



CUSTOMER CHURN PREDICTION MODEL DESIGN USING PREDICTIVE ANALYTICS FOR MODERN COFFEE SHOP

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**GRADUATE SCHOOL
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Bogor, January 2021

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SUMMARY

BESTY AFRAH HASYATI. Customer Churn Prediction Model Design Using Predictive Analytics for Modern Coffee Shop. Supervised by TAUFIK DJATNA dan ERLIZA NOOR.

In today's competitive world, moving toward customer-oriented markets with increased access to customer's transaction data, identifying a loyal customer, predicting customer attrition, and estimating their lifetime value makes crucial. Since knowledge of customer value provides targeted data for personalized markets, implementing a customer relationship management strategy helps a company identify, segment customers, and create long-term relationships. As a result, they can maintain loyalty and minimize attrition. The goals of this research are: (1) to model a new business process, (2) to predict the customer churn using data mining tools based on CRM, (3) to recommend a fit strategy to prevent churn and maintain the loyalty, and (4) to evaluate the result from customer churn prediction.

We used the customer's past transaction data, and it had 8 attributes: customer number, name, gender, handphone number, quantity, recent visit, total spending, and frequent visit. The result was that this system had three stakeholders: customer, management staff, and management staff internal. We conducted the surveys to all the registered customers to get the satisfaction data and continued by RFM analysis, CLV, and clustering based on the customer's past transaction. The result obtained from RFM, CLV, and Clustering predicts the churn using decision tree analysis. As the final result of this research, we obtained 31 rules with 86% accuracy in the model. The marketing strategies are then designed to prevent churn and maintain loyalty.

Keywords: customer relationship management, churn prediction, decision tree analysis, RFM, CLV analysis



RINGKASAN

BESTY AFRAH HASYATI. *Customer Churn Prediction Model Design Using Predictive Analytics for Modern Coffee Shop*. Dibimbing oleh TAUFIK DJATNA dan ERLIZA NOOR.

Dalam dunia yang kompetitif saat ini, bergerak menuju pasar yang berorientasi pelanggan dengan peningkatan akses ke data transaksi pelanggan, mengidentifikasi pelanggan setia, memprediksi pengurangan pelanggan, dan memperkirakan nilai umur mereka menjadi sangat penting. Karena pengetahuan tentang nilai pelanggan menyediakan data yang ditargetkan untuk pasar yang dipersonalisasi, menerapkan strategi manajemen hubungan pelanggan membantu perusahaan mengidentifikasi, menyegmentasikan pelanggan, dan menciptakan hubungan jangka panjang. Hasilnya, mereka dapat mempertahankan loyalitas dan meminimalkan gesekan. Tujuan dari penelitian ini adalah: (1) memodelkan proses bisnis baru, (2) memprediksi churn pelanggan menggunakan alat data mining berbasis CRM, (3) merekomendasikan strategi yang sesuai untuk mencegah churn dan mempertahankan loyalitas, dan (4) mengevaluasi hasil dari prediksi churn pelanggan.

Kami menggunakan data transaksi pelanggan sebelumnya, dan memiliki 8 atribut: nomor pelanggan, nama, jenis kelamin, nomor handphone, kuantitas, kunjungan terakhir, total pengeluaran, dan sering berkunjung. Hasilnya adalah sistem ini memiliki tiga pemangku kepentingan: model prediksi pelanggan, staf manajemen, dan staf manajemen internal. Kami melakukan survei kepada seluruh pelanggan yang terdaftar untuk mendapatkan data kepuasan dan dilanjutkan dengan analisis RFM, CLV, dan clustering berdasarkan transaksi pelanggan sebelumnya. Hasil yang diperoleh dari RFM, CLV, dan Clustering memprediksi churn menggunakan analisis pohon keputusan. Hasil akhir dari penelitian ini diperoleh 31 aturan dengan akurasi model sebesar 86%. Strategi pemasaran kemudian dirancang untuk mencegah terjadinya churn dan mempertahankan loyalitas.

Kata kunci: *customer relationship management, churn prediction, decision tree analysis, RFM, CLV analysis*



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CUSTOMER CHURN PREDICTION MODEL DESIGN USING PREDICTIVE ANALYTICS FOR MODERN COFFEE SHOP

BESTY AFRAH HASYATI

Thesis
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for the degree of Magister of Engineering
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PREFACE

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GLOSSARIES

Business Process Modeling Notation	:	A graphical notation to represent the flow of a business process.
Design	:	A series of procedures to translate a system's analysis into a programming language for describing how the system components are implemented.
Customer Relationship Management	:	A strategy for building, managing, and strengthening loyal and long-lasting customer relationship.
Customer development	:	A process of growing the value of retaining a customer.
Customer Satisfaction	:	A very influential factor in a customer's loyalty and can be a source of new customers via favorable references.
Customer churn	:	Customers stop the relationship with the company.
Business analytics process	:	A consistent process through which business objectives can be met and insights executed and then tested with the best in class data and advanced analytics driving strategies and executions.
RFM Models	:	To determine the segmentation of customers based on past behavior.
Customer Lifetime Value	:	The total financial contribution from the current period into the future, revenues minus costs of a customer over his/her future lifetime with the company and therefore reflects the future profitability.
Predictive Analytics	:	the process of finding interesting patterns and meaningful data and a data-driven algorithm and obtains the key characteristics of the data model itself.
Kemenady Coffee Shop	:	One of the most famous coffee shops in Bogor area and a modern coffee shop that targets teenagers, young people and the elderly.

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