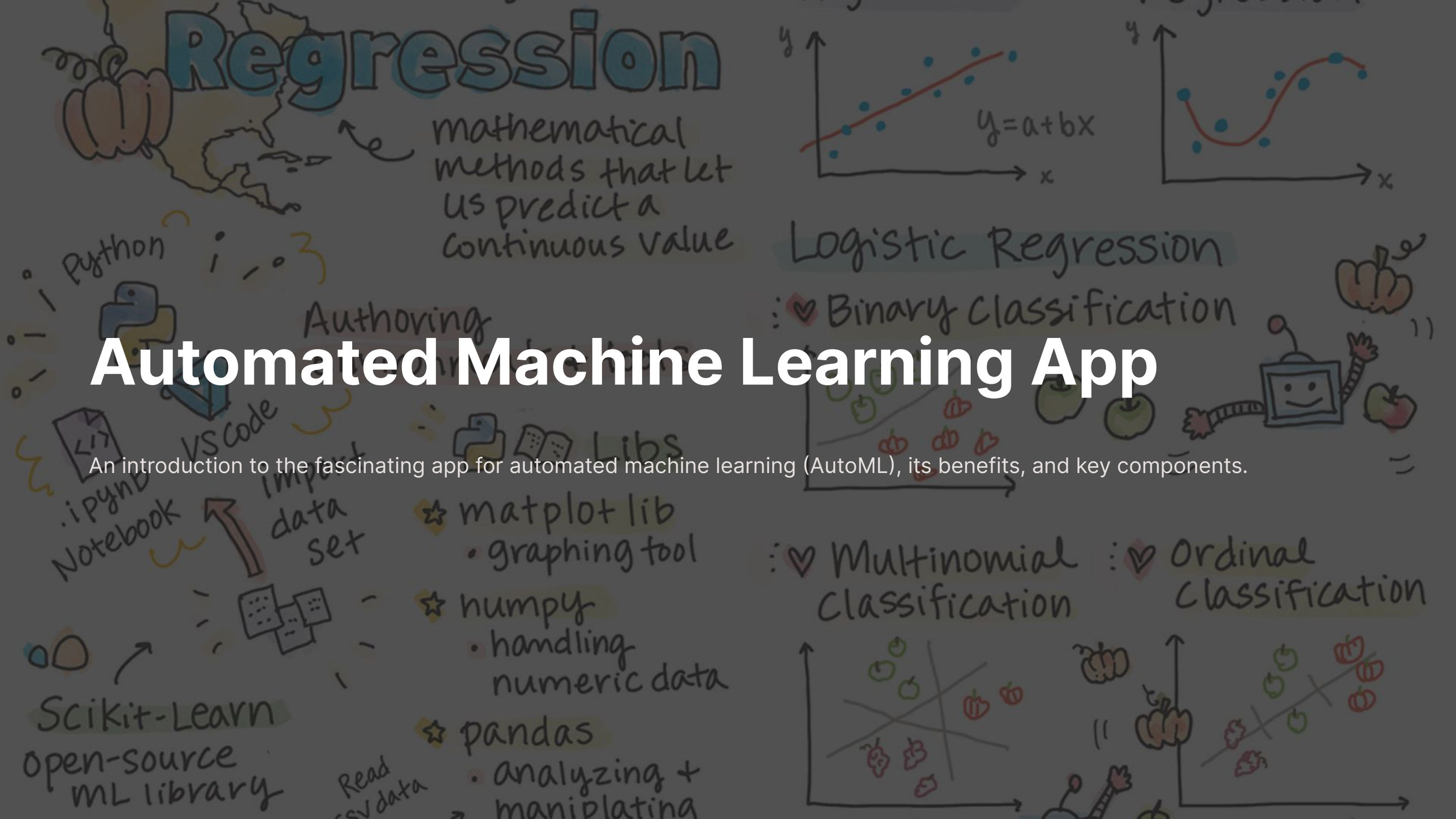


Automated Machine Learning App

An introduction to the fascinating app for automated machine learning (AutoML), its benefits, and key components.

Benefits of Using AutoML

1 Time-Saving ⏰

AutoML automates the time-consuming tasks of data preprocessing, model selection, and evaluation, allowing you to focus on insights and decision-making.

2 Accessible to Non-Experts 🎓

No coding or machine learning expertise required. AutoML democratizes data science, making it accessible to a wider range of professionals.

3 Improved Accuracy 📊

AutoML utilizes advanced algorithms that explore a vast range of models, ensuring optimal accuracy by selecting the best models for your specific dataset.

Key Components of an Automated Machine Learning App

Data Pre-Processing

- Data cleaning
- Handling missing values
- Feature scaling
- Encoding categorical variables

Feature Engineering

- Creating new features
- Transforming variables
- Feature selection
- Reducing dimensionality

Model Selection

- Trying different models
- Exploring hyperparameters
- Model ensembling
- Regularization techniques

Data Pre-Processing and Feature Engineering in AutoML

1

Automated Data Cleaning

AutoML identifies and handles missing values, removes duplicates, and addresses outliers, ensuring data integrity and accuracy.

2

Feature Scaling and Normalization

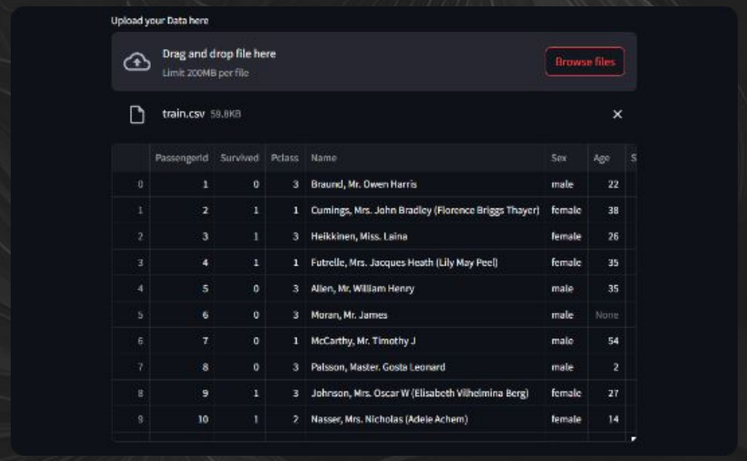
AutoML scales numeric features to ensure all variables are on a similar scale, preventing any single feature from dominating the model.

3

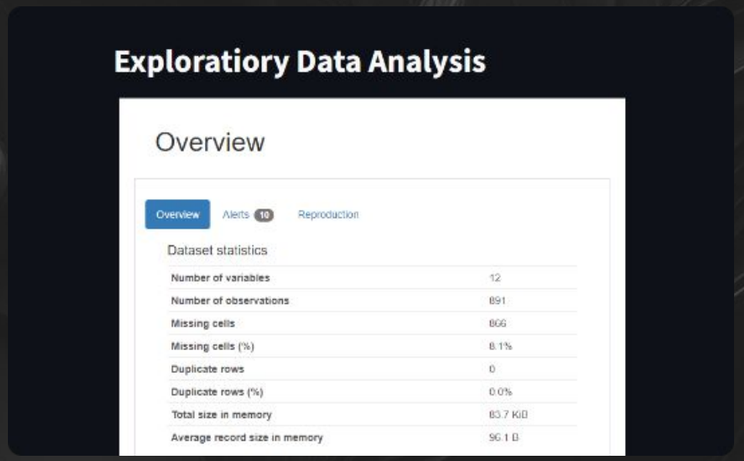
Automatic Feature Extraction

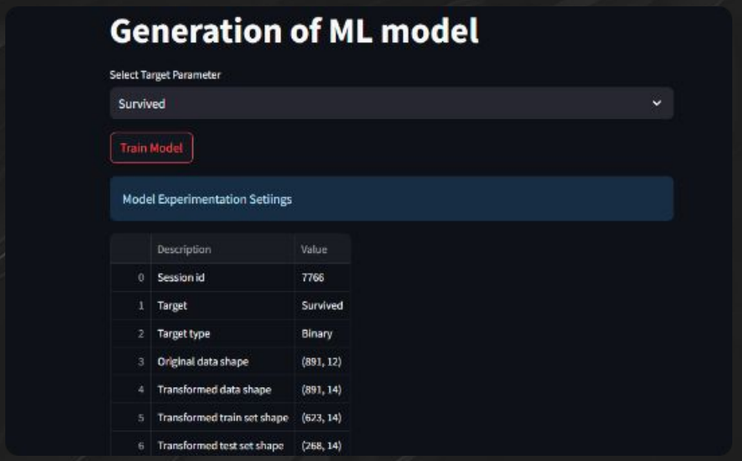
AutoML automatically identifies and creates new features based on patterns in the data, enhancing model performance.

Data Upload, Evaluation and Model Generation in AutoML



	PassengerId	Survived	Pclass	Name	Sex	Age
0	1	0	3	Braund, Mr. Owen Harris	male	22
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Thayer)	female	38
2	3	1	3	Heikkinen, Miss. Laina	female	26
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35
4	5	0	3	Allen, Mr. William Henry	male	35
5	6	0	3	Moran, Mr. James	male	None
6	7	0	1	McCarthy, Mr. Timothy J	male	54
7	8	0	3	Palsson, Master. Gosta Leonard	male	2
8	9	1	3	Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)	female	27
9	10	1	2	Nasser, Mrs. Nicholas (Adele Achem)	female	14





	Description	Value
0	Session id	7766
1	Target	Survived
2	Target type	Binary
3	Original data shape	(891, 12)
4	Transformed data shape	(891, 14)
5	Transformed train set shape	(623, 14)
6	Transformed test set shape	(268, 14)

Data Upload

AutoML allows the user to upload their own custom dataset for analysis and training purposes through a simple click.

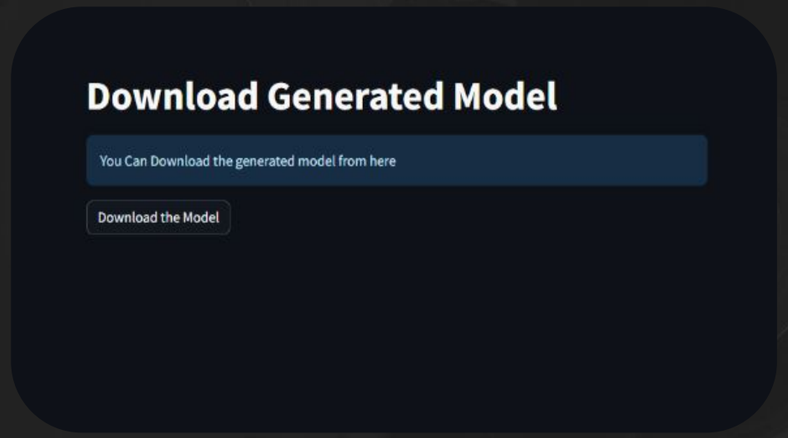
Model Evaluation

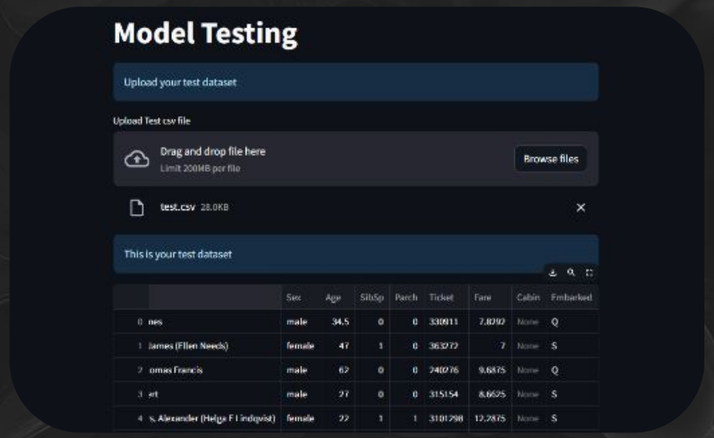
AutoML assesses the uploaded dataset to display information on missing values, duplicates, outliers etc. and also provide other valuable insights.

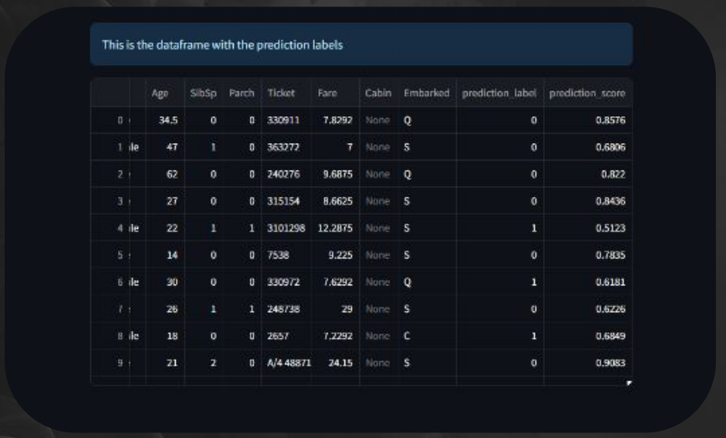
Model Creation

AutoML asks the user for a target parameter and then gets to generating multiple models for comparing which one gives the best results.

Downloads & Testing Section







After generating the best model for the given problem/data the user can then download a pkl file of the model for using in other external softwares.

Apart from downloading the best generated model from the app AutoML also provides the user with an option to test out their newly made model on the web app itself.

In the output table the prediction label column gives the predicted values for the give test data along with the accuracies listed in the prediction score column.

Future Scope

This future scope envisions a roadmap for expanding and enhancing the AutoML application, incorporating advanced features, addressing specific industry needs, promoting ethical AI, and fostering a collaborative and adaptive environment to cater to evolving user requirements and technological advancements. Following are some improvements that can be made to the current application:

1. Adding a separate tab for classification problems.
2. Exception handling for certain misinput on the user's end.
3. Pointing out to the user on what steps to take on the data based on the EDA performed.
4. Deploying the model on a live server

Conclusion

Automated machine learning (AutoML) provides a powerful and efficient solution for data modeling and analysis. By automating various steps in the data science process, AutoML allows users to focus on extracting insights and making data-driven decisions. Adopting AutoML can accelerate your analytics workflow, enhance accuracy, and democratize data science.

Thank You For Your Time.