PROJECT 3

Advertisement Click Prediction Using Machine Learning

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Advertisement Click Prediction Using Machine Learning

1. Project Overview This project focuses on building a machine learning model to predict whether a user will click on an online advertisement. Using a structured dataset containing user information and behavioral data, the model aims to classify user activity based on patterns in the data.

2. Tools and Technologies Used

- Programming Language: Python
- Data Manipulation: pandas, numpy
- Data Visualization: matplotlib, seaborn
- Machine Learning Models: Logistic Regression, Decision Tree, Random Forest, Gradient Boosting, SVC
- Evaluation Metrics: Accuracy Score, Confusion Matrix, Classification Report
- Other Utilities: LabelEncoder, SelectKBest, mutual_info_classif, train_test_split, pickle

3. Dataset and Preprocessing

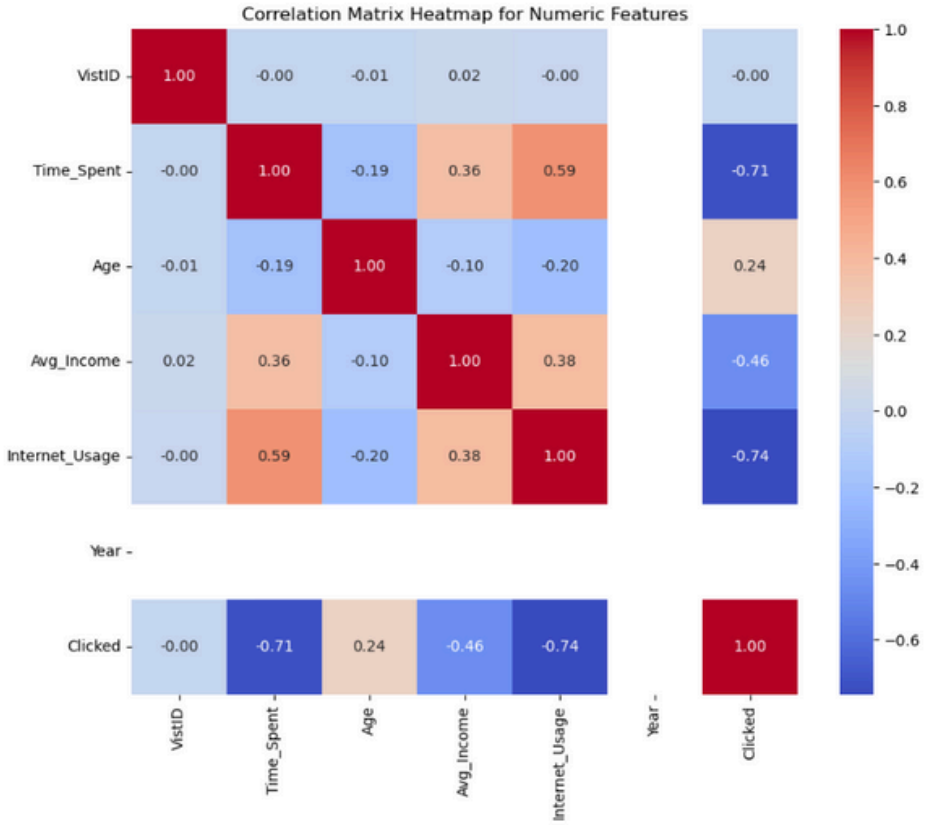
- Data Source: click_advertisement.csv
- Features: User age, area income, daily time spent on site, gender, timestamp, etc.
- Target: Clicked on Ad (binary)
- Steps: Cleaning, Label Encoding, EDA, Feature Selection

4. Model Development

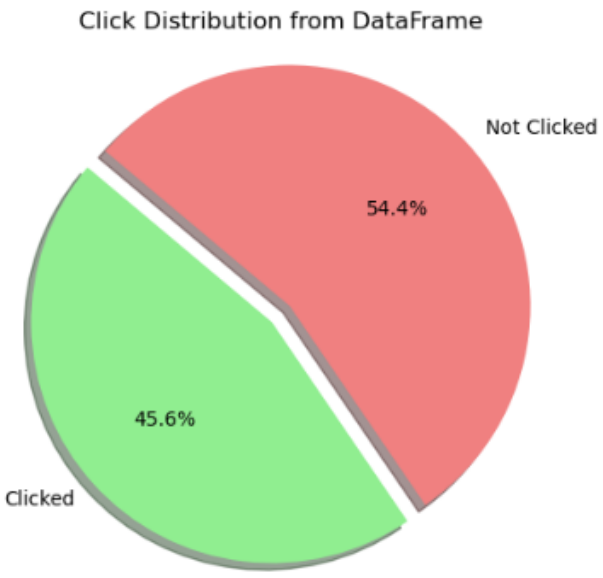
- Primary Model: Logistic Regression
- Data Split: 80% training / 20% testing
- Evaluation: Accuracy Score, Confusion Matrix, Classification Report
- Accuracy: ~92.6%

5. Sample Visualizations

Feature Correlation Heatmap



Target Distribution Pie Chart

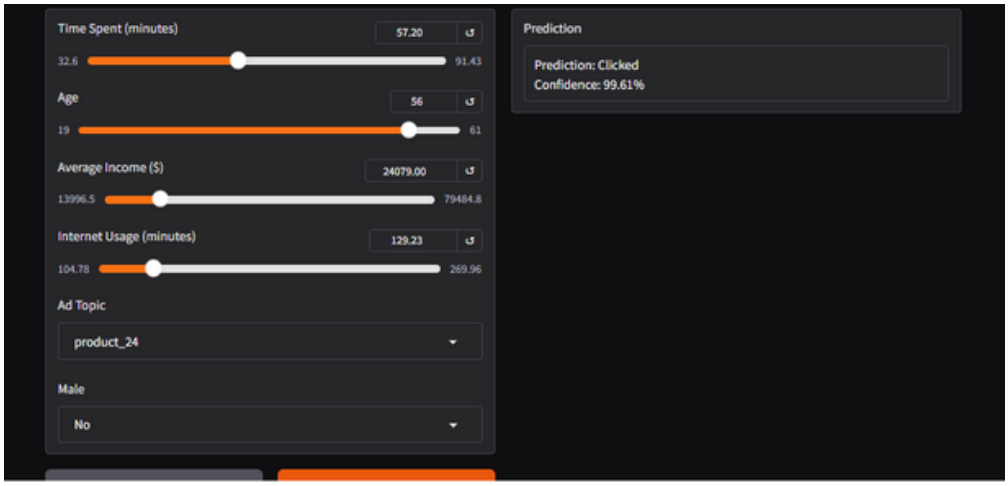


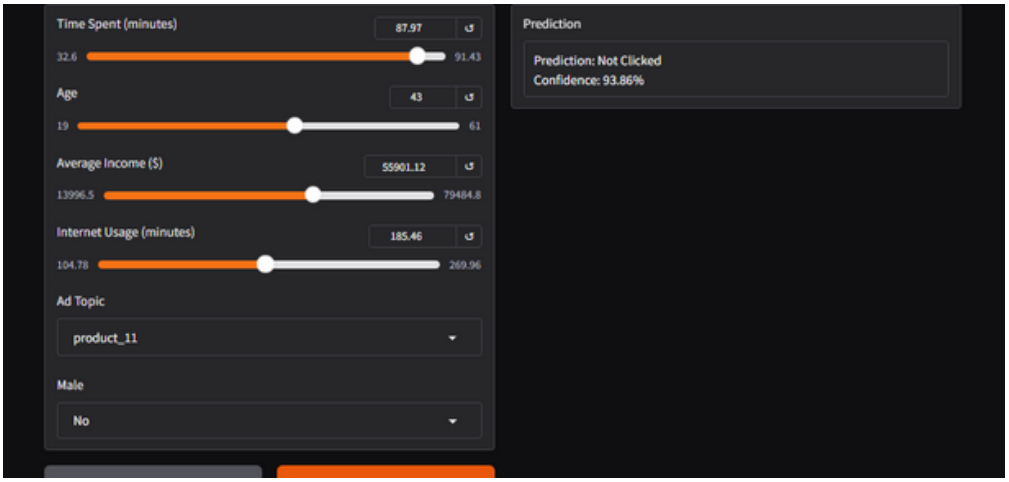
6. Sample Output

Classification Report:

	precision	recall	f1-score	support
0	0.91	0.94	0.92	180
1	0.94	0.90	0.92	170

7. Deployment & Usage





8. Sample Project Link

https://b61338378ccc104ef0.gradio.live