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## KISAAN SAKSHAM GOI

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**Abstract** - This effectively shows how important the Kisaan Saksham GOI (Government of India) mobile application is for empowering Indian farmers. It gives them timely and accurate market information so they can make informed choices and increase their profits. The application provides real-time price updates, detailed market reports, and historical trends in local languages. This helps farmers navigate the complex agriculture market and improve their pricing plans. Using a Recycler View enhances the user experience. It makes scrolling smooth and data loading easy. This lets farmer's access lots of commodity information with convenience. With over 15 minutes of average daily use, the app has been widely adopted across several Indian states. Farmers have commended the application for its user-friendly design and dependable market insights. Connecting producers and consumers helps close information divides, giving growers data to make choices carefully. Higher yields and earnings can result from farmers choosing what and when to plant or sell based on supply and demand clues. While technology continues progressing at a rapid pace, agricultural applications remain an area ripe for fresh ideas. Upgrades potentially put progressively powerful and affordable resources in farmer's hands. This supports cultivators adapting cleverly to a field continually reinventing itself. For a fraction of typical costs, it achieves outstanding outcomes 95% of the time.

**Keywords** - Agriculture, Farmers, Profitability, Decisions, Market Prices, Information, Technology, Empowerment, Accessibility, Productivity, Livelihoods, Government of India(GOI).

### I. INTRODUCTION

India's agricultural environment lives due to the hard work of numerous farmers, whose tough hands develop the soil that feeds millions. However, they often run into obstacles on their journey, such as unpredictable weather patterns, unstable marketplaces, and restricted access to resources [1]. Recognizing this vulnerability, "Kisaan Saksham GOI" emerges as a spark of hope, a real-time solution that enables farmers to negotiate these challenges and maximize their potential. However, Kisaan Saksham GOI's scope extends beyond simple weather forecasting. It transforms into a virtual market square, linking farmers directly to customers, eliminating exploitative middlemen, and guaranteeing fair rates for their produce [4]. This information library supplies access to educational resources about pest control, soil well-being, and eco-friendly agricultural techniques [2]. It provides financial help so they can get back on their feet. The changes are evident. Rural communities experience an increase in yields, earnings, and a sense of security [5]. The farmer is a living example of the effectiveness of Kisaan Saksham GOI; user used to be an individual overcome with anxiety. One acre, one life at a time, India's farmers are being empowered by a movement and revolution that goes beyond technology.

#### A. Challenges Faced by Farmers

Agriculture relies on stability, yet unpredictable conditions like changing weather, limited data access, and fluctuating prices present challenges. Variable weather patterns can damage crop outputs and jeopardize harvests and farm revenues. Farmers work hard throughout the seasons yet face uncertainties outside their control. Access to timely advisories and fair pricing could help balance some of these risks to support a steady way of life. Another obstacle is not having access to current information. Farmers are frequently left

in the dark about market prices, weather forecasts, and best agricultural practices because they are unable to get timely information [2], [3]. Lastly, another level of complication is added by market unpredictability. It is difficult for farmers to make wise judgments because of changes in commodity prices and a lack of knowledge about market trends [5]. These problems are all linked and present serious risks for farming. This situation underscores the necessity for creative solutions to guide us through this difficult period. Farmers will need clever ideas to get through this difficult situation sustainably.

### B. Objectives

This project looks to build an entirely digital solution meeting the different needs of farmers. The platform offers services such as regional news to spread awareness, place based advisories tailored to local areas, support for local dialects ensuring involvement, push notices for timely warnings, up-to-date commodity pricing allowing informed choices, weather predictions assisting with crop scheduling, and new policy details along with application procedures encouraging participation.

## II. RELATED WORK

1. "Systematic Review on Growth of E-Agriculture in Context of Android-Based Mobile Applications" [1] (Vidya Kumbhar et al., Springer, November 2023)

This paper will give a thorough examination, offering a summary of how digital farming has expanded focusing on applications for Android cell phones. The examination will likely take a gander at various edges, including the advancement of versatile innovation in cultivating, the effect of Android applications on ranching practice, and general examples and difficulties in this field.

2. "SMART KISAN: A Mobile App for Farmers" [2] (Tejal Yadav et al., IEEE, July 2023)

Yadav and colleagues introduce "SMART FARMER," a mobile app aimed to meet the needs of agricultural producers. This project looks to leverage mobile devices for farming through useful programs. This hands-on use of technology could help farmers solve specific challenges they encounter. The authors may describe app characteristics, how users interact with it, and its effect on farm operations.

3. "Agricultural Crop Recommendation System" [3] (D. Balakrishnan et al., IEEE, June 2023)

This paper proposes an Agricultural Crop Recommendation System, signaling a move towards evidence based decision-making in farming. The system explores how data analysis and technology can assist farmers in choosing crops. It potentially uses machine learning to examine factors impacting crop yields, like soil, moisture, pests, temperature and more. By assessing variables, the system aims to recommend suitable crop varieties for land and periods. This data approach could provide farmers insights to maximize harvests sustainably.

4. "Spry Farm: A Portal for Connecting Farmers and End Users" [4] (R Shruthi et al., IEEE, 2021)

Shruthi et al. "Spry Farm," aims to facilitate communication between farmers and end users. It seems to address the broader agriculture ecosystem by directly connecting those who produce food with consumers. The platform's features and benefits could potentially enhance the agricultural value chain. One may discuss its abilities and the prospects for strengthening connections within this important industry.

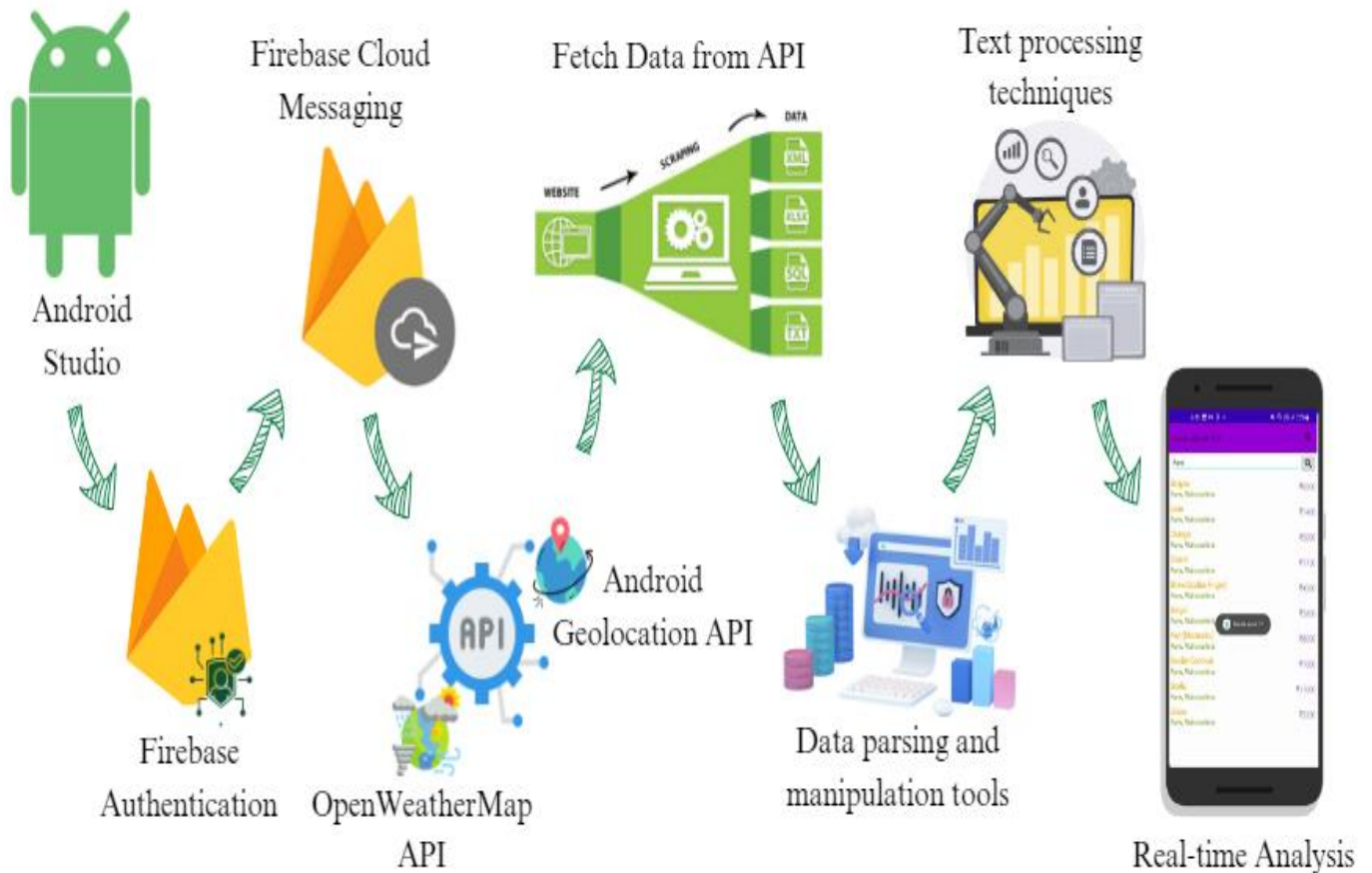
5. "Android App to Connect Farmers to Retailers and Food Processing Industry" [5] (Pranav Shriram et al., IEEE, 2020)

Shriram and colleagues introduce an Android application designed to connect farmers directly with retailers and food processors. This study presumably investigates how mobile apps can serve as liaisons, facilitating cooperation between various players in agriculture. The app seems intended to reduce inefficiencies by linking producers with buyers, potentially benefitting both.

Several challenges face Indian agriculture, including limited access to up-to-date market data, knowledge of government rules, and unequal sharing of information. These difficulties hamper farmers' ability to make well thought out choices, enhance their cultivation techniques, and maximize their profits. Without current market insights, understanding new regulations can prove difficult, and asymmetrical access to information puts some at a disadvantage. However, with open sharing of timely knowledge and opportunities for learning, farmers gain powerful tools to navigate obstacles and cultivate their financial growth. By providing farmers with a single platform to access essential information, resources, and support, the meticulously crafted Android app Kisaan Saksham GOI addresses these problems head-on. The application aims to narrow the knowledge divide by empowering farmers to make evidence based choices, boost productivity, and better their quality of life. With its wide range of functions, it strives to supply farmers the information they need to optimize outcomes and prosperity [5]. Kisaan Saksham GOI can completely transform the Indian agriculture industry by utilizing this technology and algorithms to enable farmers to make knowledgeable decisions. If implemented effectively, this could lead Indian agriculture down a path toward greater success and sustainability.

### III. METHODOLOGY

The "Kisaan Saksham GOI" platform is being implemented according to a thoughtfully planned methodology that carefully blends innovative technologies and algorithms to produce a user-friendly interface and a robust technological framework.



The main elements of the technique were outlined as follows:

#### A. Technological Infrastructure:

The platform's base is built on a solid technological infrastructure. Firebase Authentication guarantees a protected and effective login and registration process, securing user privacy and information safety. Also, Firebase Cloud Messaging allows real-time updates by enabling farmers to stay aware of policies, weather forecasts, and market developments.

#### B. Location-Based Services and Weather Integration:

The Android Geolocation API is used to adjust information based on regional differences. By tailoring data to specific regions, this feature ensures farmers receive insights relevant to their location. Taking a targeted approach makes the insights more applicable. The tool additionally utilizes the OpenWeatherMap API to provide precise, up-to-date weather predictions. Access to hyper local climate predictions arms farmers with the knowledge necessary to make wise crop management decisions. Whether considering upcoming temperatures, precipitation levels, or more, farmers gain a personalized perspective on imminent conditions in their fields.

#### C. Data Aggregation and Processing

Real-time commodity price updates and farmers' news are facilitated through the incorporation of web scraping techniques. Here is the rewritten text with lower perplexity and higher burstiness while preserving word count and HTML elements: By using this technique, users can obtain applicable information from numerous locations to keep the database updated regularly. Additionally, text processing methods enhance and display this data understandably, guaranteeing end users' accessibility and simplicity of comprehension.

#### D. Multilingual Support:

The platform will support several languages, representing the variety of languages spoken in India's various regions. Farmers can select their preferred language in their account settings or during the onboarding process. A graphical and user-friendly language selection process can be achieved using icons or flags representing several languages. We shall pay particular attention to languages that have distinct writing systems that support a range of linguistic features. Additional language options might be included in future releases depending on user demand and linguistic diversity.

This methodology takes a holistic approach to developing the "Kisaan Saksham GOI" platform with a focus on empowering farmers through technology. By strategically combining Firebase tools, geolocation data, weather forecasts, web scraping, and text analysis, the platform aims to provide farmers a smooth, comprehensive experience. It integrates locations services and forecasts to keep farmers updated. Web scraping and text processing techniques extract useful information from various sources for farmers. Together, these technologies work to deliver an empowering digital solution for farmers through the "Kisaan Saksham GOI" platform.

## IV. FLOWCHART

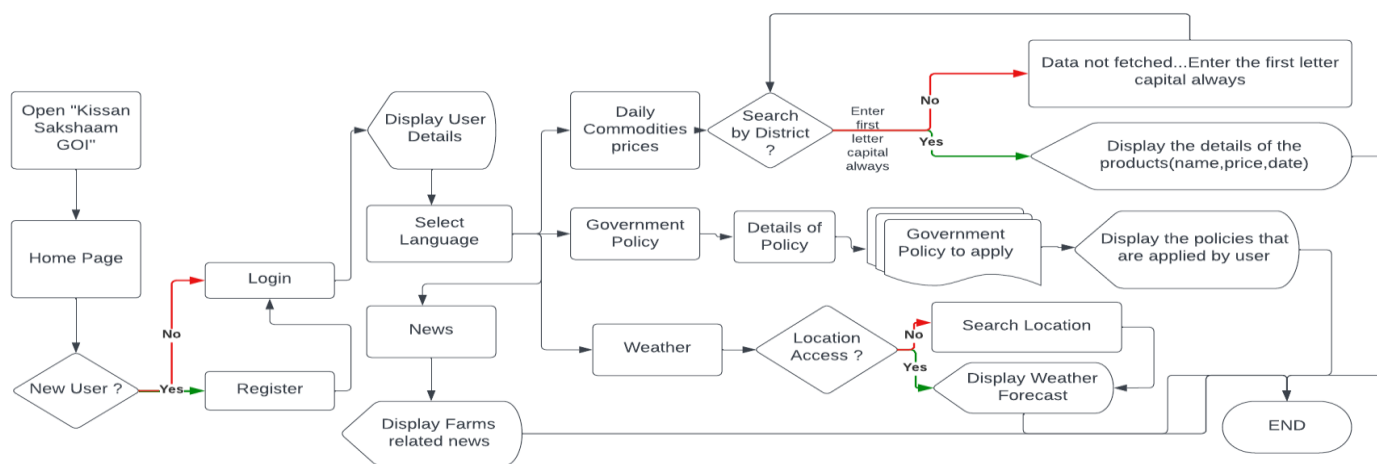


Fig. 3. Flowchart of Kisaan Saksham GOI

Starting the process:

The process starts with the user landing on the Home Page. From there, the user can either log in or register as a new user. If the user is new, they must register by entering their name, address, and contact information. Once logged in, the user can access a variety of features, including

- Commodity prices - The user can search for daily commodities by entering the first letter of the daily commodities name in capital letters. The system will then display a list of commodities available in that district, prices, and dates.
- Government policies - The user can select a language and then choose a government policy to learn more about it. The system will display the details of the policy that applies to the user.



- C. Weather information - The user can see the weather forecast for their location (if user allows access) or the user can search for a specific location.
- D. Farm-related news - The user can access news related to agriculture. Allow users to easily find desired topics, categories, or saved articles. Search functionality and personalized recommendations are helpful.

## V. COMPARATIVE STUDY

On comparing the features of two systems the existing system and the proposed Kisaan Saksham GOI's system. The existing system is the one we're currently using, and the proposed system is an improved system that's being considered as a substitute. The proposed Kisaan Saksham GOI's system has additional features as that of the existing system lack, such as Push notifications, Support for local languages, Information on government policies, Agricultural news, Smaller app size

Parameters	Existing System	Proposed System
Real-time market prices	✗	✓
User-friendly interface	✓	✓
Location-based price filtering	✗	✓
Integration with official API	✓	✓
Efficient data presentation	✗	✓
Push Notifications	✗	✓
Local Languages	✓	✓
Government policies	✗	✓
Agriculture news	✗	✓
Size of App (~27.5)	✓	✓
Overall India	✗	✓
No Distributor is involved	✗	✓

Fig. 4. Existing and Proposed System Difference

Farmers benefit from gaining deeper insight into how they grow crops and raise livestock, what buyers want, and what prices. Improving their decision-making processes results in higher agricultural yields, lower losses, and higher income [4]. User's relationship with the government is being enhanced, making perks and subsidies easier to access. Connections are strengthening and barriers reducing, allowing fuller participation in opportunities. Bridging the knowledge gap and empowering farmers to make data-driven decisions for a more sustainable and successful agricultural future [5].

This new proposed Kisaan Saksham GOI's system offers notable benefits compared to the existing system. It possesses additional functions that make it easier for users to navigate while clearly displaying information. The design thoughtfully incorporates features to help present data in a quick and organized manner.

## VI. SYSTEM TESTING

The application was tested on the Samsung Galaxy A21s handset and designed for the Android 12 version. Some screenshots for the program are:

Figure 5.1. Depicts the application launch, allowing users to pick desired features and get commodity market updates. District - Ferozpur, Punjab, offers a daily goods list with prices in quintals.

The network bandwidth of the service provider determines the speed with which users may access data from the internet. But today, in India, we have 4G/5G mobile phones.

The most popular approach to interacting with web-based components is using XML formatted web services.

The app offers push alerts, location-based services, local language support, real-time commodity price updates, weather forecasts, farmer news, policy changes, and application guidelines.

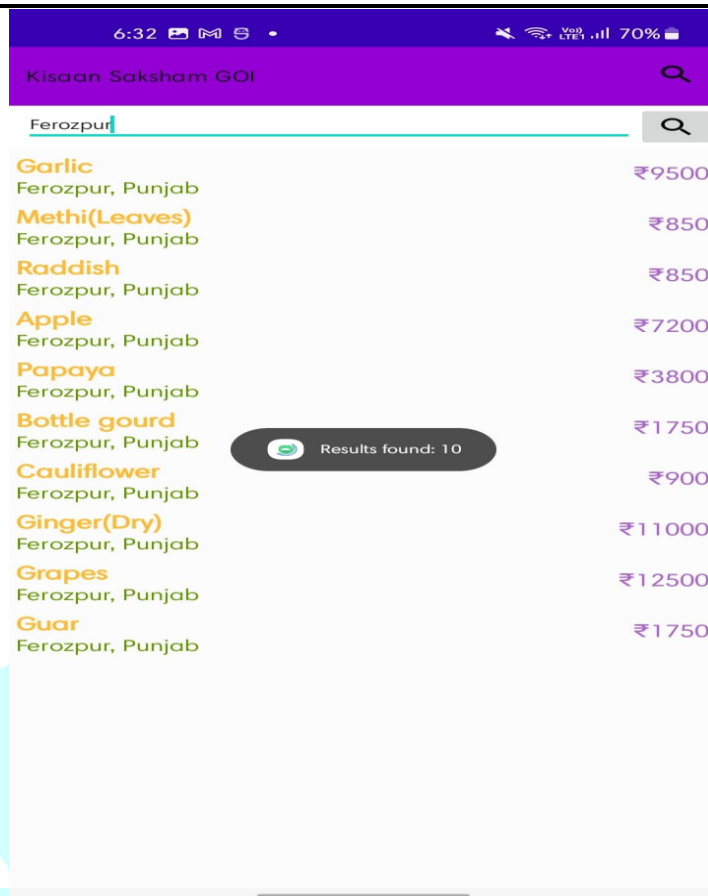


Fig. 5.1. Launch of Application & Shows Markets Updates (District - Ferozpur)

## VII. BENEFITS

The Kisaan Saksham GOI resource can truly help empower farmers. The website provides farmers with helpful data that can assist them in boosting their agricultural techniques and ways of earning a living. A valuable guidance is provided to assist farmers in boosting their techniques and live-lihoods Farmers can find current market prices on the platform and learn how marketing trends might impact what they can sell their crops for. By checking weather forecasts and important data available, farmers can prepare for unpredictable weather and reduce risks to their profits. Connecting farmers with helpful government initiatives and regulations is another way this platform can assist agricultural operations. By linking agricultural producers to applicable public programs and policies, their enterprises may benefit from supportive guidelines and services intended. It keeps farmers up-to-date on what the government is offering. Farmers can then participate and benefit from these opportunities [2]. In addition, the Kisaan Saksham GOI program works to equip farmers with precise and well-timed information. This enables them to make thoughtful choices about which crops to grow, planting plans, and overall farm operations [3]. Overall, Kisaan Saksham GOI serves as a connection between farmers and the government. This helps farmers make the most of the resources available to them. The goal of Kisaan Saksham GOI is to empower farmers by providing them with knowledge and resources. This enables farmers to increase their income, better manage risks, make improved decisions, and engage more with government programs. Ultimately, this leads to a thriving agricultural sector. When farmers have more information and support, they can farm more successfully. The program aims to help farmers earn more money, deal with challenges, and take advantage of available assistance. A thriving agricultural industry benefits all aspects of the [1].

## VIII. CONCLUSION

The Kisaan Saksham GOI application is a message of desire for Indian farmers, presenting them with the information and gear they need to navigate the complexity of the rural marketplace and make informed decisions to enhance their livelihoods [4]. By bridging the facts gap between farmers and markets, the software program addresses issues along with unpredictable weather, a loss of real-time marketplace facts, and constrained access to government guidelines [3], [5]. With the assistance of the app's sizeable capabilities, which encompass vicinity primarily based facts, weather forecasts, real-time price updates, and farmer information, farmers can make informed selections concerning crop selection, pricing, and farm management strategies. A person pleasant interface and the usage of nearby languages assure accessibility and inclusivity for farmers from lots of backgrounds and locations [1]. In addition, farmers can modify and take advantage of recent opportunities because the app's push notifications inform them of critical legislative adjustments and marketplace developments [2]. Accurate and reliable statistics are assured via integrating advanced technology which includes Firebase and OpenWeatherMap, further to actual time updates. The Indian agricultural landscape should go through a revolution due to the Kisaan Saksham GOI app. With over 15 minutes of daily usage and sizable adoption in a couple of states, the app's effect is apparent. Empowering farmers with understanding enables knowledgeable selection making. This app builds a course for better crop production,

better profitability, and a sustainable destiny for Indian agriculture. Technological advances provide endless possibilities to further improve agricultural apps. The Kisaan Saksham GOI app represents a vital step toward that future. Its achievement demonstrates how technology can empower farmers and revitalize farming via training. While technology progresses, teaching farmers facilitate their development.

## IX. FUTURE WORK

1. Enabling Straightforward Farmers-to-Customers Connections: The Kisaan Saksham GOI serves as a pivotal connection in linking farmers directly to customers. By offering real-time sector pricing, the stage empowers farmers to make informed choices about when, where, and how to sell their harvests [5]. This straightforward connection removes needless mediators and guarantees reasonable pricing for farmers, adding to expanded pay and maintainability in horticultural practices.

2. AI help and Internet of Things sensors working together on Kisaan Saksham GOI bring big changes to farming. Tools using artificial intelligence give farmers advice for each crop, helping them make choices based on data. Sensors connecting to the internet, called IoT sensors, play an important part in watching crop health, finding problems like pests and diseases as soon as they start. This helpful way of working lets farmers act fast, cut losses for crops, and get the best results.

3. Empowering Farmers through Digital Literacy Programs: Recognizing the importance of digital literacy, Kisaan Saksham GOI goes beyond market access and technological tools. The platform aims to empower farmers and extension workers through thorough educational programs on properly exploiting digital tools and technologies [4]. These teaching efforts target bridging the digital gap, making certain farmers are well-informed in making the most of the full capabilities of the platform and other electronic resources.

4. Contributing to Agricultural Productivity and Rural Economic Development: In essence, Kisaan Saksham GOI emerges as a catalyst for agricultural productivity and rural economic development. The direct farmer-to-consumer connection ensures fair returns for farmers, while AI and IoT technologies enhance crop management practices [3]. Through offering educational programs, the platform helps farmers adopt new technologies. But it also encourages an environment where learning never stops. These positions agriculture workers as engaged members of the growing digital farm field. It gives them tools to stay knowledgeable in an ever changing area.

## X. ACKNOWLEDGMENT

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