MACHINE LEARNING CASE STUDY

From Notebook to Business Tool

Deploying a Model with Streamlit

Roger Estrada · Machine Learning in Business · AI Strategy · 2026

A trained model becomes a business tool when the person making the decision can use it without a software project. A logistic regression loan-eligibility model was wrapped in a Streamlit app that returns Approved or Rejected from four applicant inputs, which shows the shortest path from analysis to a usable internal tool.

Business problem

A model that lives in a notebook is a science project. Value appears only when a loan officer, analyst, or service lead can enter real inputs and see a real-time score in their own workflow. Closing that gap usually means waiting for engineering capacity. A lightweight stack closes it for internal tools and proofs of concept.

How it was built

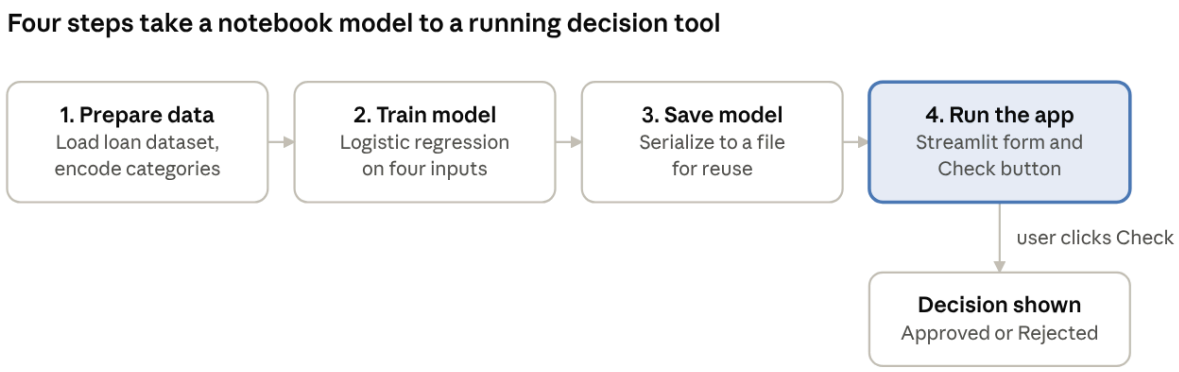


Figure 1. Notebook to app in four steps.

The notebook loads a loan dataset, encodes gender and marital status as numbers, trains a logistic regression on four inputs (gender, marital status, applicant income, loan amount), and saves the model to a file. A short Streamlit script loads that file and builds a form. When the user clicks Check, the app returns Approved or Rejected. The notebook ran end to end and served the app locally.

Enterprise application

The same pattern supports loan-officer decision support, service triage, campaign scoring, and vendor risk review. Streamlit is the right choice when the audience is internal and volume is modest.

It lets business users test a model and give feedback in days, before any investment in production infrastructure.

It also closes the gap between strategy and delivery. A working prototype of a proposed solution in front of stakeholders shortens approval cycles and surfaces requirements early, so engineering capacity goes to hardening what has proven value.

Governance and limits

- **Demonstration only.** The notebook reports no accuracy figure, and the model was fit on the full dataset without a holdout test set. It is not a validated model.
- **Protected characteristics.** Gender and marital status are protected characteristics under fair-lending rules. A production version would remove them and be validated before any use in a credit decision.
- **Lifecycle.** Deployment is the start, not the finish. A production path adds monitoring, retraining triggers, access controls, logging, and a fallback when the model is unavailable.
- **Change control.** Prototypes stay labeled as prototypes until they pass the same validation and change control as any model that influences a decision.