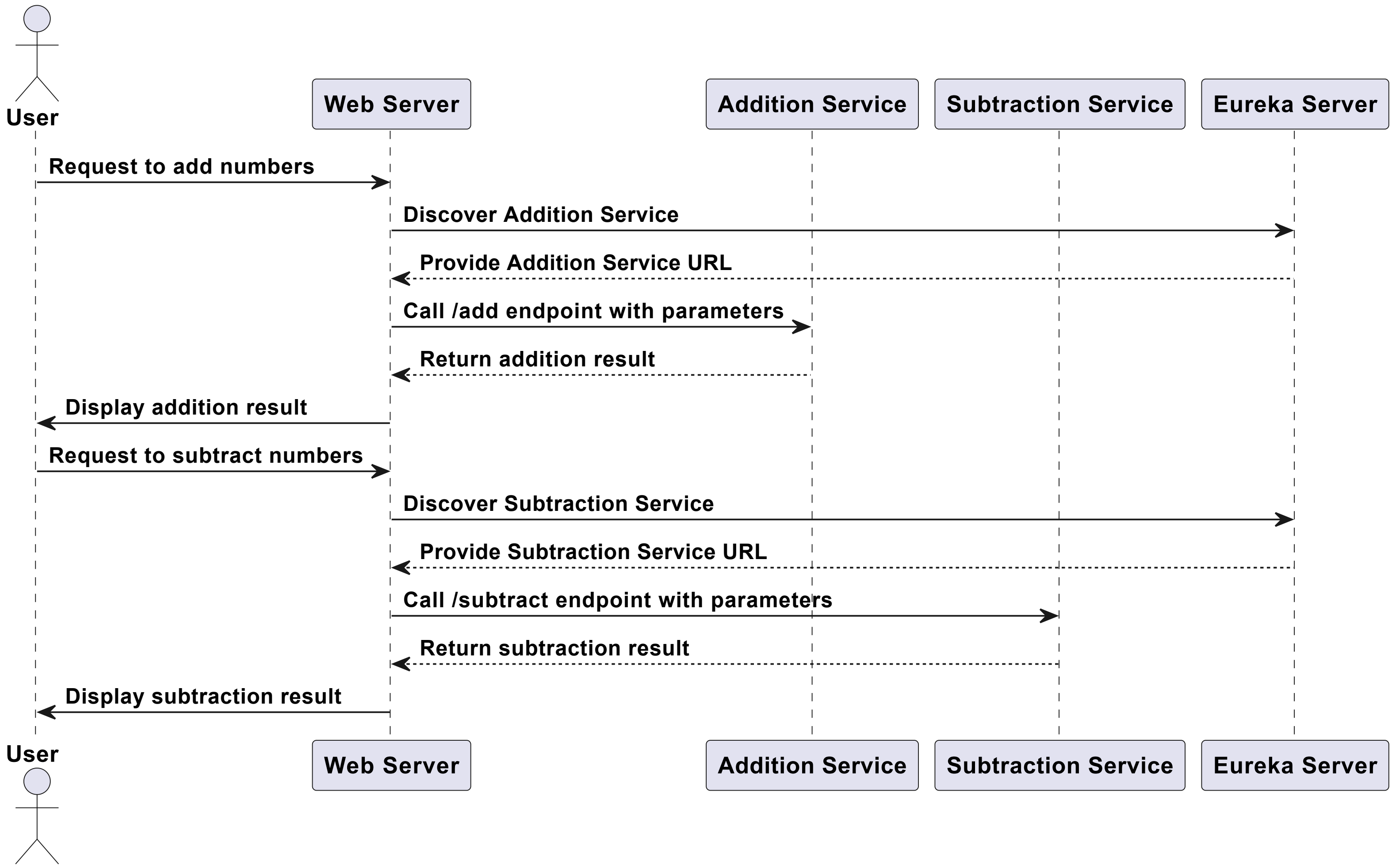
1) Class Diagram:

This class diagram illustrates the structure of a Spring Boot microservices application. It includes key classes such as Main, EurekaServer, AdditionController, SubtractionController, WebArithmeticController, WebAdditionService, and WebSubtractionService. The relationships show how the Main class starts the Eureka server, which registers the addition and subtraction services. The WebArithmeticController uses the addition and subtraction services to perform operations, which in turn call their respective controllers.



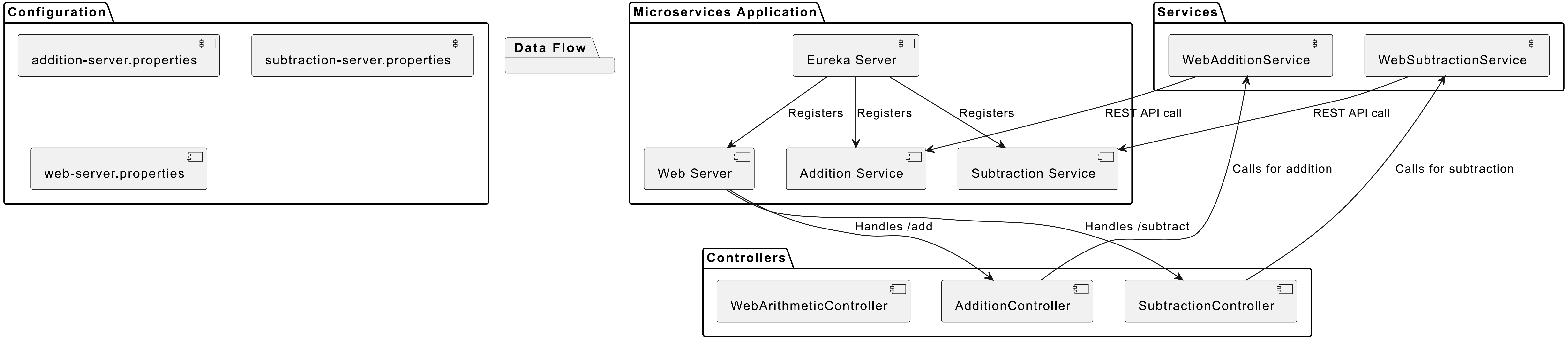
2) Sequence Diagram:

This sequence diagram illustrates the interaction between a user and the microservices architecture for performing arithmetic operations. The user initiates requests to add and subtract numbers through the Web Server, which first queries the Eureka Server for the respective service URLs. After obtaining the URLs, the Web Server calls the Addition and Subtraction Services, receives the results, and displays them back to the user.


User
Web Server
Addition Service
Subtraction Service
Eureka Server
Request to add numbers
Discover Addition Service
Provide Addition Service URL
Call /add endpoint with parameters
Return addition result
Display addition result
Request to subtract numbers
Discover Subtraction Service
Provide Subtraction Service URL
Call /subtract endpoint with parameters
Return subtraction result
Display subtraction result
User
Web Server
Addition Service
Subtraction Service
Eureka Server

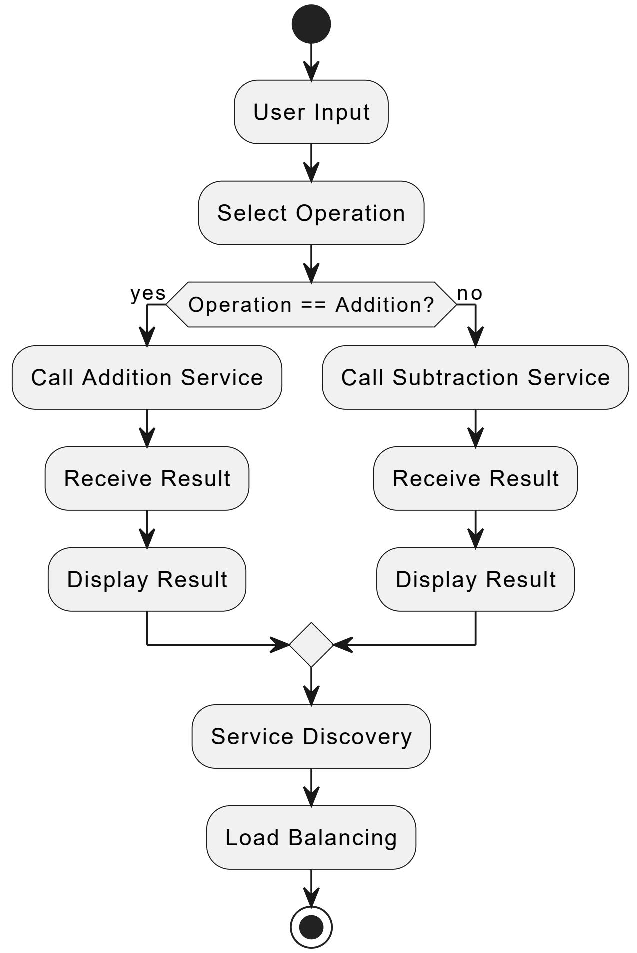
3) Logical Diagram:

This logical diagram illustrates the architecture of a Spring Boot microservices application. It includes the Eureka server for service discovery, the Addition and Subtraction services, and the Web server that handles user requests. The diagram also shows the configuration files for each service and the controllers that manage the REST API endpoints. The data flow indicates how services register with Eureka and how the web server interacts with the addition and subtraction services through their respective controllers and services.



4) Activity Diagram:

This activity diagram illustrates the flow of operations in the Spring Boot microservices application. It starts with user input to select an arithmetic operation (addition or subtraction). Based on the selection, it calls the respective service (Addition or Subtraction), receives the result, and displays it. The diagram also highlights the roles of service discovery and load balancing in facilitating communication between microservices.



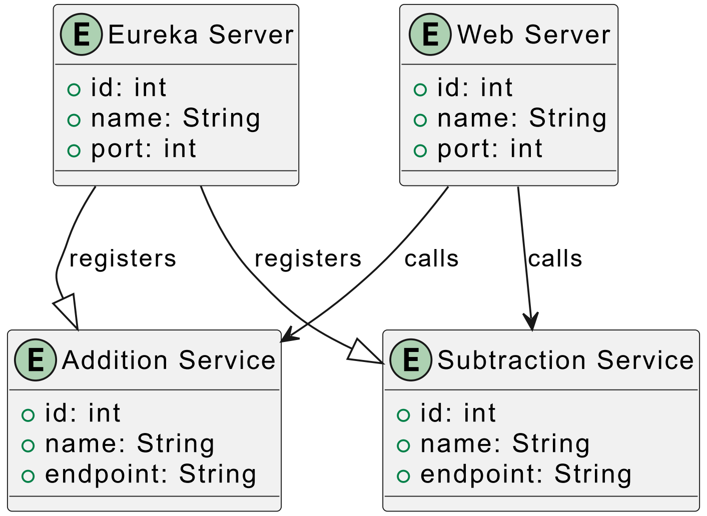
5) Component Diagram:

This component diagram illustrates the architecture of the Spring Boot microservices application. The Eureka Server facilitates service discovery, allowing the Addition and Subtraction Services to register themselves. The Web Server interacts with the client, serving as the interface for performing arithmetic operations. The Addition and Subtraction Services handle the respective operations and communicate with the Web Server.

```
                                         +--------------------+
|   Eureka Server    |
+--------------------+
          |
          | registers
          v
+--------------------+
|  Addition Service  |
+--------------------+
          |
          | calls
          v
+--------------------+
| Subtraction Service|
+--------------------+
          |
          |
          v
+--------------------+
|   Web Server       |
+--------------------+
          |
          | serves
          v
+--------------------+
|   Client (User)    |
+--------------------+
```

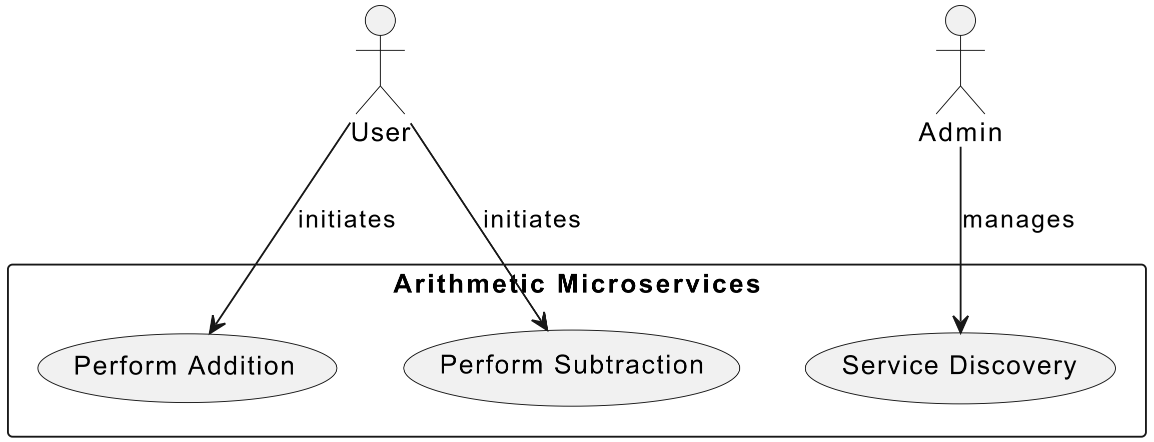
6) ER (Entity-Relationship) Diagram:

This ER diagram illustrates the relationships between the main components of the Spring Boot microservices application. The 'Eureka Server' is responsible for service discovery, allowing both the 'Addition Service' and 'Subtraction Service' to register themselves. The 'Web Server' interacts with both services to perform arithmetic operations, showcasing the modular architecture of the application.



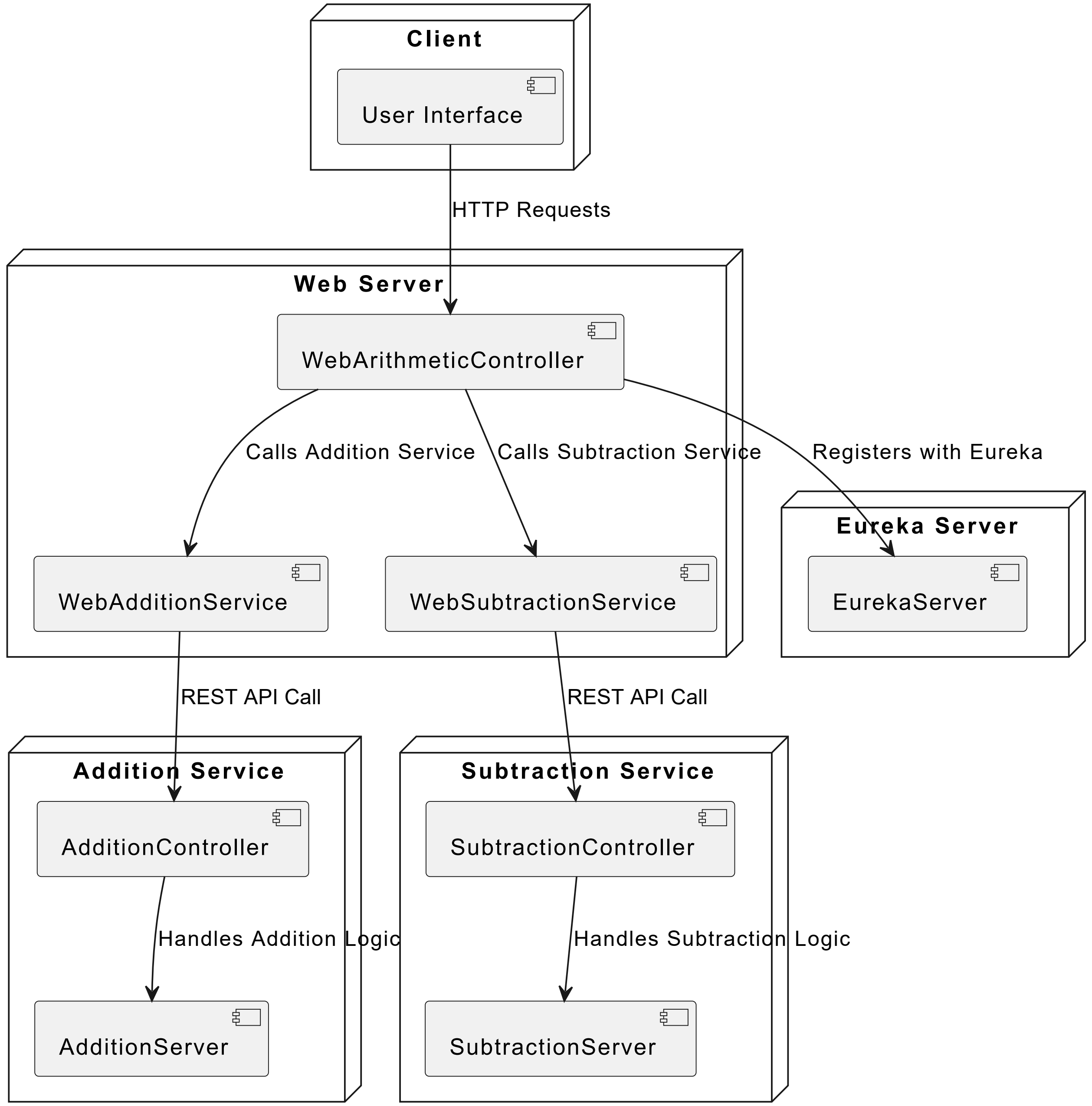
7) Use Case Diagram:

This Use Case Diagram illustrates the interactions between users and the arithmetic microservices. The User can perform addition and subtraction operations, while the Admin manages the service discovery functionality. The diagram encapsulates the core functionalities of the microservices architecture.



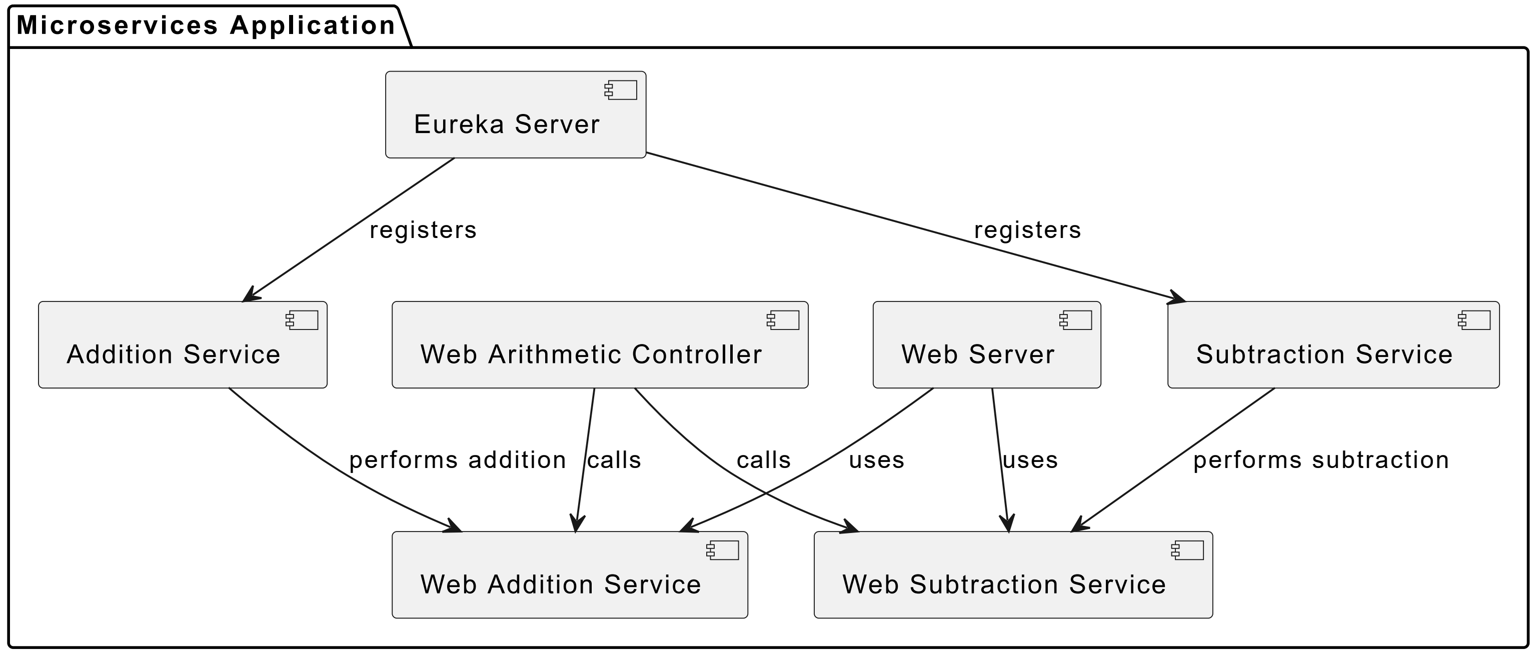
8) Deployment Diagram:

This deployment diagram illustrates the architecture of the Spring Boot microservices application. It includes nodes for the Eureka server, Addition service, Subtraction service, and Web server. The diagram shows the interactions between the client (user interface) and the web server, which handles HTTP requests and communicates with the addition and subtraction services. Each service is responsible for its specific functionality, and the web server registers itself with the Eureka server for service discovery.



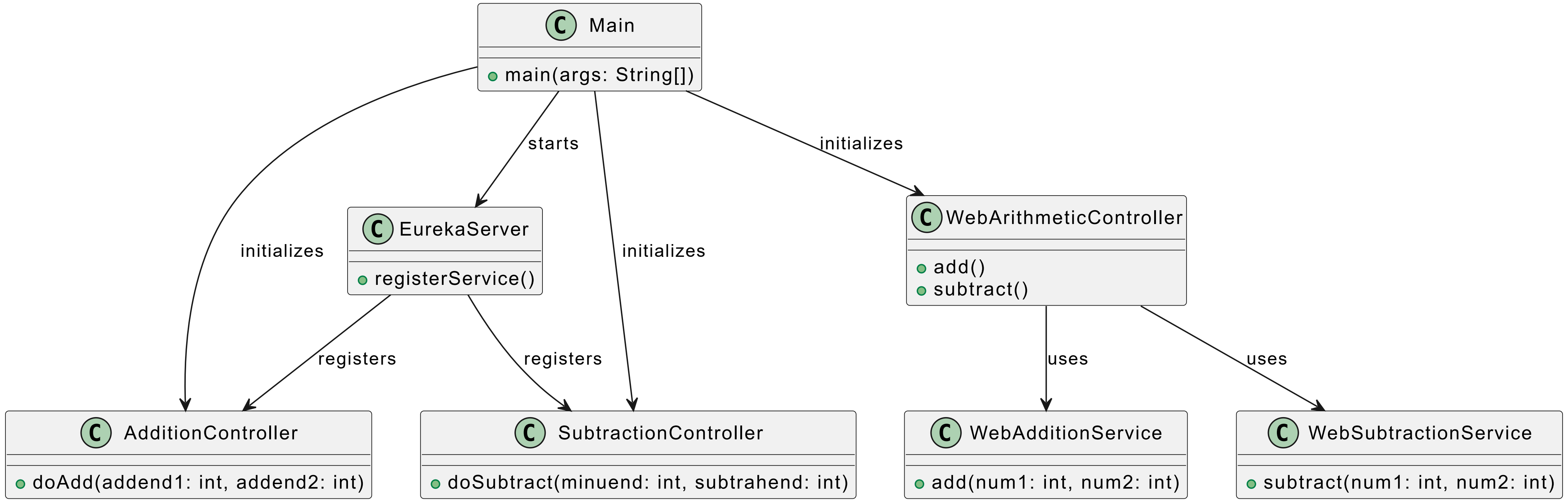
9) Composite Structure Diagram:

This Composite Structure Diagram illustrates the architecture of a Spring Boot microservices application. It shows the relationships between the Eureka server, which facilitates service discovery, and the various microservices: Addition Service, Subtraction Service, and Web Server. The Web Server interacts with the Web Addition and Web Subtraction Services, while the Web Arithmetic Controller orchestrates calls to these services for performing arithmetic operations.



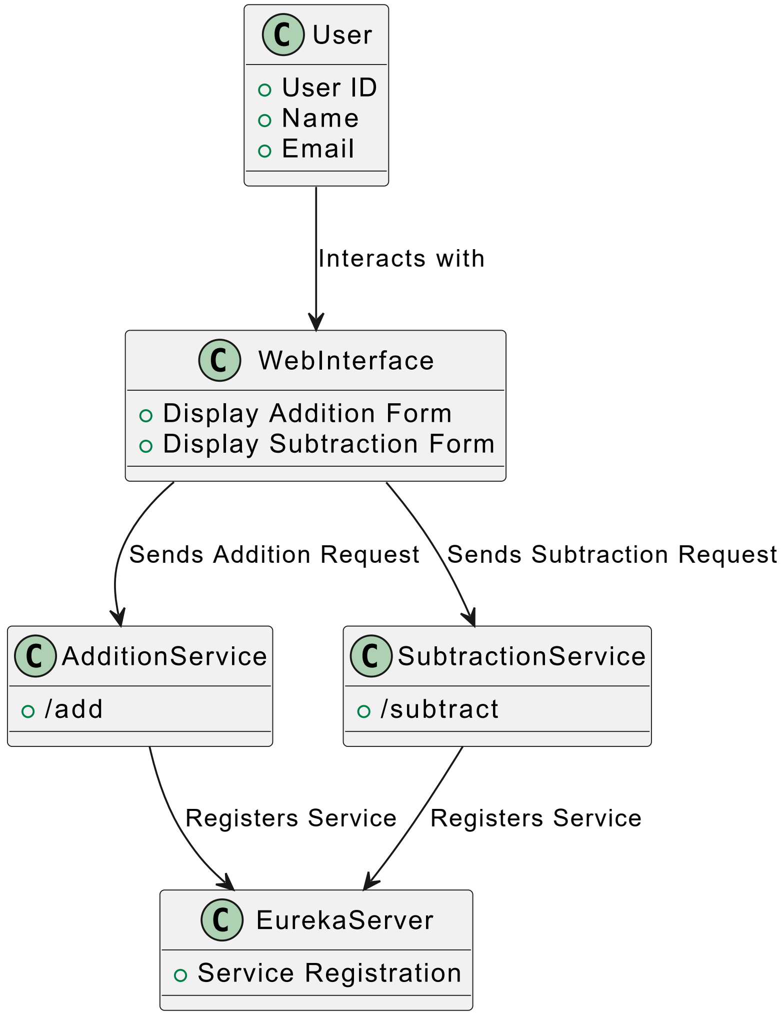
10) Object Diagram:

This object diagram illustrates the key classes in the Spring Boot microservices application, including the main entry point (Main), service discovery (EurekaServer), and controllers for addition and subtraction operations. It shows the relationships between the main class and the various controllers and services, highlighting how they interact within the microservices architecture.



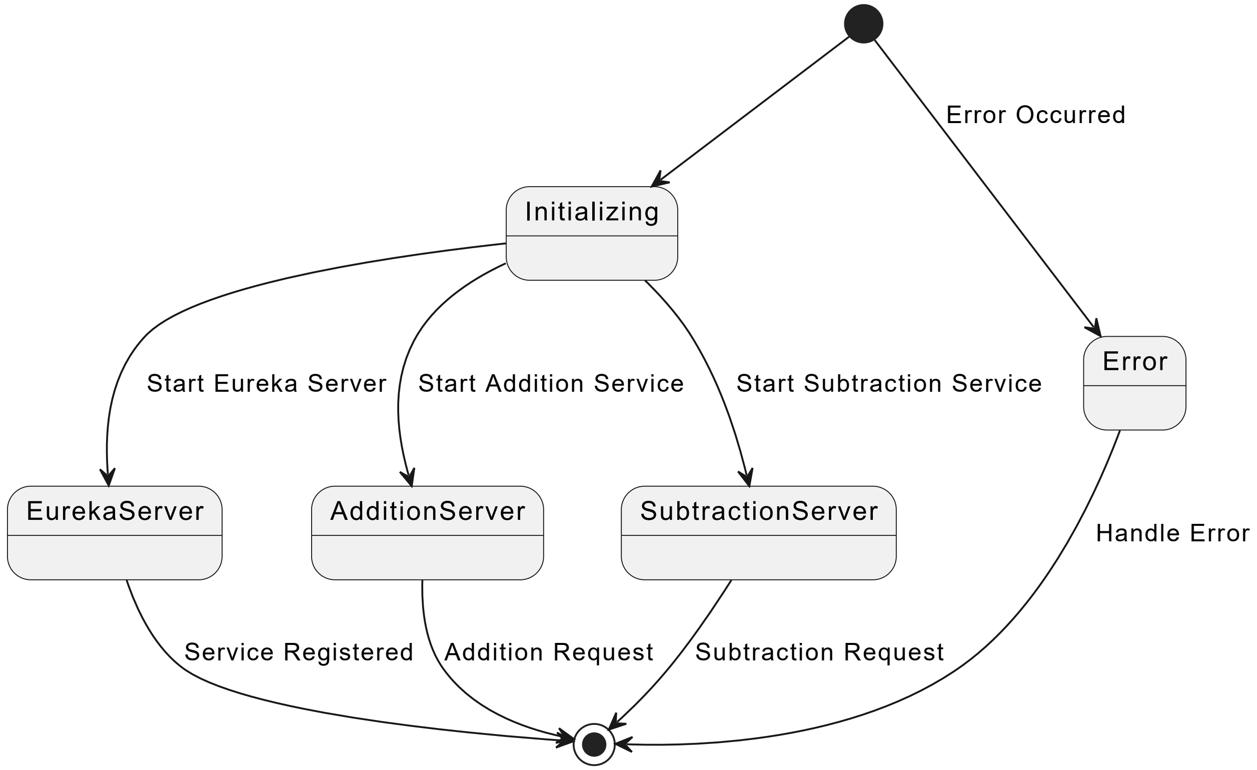
11) User Journey Map:

This User Journey Map illustrates the interactions between a User and the various components of the Spring Boot microservices application. The User interacts with the Web Interface to perform addition and subtraction operations. The Web Interface communicates with the Addition and Subtraction Services to process requests, while both services register themselves with the Eureka Server for service discovery.



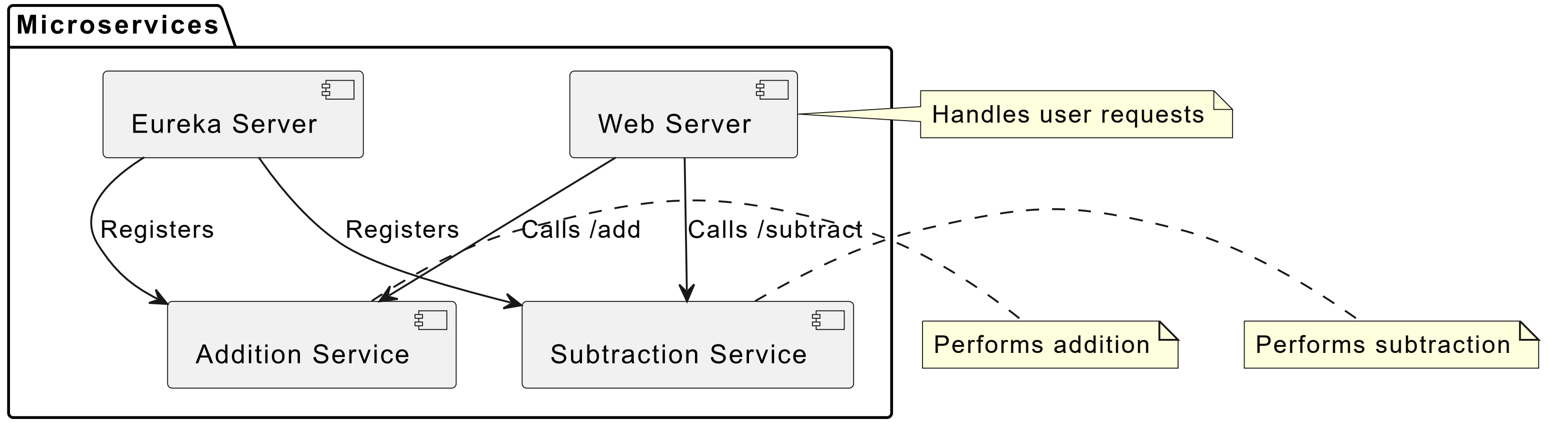
12) State Diagram:

This state diagram illustrates the various states of the Spring Boot microservices application. It starts with the 'Initializing' state, where different services (Eureka, Addition, and Subtraction) are started. Once initialized, the services can register with the Eureka server. The diagram also shows transitions for handling addition and subtraction requests, as well as an error state that captures any errors that may occur during operation.



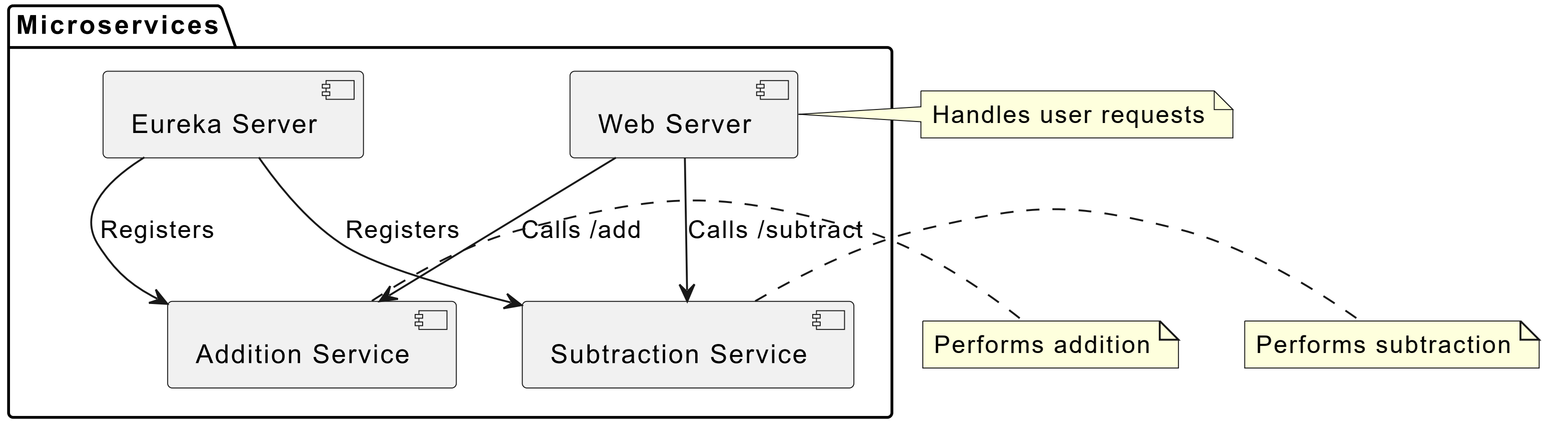
13) Architecture Diagram:

This architecture diagram illustrates the microservices setup for a Spring Boot application. It includes the Eureka server for service discovery, the Addition and Subtraction services for arithmetic operations, and a Web server that handles user requests. The arrows indicate the registration of services with Eureka and the communication between the Web server and the arithmetic services.



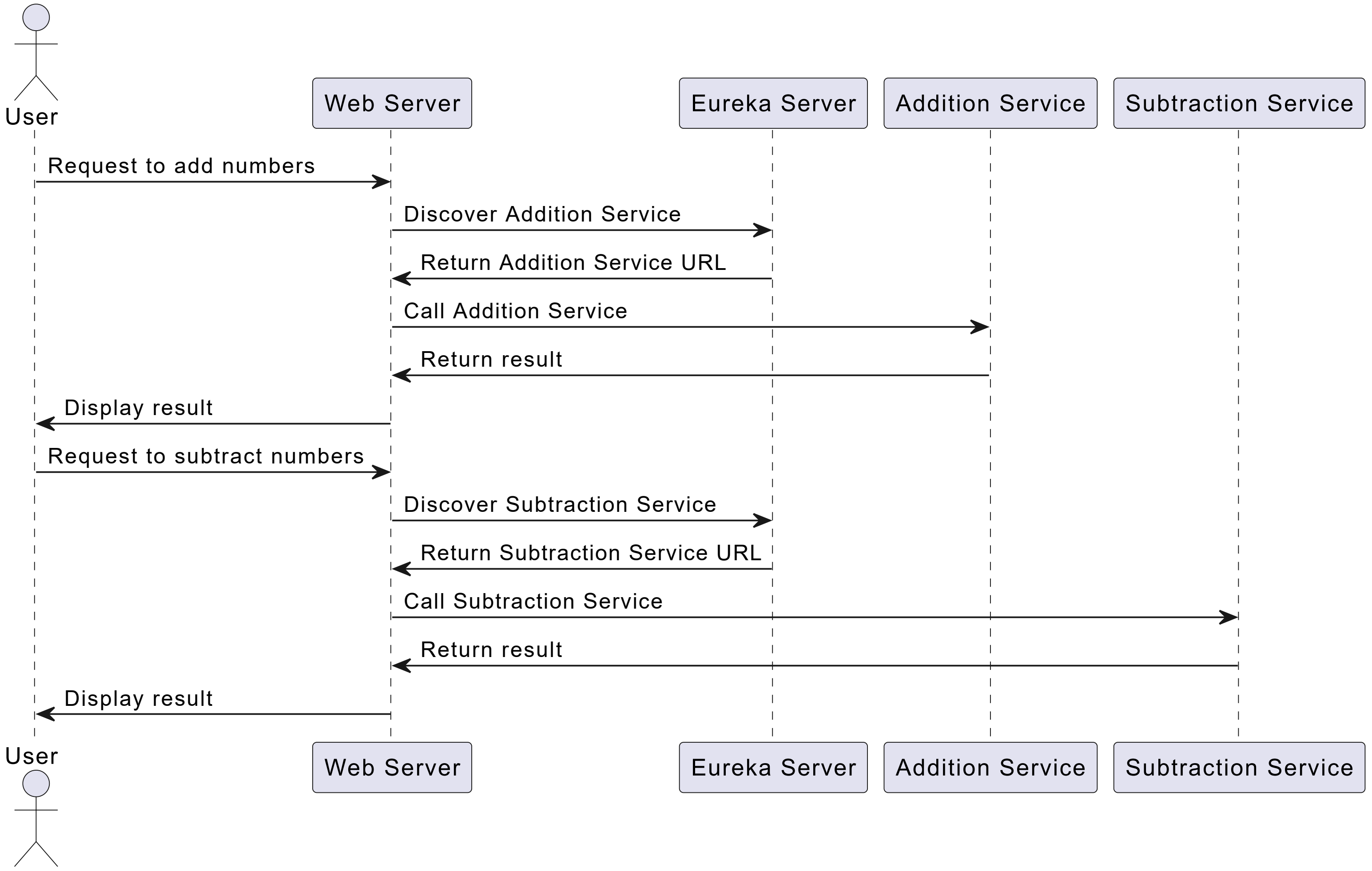
14) Workflow Diagram:

This workflow diagram illustrates the interactions between the microservices in the Spring Boot application. The Eureka Server facilitates service discovery by allowing the Addition and Subtraction services to register themselves. The Web Server handles user requests for arithmetic operations, calling the respective services for addition and subtraction operations.



15) Communication Diagram:

This communication diagram illustrates the interactions between the user, web server, Eureka server, and the addition and subtraction services. The user initiates requests for addition and subtraction operations, which are processed by the web server. The web server communicates with the Eureka server to discover the appropriate service URLs, calls the respective services, and returns the results to the user.


User
Web Server
Eureka Server
Addition Service
Subtraction Service
Request to add numbers
Discover Addition Service
Return Addition Service URL
Call Addition Service
Return result
Display result
Request to subtract numbers
Discover Subtraction Service
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Call Subtraction Service
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