**KASB KTrade:**

**System Design:**

KASB KTrade follows a client-server architecture. The client is the mobile app, while the server handles authentication, authorization, data processing, and business logic.

The server interacts with various third-party services such as Pakistan Stock Exchange (PSX), CDC, NCCPL, CGT, and other brokers for order execution and price updates. A web interface is provided for users to access their accounts and portfolios from any device.

**API Architecture:**

KASB KTrade uses RESTful APIs with HTTP protocol and JSON data format.

These APIs are well-documented using Swagger, offering an interactive interface for testing and exploration.

API categories include account, portfolio, order, market, research, news, notification, and chat.

**Approaches to Scalability:**

KASB KTrade claims to have over 200,000 registered users and handles a significant portion of PSX's daily volume.

Scalability is achieved using Amazon Web Services (AWS) services such as EC2, S3, RDS, Lambda, SQS, SNS, CloudFront, and CloudFormation.

Load balancing, caching, microservices, and serverless architectures are employed to distribute workloads and enhance performance.

Software Architecture:

KASB KTrade follows a modular and layered architecture with three layers: presentation, business, and data.

Each module handles specific functionalities and communicates with others through well-defined interfaces.

**Strengths:**

Provides a research portal and trader assistance.

Utilizes reliable and scalable AWS cloud services.

Well-documented APIs for ease of use and development.

**Weaknesses:**

Lacks a demo account feature for practice trading.

Does not offer extensive news updates or market alerts.

Limited integration with third-party services.

**Investify:**

**System Design:**

Investify also employs a client-server architecture, with the mobile app as the client and the server managing authentication, authorization, data processing, and business logic. Third-party services like PSX and various other platforms are integrated into the system.

**API Architecture:**

Investify utilizes RESTful APIs with the HTTP protocol and JSON data format.

Unlike KASB KTrade, the APIs are not publicly documented or available for testing.

Approaches to Scalability:

Investify claims over 100,000 downloads on Google Play Store, indicating a significant user base.

Scalability is achieved using Google Cloud Platform (GCP) services such as App Engine, Cloud Storage, Cloud SQL, and more.

Similar to KASB KTrade, it employs load balancing, caching, microservices, and serverless architectures for performance enhancement.

Software Architecture:

Investify also follows a modular and layered software architecture with presentation, business, and data layers.

**Strengths:**

Offers a demo account for practice trading.

Provides extensive news updates and market alerts.

Integrates with numerous social media platforms and third-party services.

Utilizes reliable and scalable GCP cloud services.

**Weaknesses:**

Lacks a dedicated research portal or trader assistance.

APIs are not publicly documented, potentially making development more challenging.