Telecom Churn Predictor

Churn Detection Model for Telecommunications Company

// Business Presentation //

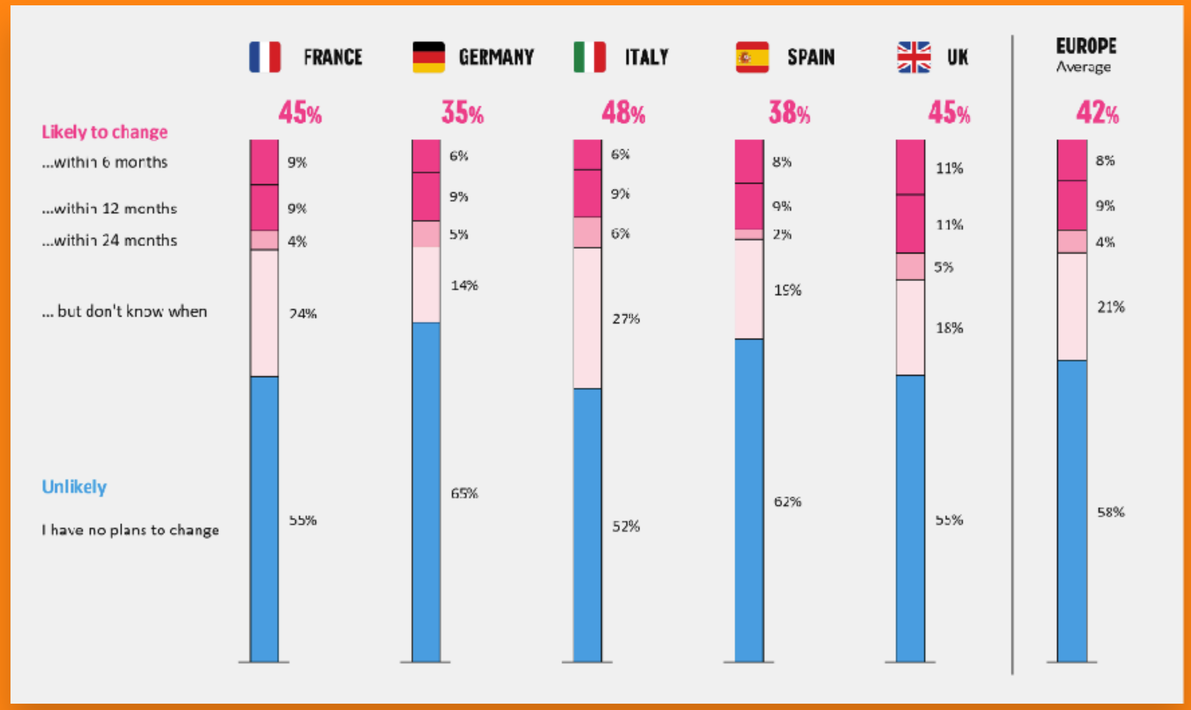
Introduction to the Problem

The customer cancellation rate, known as churn, is a critical issue for any company, but especially in the telecommunications industry. This not only affects revenue but also increases costs since acquiring a new customer is much more expensive than retaining existing ones. In the telecommunications industry, the churn rate can vary, but even a small reduction can mean millions of euros in savings and benefits.

Trend towards switching

The intention to switch from traditional operators to low-cost operators in Spain is the second highest in Europe, only surpassed by Italy (46%), indicating that the competitive dynamics in both countries are particularly favorable to these low-cost operators. Price is the most determining factor for consumers in all the analysed countries when deciding to change their mobile and fixed broadband service providers.

In Spain, in addition, consumers have a second priority when switching mobile operators: performance (network speed and quality) and the amount of data. Regarding fixed broadband providers, customer service is another factor that Spanish consumers consider when choosing an operator.



Users migrate to Low Cost

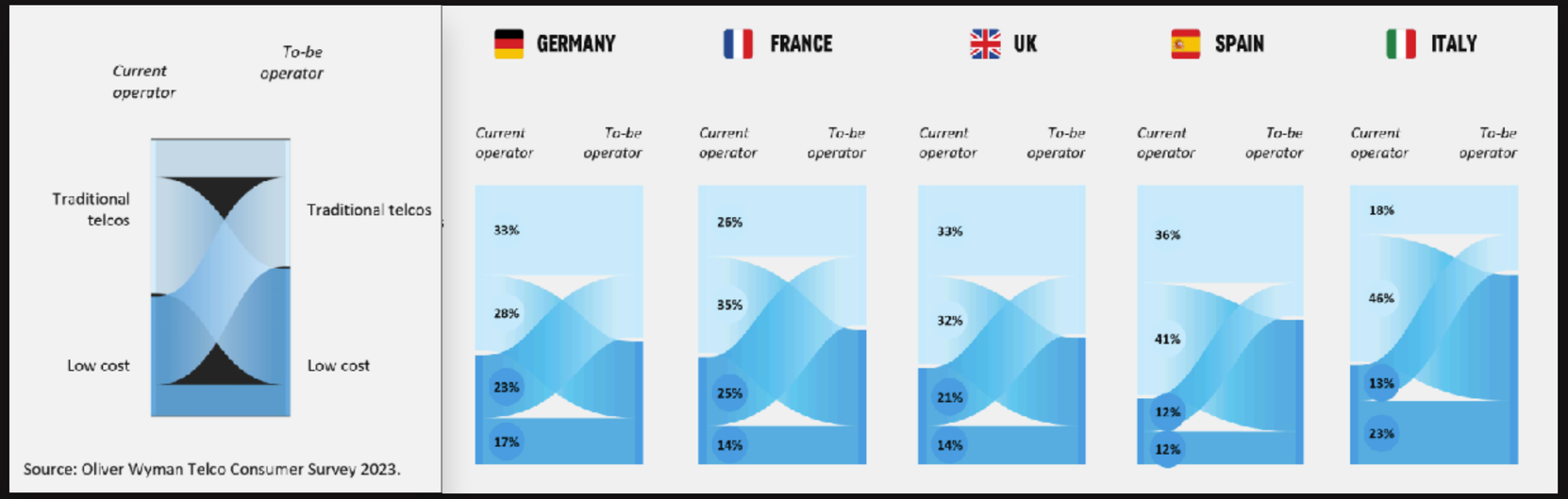
41% of Spaniards who will switch mobile operators in the next year will leave a traditional operator for a low-cost one.

This is one of the conclusions of the "Telco: Mobile and Fixed broadband connectivity" study, based on an annual survey of more than 7,000 European consumers residing in Spain, France, Italy, Germany, and the United Kingdom.

When asked:

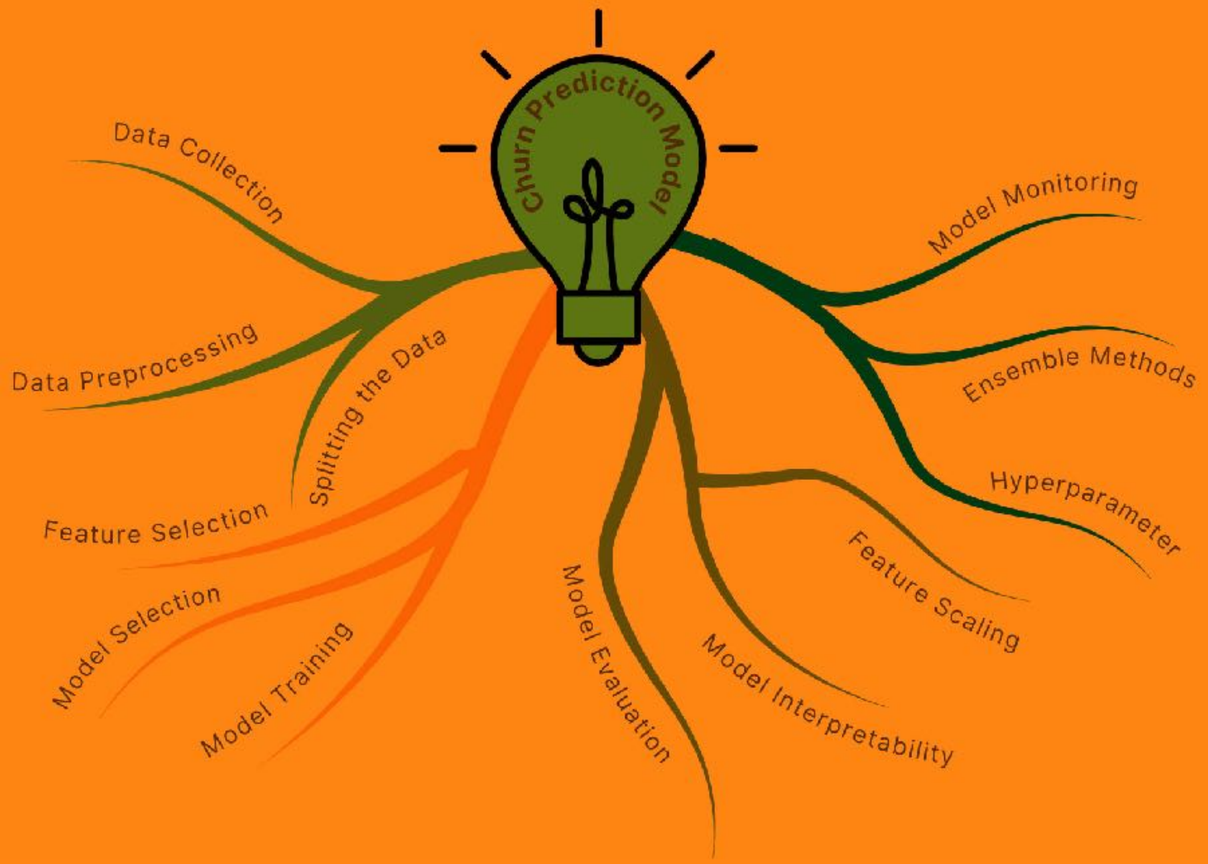
"Do you plan to update your home fixed broadband plan in the next 12 months?"

The affirmative responses range from 35% in Germany to 48% in Italy, with 38% in Spain.



The Importance of Reacting in Time

For telecommunications operators, it is crucial to react proactively to this trend of switching to low-cost operators. Ignoring this trend can result in a significant loss of customers and, consequently, a decrease in revenue.
Operators must review and adjust their pricing strategies, improve the quality of their services, and strengthen customer service to retain their current customers and attract new ones.



Use of a Reliable Predictive Model

This is where the use of a reliable predictive model comes into play. This model utilises advanced data analysis techniques to identify customers who have a high probability of leaving the service.

By implementing the model, an operator can take preventive measures to retain these customers.

For example, they can offer personalised promotions, improve customer service, or adjust service plans to better meet the needs and expectations of the customers.

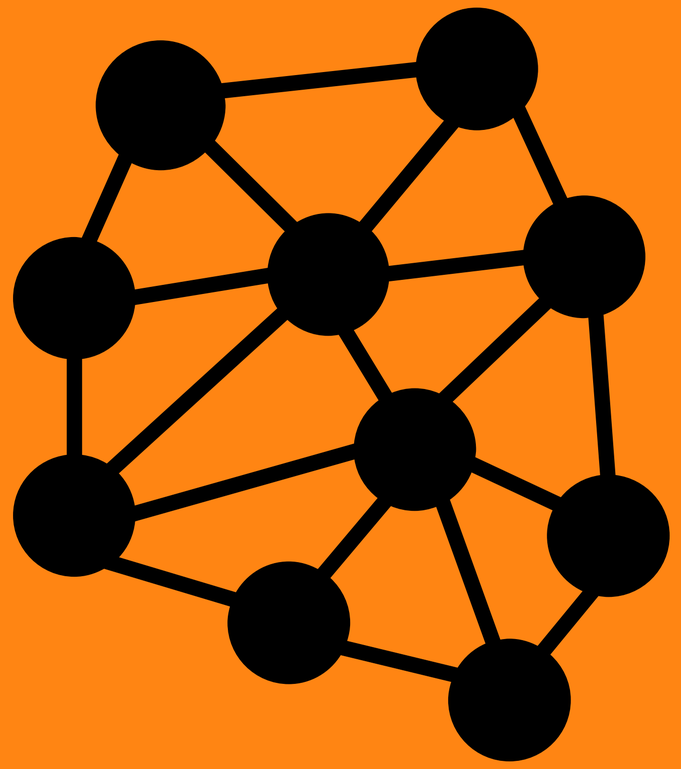
The model

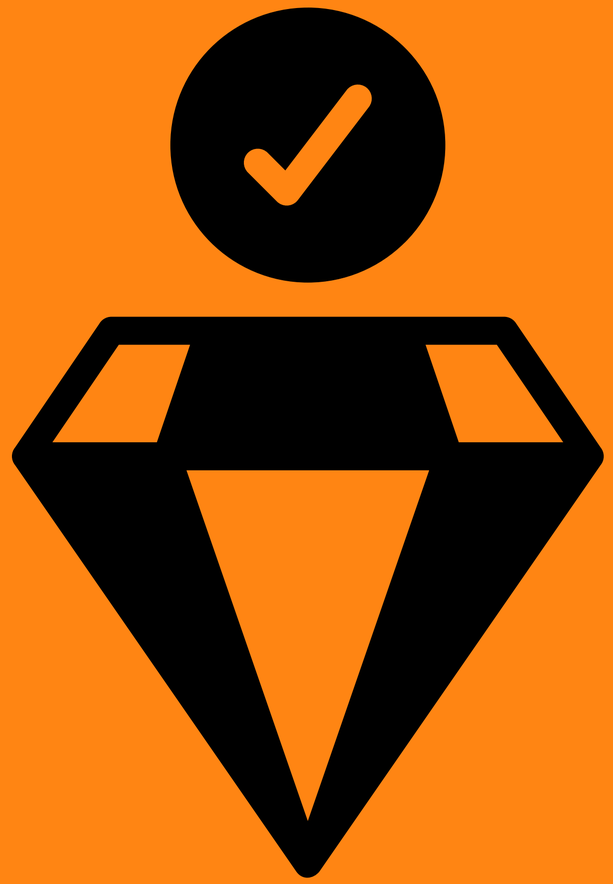
The solution I have developed to address this common situation is a machine learning model that helps predict which customers are most likely to cancel their contract with our company.

This model analyses various factors, such as the customer's service usage, contract type, and payment history, to identify patterns indicating a risk of churn.

The main objectives are:

- Reduce the churn rate.
- Increase customer retention by improving customer satisfaction and loyalty.
- Optimise marketing and customer service resources.





Business Value

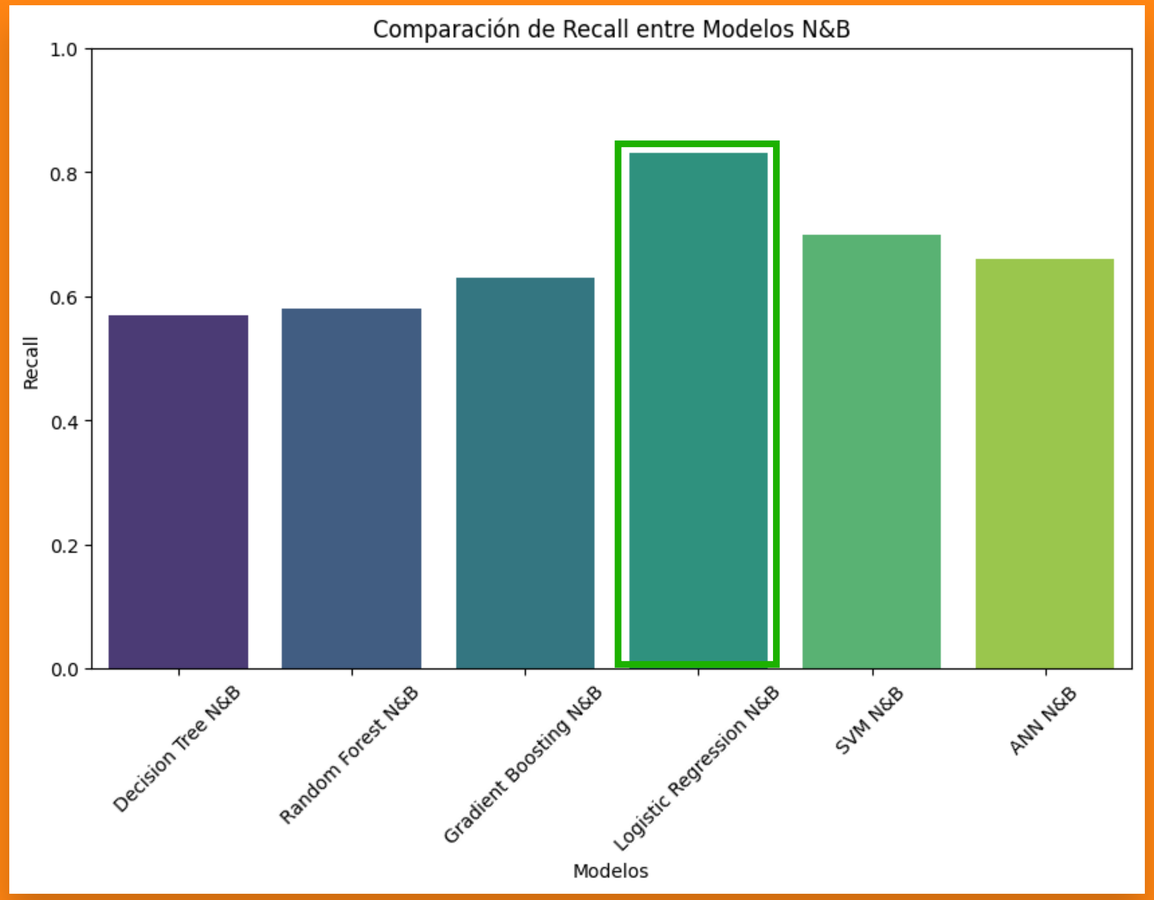
The developed model allows us to be proactive. Instead of reacting after a customer has left, we can intervene before this happens.

Having a prediction tool enables the business to optimise retention campaigns by focusing on customers at risk of leaving. This means that resources can be used more efficiently, concentrating efforts where they will have the greatest impact.

Model Operation

After conducting a series of tests with various models to identify customers at risk of leaving our services, I chose a logistic regression model.

With this chosen and optimised model, I have aimed to maximise Recall, as it is ideal for detecting positives.



Optimised for churn detection

In the graph, we can observe the comparison of our model in terms of Recall with the other models I have been working with.

Logistic Regression has proven to be the most effective model, with a Recall close to 0.85. This means that this model is capable of identifying 85% of customers at risk of churn.

Compared to other models, Logistic Regression outperforms all others, making it the most reliable option for our needs.

This model will enable us to make more informed and proactive decisions to retain customers, increasing customer satisfaction and reducing the churn rate.

Benefits and Practical Applications

Tangible Benefits

The model can be integrated with existing CRM systems to alert sales and customer service teams about at-risk customers. This allows these teams to take specific actions, such as offering discounts or improving personalised attention, to retain these customers.

Use Cases

Imagine a sales representative receives a daily alert with a list of at-risk customers. With this information, they can proactively contact these customers and offer them incentives. On the other hand, the marketing team can use the model's predictions to design more targeted and effective campaigns.

Collaboration Between Departments

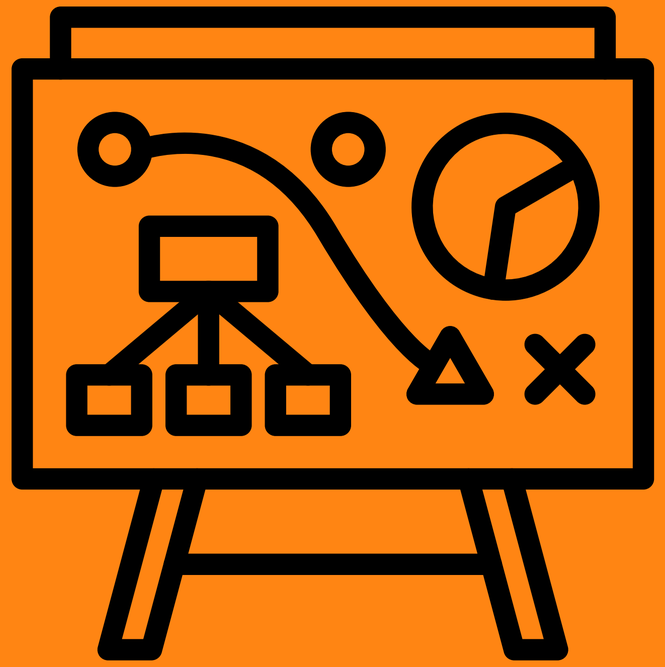
To maximise the benefits of the model, close collaboration between the different departments of the company is crucial to:

- Use the model alerts and proactively intervene with at-risk customers.
- Develop specific retention campaigns based on the model's predictions.
- Implement the technical aspects of the model and ensure that the data used is accurate and up-to-date.
- Analyse the financial impact of retention initiatives and adjust the budget accordingly.

Possible Customer Retention Measures

Once customers with a higher probability of churn are detected, retention measures could be implemented, such as:

- Requesting customer feedback to identify and resolve issues before they decide to leave
- Providing specific discounts or promotions
- Increasing the quality of customer service, offering priority technical support or resolving specific issues
- Encouraging loyalty through reward programs and exclusive benefits.



Alignment with Strategic Objectives

The Logistic Regression model supports the company's strategic objectives by increasing customer retention and loyalty. This translates into sustainable long-term growth.

Associated Costs

The initial implementation includes costs for data infrastructure and staff training. However, the long-term benefits, such as reducing the churn rate and improving customer retention, far outweigh these costs.

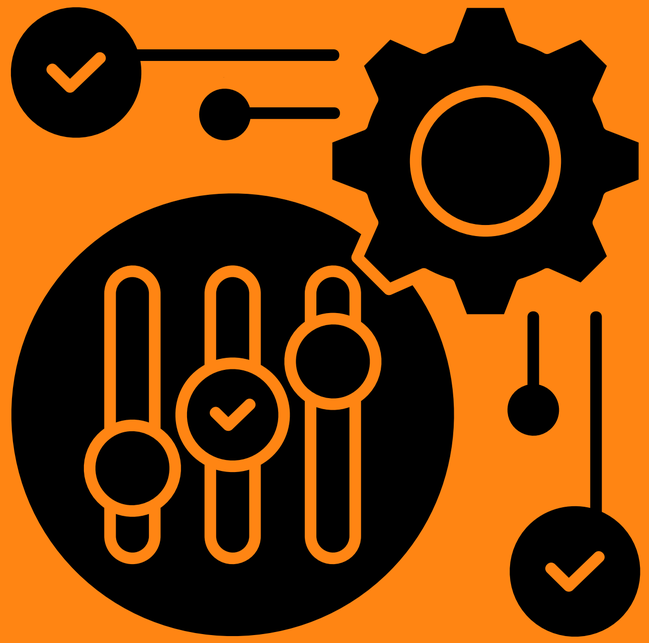
Implementing a churn prediction model is not just a technical initiative; it is a comprehensive strategy that can transform how a telecommunications company manages its customer relationships and optimizes its operations.

Comparison of Benefits

The model is designed to adapt to increasing volumes of data and can be easily adjusted to include new features or customer segments.

Future Adaptation

As business needs evolve, the model can be updated with new ML techniques and additional data to maintain its accuracy and relevance.



Possible Challenges

The main challenges include maintaining data quality and overcoming resistance to change within the organization. However, with some planning, rigorous data cleaning processes and training programs for employees can be implemented.

Additionally, a continuous process for monitoring and improving the model can be established, along with a collaborative approach with internal teams to ensure effective adoption.

Test the model

To test the model, I have prepared an online interface where we can select some variables, and the model will provide an immediate prediction.

Next steps

- Configure automatic alerts to notify sales and customer service representatives about customers at risk of churn.
- Develop an implementation and scalability plan for the model.
- Take steps to ensure continuous improvement and adjustment of the model to the changing needs of the business.
- Develop and deploy retention strategies based on the model's predictions.
- Test different strategies (discounts, personalized offers, service improvements) and measure their effectiveness.
- Set up a monitoring system to evaluate the model's performance in real-time.
- Gather feedback from the sales and marketing teams on the accuracy and usefulness of the predictions.
- Make adjustments to the model and retention strategies based on the feedback and results obtained.
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Thanks for watching!

GitHub: https://github.com/nacjacds/Telecom_Churn_Predictor

Web: https://nachojacquot.com/en/

LinkedIn: https://www.linkedin.com/in/jacquot/

Test the model:
https://telechurnpredictor.streamlit.app/