

# Share Hub

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**Abstract** - The digital economy is growing rapidly, with an increasing number of subscription-based services available for entertainment, software, education, and productivity. However, for many consumers, the cost of maintaining multiple subscriptions becomes a significant financial burden. The Shared Subscription Marketplace provides a solution by enabling users to share digital service subscriptions in a secure, managed, and cost-effective manner. This marketplace leverages collaborative consumption, offering individuals the opportunity to split costs, reducing the per-user expense of premium services while maintaining access to high-quality content.

**Index Terms** - Shared Subscription, Digital Services, Cost-Effective Access, Subscription Marketplace, Subscription Pooling, User Registration, Payment Gateway, Service Provider Integration

## 1. INTRODUCTION

In today's digital era, access to online services has become an essential part of everyday life, from streaming entertainment to using productivity tools. However, the cost of subscribing to multiple services can quickly add up, creating financial strain for individual consumers. This challenge has given rise to the concept of a shared subscription marketplace, where users can collaborate to share the cost of premium digital services, ensuring broader access to these platforms without the burden of high expenses.

The Shared Subscription Marketplace for Cost Effective Access to Digital Services aims to provide a seamless solution that connects individuals interested in sharing subscriptions, allowing them to pool resources and reduce costs. By leveraging a well-organized platform, users can form groups, manage payments, and ensure compliance with the terms and conditions of the service providers. This model benefits both consumers and service providers: users enjoy access to otherwise expensive digital services at a fraction of the cost, while service

providers maintain their customer base through group subscriptions.

This marketplace addresses the growing demand for digital affordability by catering to users who prefer a shared economy model. Whether it's for streaming platforms like Netflix, cloud storage services like Google Drive, or productivity tools like Adobe Creative Suite, the marketplace offers a flexible solution to accommodate different service needs and budget constraints. The rise of the shared economy has already transformed industries such as transportation and accommodation, and this marketplace brings the same concept to the digital services domain, enabling a more inclusive and affordable access to premium content.

At the heart of the marketplace is a sophisticated system that matches users based on their subscription preferences. The platform automatically forms groups of individuals with similar service interests, ensuring that the cost is divided fairly among the participants. Payment gateways handle the distribution of funds, while a transparent dashboard allows users to track their expenses and active subscriptions. In addition to core functionality, the system offers a user friendly interface, enabling individuals to effortlessly navigate the platform, from creating accounts to managing their subscription pools.

Security and compliance are major priorities for the platform. With stringent data encryption protocols and adherence to service provider policies, the marketplace ensures that user data is protected, and that subscriptions are shared legally, preventing misuse of services. Moreover, the system integrates machine learning algorithms to predict user behaviour, optimize group formation, and provide personalized recommendations based on subscription habits and usage patterns

The marketplace also empowers users with flexibility, allowing them to join or exit subscription pools as needed, giving them control over their spending. Entrepreneurs and startups using the platform can find innovative ways to provide cost-effective services to customers, creating opportunities to build new business models around shared access.

The implementation of this project involves several cutting-edge technologies, including Java for backend development, Flutter for app framework. The system also uses SQLite for database management, ensuring secure storage of user data and easy scalability as the platform grows. Data security is a top priority, especially since financial data is sensitive; the system implements encryption and secure login features to protect user information.

In conclusion, the Shared Subscription Marketplace for Cost-Effective Access to Digital Services is a transformative solution that caters to a growing need for affordable access to premium digital services. By leveraging technology, financial collaboration, and a shared economy model, this platform offers a win-win scenario for both consumers and service providers. With robust features, transparent processes, and a secure environment, it is set to revolutionize the way users engage with digital services, making the online world more accessible to all.

## 2. OBJECTIVE

- **Cost Reduction:** To develop a platform that allows users to share the cost of subscriptions, thereby making premium digital services more affordable for individuals and groups
- **Secure Sharing:** To ensure that users can safely share their subscriptions without compromising their personal data, login credentials, or security of the service being shared.
- **Automated Payment Management:** To integrate an automated system for splitting subscription costs and handling payments between group members, ensuring transparency and avoiding manual errors or conflicts

## 3. LITERATURE SURVEY

The concept of shared subscription services has gained momentum in recent years, driven by the need for more affordable access to digital platforms. [8] A

comprehensive literature survey on shared subscription marketplaces reveals an expanding field of research that explores collaborative consumption models, subscription sharing, and digital service affordability. Traditionally, digital service providers have relied on individual subscription models, which can be cost-prohibitive for many users, especially when subscribing to multiple services. The rise of sharing economies, as explored by authors like Belk (2014), has prompted a shift towards collaborative consumption, where individuals share resources to reduce costs. This paradigm has been successfully applied to various industries, from transportation (e.g., ride-sharing) to accommodation (e.g., home-sharing), and is now extending into digital service subscriptions.

[9] Research conducted by Jiang et al. (2020) investigates the feasibility of shared subscription models for digital services, revealing that many consumers are open to sharing subscriptions as a cost-saving measure. Their study examines the impact of sharing platforms on reducing the financial burden of digital service access, particularly in subscription heavy sectors like entertainment streaming, cloud storage, and software as a service (SaaS). These findings are echoed by Zhou et al. (2019), who conducted a comparative analysis of subscription-based pricing models, demonstrating that group-based subscriptions not only reduce individual costs but also increase service provider retention rates, as users are more likely to remain subscribed when part of a group.

Moreover, technological advancements have played a key role in facilitating the implementation of shared subscription marketplaces. Research by Kumar and Singh (2021) highlights the use of machine learning algorithms in optimizing group formation, ensuring fair distribution of subscription costs and preventing fraud. These models analyse user behaviour and preferences to match individuals with similar subscription needs, increasing user satisfaction and engagement. In addition, studies by Park et al. (2020) emphasize the importance of secure payment gateways and user authentication protocols in building trust within shared subscription platforms. Their research underscores the need for encrypted payment systems and secure login mechanisms to protect user data, a critical aspect given the financial nature of subscription-sharing services.

#### 4. METHODOLOGY AND DISCUSSION

The methodology for developing the shared subscription marketplace for cost-effective access to digital services is rooted in a user-centric and technologically robust approach, designed to facilitate seamless subscription sharing among users while ensuring security, affordability, and scalability. The development process begins with a comprehensive analysis of various digital services that offer subscription models, identifying the most relevant ones for cost-sharing opportunities. Services such as entertainment streaming platforms, software-as-a-service (SaaS) tools, and cloud storage providers are included based on their high user demand and subscription costs.

Once the data is prepared, feature engineering is performed to enhance the predictive power of the input variables. For example, state-based categorical data is encoded using one-hot encoding, and numerical values are standardized to maintain consistency across different features. The pre-processed data is then split into training and testing sets, where the training data is used to develop the predictive model, and the test data is used to validate its performance.

A linear regression model, due to its simplicity and interpretability, is initially selected for training on the dataset. However, the methodology allows flexibility to experiment with more advanced algorithms such as decision trees or random forests if the model's accuracy needs improvement. The chosen model is trained using the training set, and hyperparameter tuning is applied to optimize its performance.

In conclusion, the shared subscription marketplace for cost effective access to digital services is built using a combination of advanced machine learning, secure payment processing, and intuitive web design. By offering an affordable alternative to individual subscriptions, the platform empowers users to access digital services at a fraction of the cost, making it a valuable tool for consumers seeking to reduce their expenses in the increasingly subscription-based digital economy. Through robust data driven methods and secure infrastructure, the system ensures both scalability and user satisfaction, positioning itself as an essential platform in the shared economy model.

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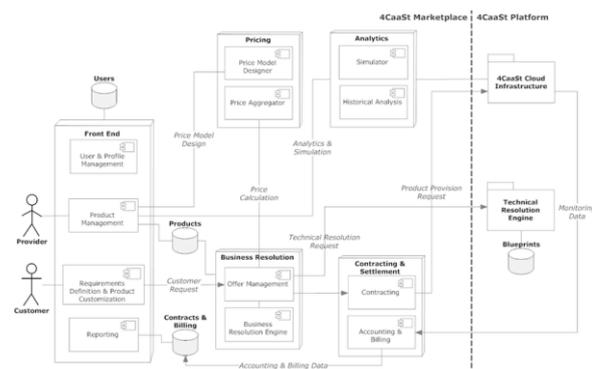


Figure I Architecture Diagram

#### I. APPLICATION

Few applications of the system are as follows:

- **Cost Savings for Consumers:** Enables users to significantly reduce their individual subscription costs by sharing digital services such as streaming platforms, cloud storage, or software subscriptions with other users in a group.
- **Subscription Management:** Allows users to manage their shared subscriptions in one place.
- **Group Creation and Optimization:** Facilitates the creation of subscription-sharing groups based on user preferences, ensuring that participants in a group are matched based on common digital service interests and geographical location for compatibility and cost-sharing efficiency.
- **Secure Payment Handling:** Integrates secure payment gateways to automate subscription fee collection and distribution among users.
- **Fraud Detection and Prevention:** Helps mitigate risks of misuse or fraudulent activities by implementing fraud detection algorithms.
- **Dynamic Scalability for Service Providers:** Offers digital service providers a way to scale

their offerings by catering to a larger user base through shared subscription models.

- Family and Group-Friendly Subscriptions: Ideal for families, friend groups, or small teams who can benefit from sharing subscriptions while reducing their individual financial burden.
- Cross-Platform Accessibility: Developed using Flutter for seamless deployment on both Android and iOS platforms, the marketplace ensures that users can access their subscription management and sharing features from any device, regardless of the operating system.
- Data Visualization and Insights: Provides real-time analytics and graphical insights into users' subscription spending and savings.
- Business Model Research: Useful for researchers and companies studying shared economy models, offering insights into the effectiveness of shared subscription systems and consumer behavior within the digital services market.

## I. ADVANTAGES

The startup profit prediction system offers several advantages, including:

- Cost Reduction for Users: By sharing subscriptions, users reduce individual costs on digital services, making premium content and tools more accessible at a fraction of the price.
- Data-Driven Group Matching: The marketplace uses machine learning to analyze user preferences and match them into optimized groups, ensuring high compatibility and cost sharing efficiency among users.
- Convenient Subscription Management: Users can manage all their shared subscriptions in one platform, with automatic reminders for renewals and transparent tracking of group contributions, making the process straightforward and hassle-free.
- Secure Payment Processing: Integrated payment gateways ensure safe and encrypted transactions, with subscription fees distributed securely among users, minimizing financial risk.
- Scalability: The platform is built to scale, supporting increasing numbers of users, services, and subscriptions as demand grows.

- User-Friendly Design: Developed using Flutter and Java, the platform offers a cross-platform experience, ensuring ease of use on both Android and iOS with a seamless interface
- Enhanced Accessibility: By lowering costs, the platform broadens access to digital services, especially for users who may not otherwise afford individual subscriptions.
- Real-Time Notifications: Users receive real-time notifications regarding payment schedules, group updates, and subscription changes, keeping them informed and up-to date.
- Actionable Insights with Visual Analytics: Visual tools help users track their subscription savings and understand cost distributions, enabling them to make informed choices about future subscriptions.
- Legal Compliance and Fraud Prevention: Built-in fraud detection and compliance features help prevent misuse of shared subscriptions, ensuring legal and secure access while protecting users and service providers.

## I. ALGORITHM

Step 1: Data Collection - Gather user data on preferred subscription services, budget constraints, and subscription history. - Collect data on service providers' subscription options, cost tiers, and terms for group access.

Step 2: Data Preprocessing - Clean the data by addressing missing values, removing duplicates, and handling outliers

- Normalize numerical data like subscription costs for consistency. - Encode categorical data, such as user preferences and service types, using one-hot encoding or similar methods.

Step 3: User Group Matching - Apply clustering algorithms (e.g., K-means) to group users with similar subscription preferences, ensuring compatibility in shared groups. - Optimize group sizes and configurations to maximize cost sharing efficiency based on user input and service terms.

Step 4: Secure Payment Integration - Integrate a secure payment gateway to handle user transactions and subscription fee distribution.

Step 5: Machine Learning Model for Cost Distribution - Train a machine learning model on historical sharing data to refine cost distribution among users, considering factors like user retention rates and subscription usage. - Use predictive analytics to anticipate group compatibility and optimize group assignments over time.

Step6: Real-Time Notifications and Subscription - Set up notifications to remind users of upcoming payments, renewals, and group changes. - Allow users to manage their subscriptions, view group status, and make changes as needed.

Step 7: Visualization of Cost Savings - Generate graphical representations (e.g., pie charts, bar graphs) to show users their subscription cost savings and expense distribution. - Provide interactive visuals within the app to enhance user engagement and understanding of savings.

Step 8: User Feedback Collection - Implement a feedback feature to gather user input on the group-sharing experience, security, and ease of use. - Collect data on subscription usage and satisfaction to identify potential improvements.

Step 9: Fraud Detection and Compliance - Integrate fraud detection algorithms to monitor for unusual activity, such as account sharing abuse or unauthorized access. - Ensure compliance with service providers' terms by implementing usage limits and IP monitoring.

Step 10: Continuous Improvement - Regularly update the machine learning model and grouping algorithms based on user data to enhance matching accuracy and subscription savings. - Use feedback and new technology to refine the system's security, interface, and subscription-sharing features over time.

## II. FUTURE SCOPE

The future scope of the Shared Subscription Marketplace for Cost-Effective Access to Digital Services offers numerous opportunities for enhanced functionality and broader application. As the demand for affordable digital services continues to grow, integrating advanced machine learning techniques, such as recommendation engines, could improve group matching accuracy by dynamically learning user preferences and suggesting compatible subscription sharing groups. Implementing real-time

analytics to assess subscription usage and trends will allow the platform to offer personalized recommendations, enabling users to discover new subscriptions that align with their interests and budget.

As technology advances, the platform could incorporate blockchain for transaction transparency and further improve data security, fostering greater trust among users. With these advancements, the marketplace has the potential to become an essential tool in the shared economy model, making digital services more accessible and affordable across diverse user segments and contributing to a more inclusive digital ecosystem.

The future scope also includes potential collaboration with service providers to introduce subscription-sharing packages tailored specifically for groups, ensuring compliance, and promoting long-term customer retention. Furthermore, integrating partnerships with government bodies could allow the platform to recommend government schemes or subsidies for eligible users, expanding its role as a valuable resource in digital accessibility.

## 5. CONCLUSION

In conclusion, the Shared Subscription Marketplace for Cost-Effective Access to Digital Services marks a pivotal step toward making digital services more accessible and affordable. By enabling users to share subscription costs across groups, the platform offers a sustainable solution that benefits both consumers and service providers. The marketplace's use of data-driven insights and machine learning optimizes group matching and enhances user experience, while secure payment processing and robust fraud detection ensure a trusted and seamless sharing environment. The inclusion of diverse subscription types and potential integration with government schemes for eligible users further amplifies its value, empowering a broader audience to enjoy digital services without financial strain. As the project advances, the adoption of more sophisticated technology and expanded service offerings will enhance its relevance and functionality, supporting a collaborative economy that fosters accessibility, affordability, and inclusivity in the digital age.

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