**DevOps and Distributed Systems Vocabulary Activity**

**Objective**: Understand and explain key concepts in DevOps and distributed systems. You will define each term and create diagrams for three of them to illustrate their applications.

**Instructions**

**Part 1: Definitions**

1. **Form Groups**:
   * Divide into groups. Each group will work together to research and define the following terms:
     1. Consistency (CAP Theorem)
     2. Availability (CAP Theorem)
     3. Partition Tolerance (CAP Theorem)
     4. Durability
     5. Scalability
     6. Latency
     7. Throughput
     8. High Availability (HA)
     9. Fault Tolerance
     10. Reliability
     11. Load Balancing
     12. Microservices
2. **Research and Define**:
   * Use reliable sources to gather information on each term. Write a clear and concise definition for each term, including:
     1. A basic definition
     2. Its importance in distributed systems or DevOps
     3. A real-world example or application
3. **Compile Definitions**:
   * Compile your definitions into a single document that will be submitted and shared with the class.

**Part 2: Diagrams and Explanations**

1. **Select Three Terms**:
   * As a group, select three terms from the list provided above. Each group must choose three different terms to ensure a variety of topics are covered.
2. **Create Diagrams**:
   * For each of the three selected terms, create a diagram that visually explains the concept. The diagrams should include:
     + Key components and their interactions
     + How the concept is applied in a real-world scenario

**Examples**:

* + **Consistency**: A diagram showing a replicated database system ensuring consistency using a two-phase commit protocol.
  + **Availability**: A diagram of a load-balanced web application with multiple instances to ensure high availability.
  + **Partition Tolerance**: A diagram of a distributed system designed to handle network partitions, highlighting how the system maintains functionality.

1. **Explain the Diagrams**:
   * Write a brief explanation for each diagram. This should include:
     + How the diagram illustrates the term
     + The significance of the depicted scenario
     + Any key points that the diagram emphasizes
2. **Prepare to Present**:
   * Be ready to present your definitions and diagrams to the class. Each group will have approximately 10 minutes to explain their terms and diagrams.
   * Ensure that each group member is familiar with all parts of the presentation.

**Deliverables**

1. **Definitions Document**:
   * Submit a single document with definitions for all 12 terms, compiled and formatted neatly.
2. **Diagrams and Explanations**:
   * Submit the three diagrams along with their explanations in a separate document or include them in a presentation format.