Takealot Analytics Hub User Guide

User Guide For Takealot Shiny App

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1.0 Overview

The Takealot Analytics Hub is a sophisticated customer intelligence platform that leverages machine learning to analyze customer behavior and predict purchase intent. This application provides real-time customer segmentation, purchase probability analysis, and actionable insights to drive business decisions.

2.0 Getting Started

System Requirements

- Modern web browser (Chrome, Firefox, Safari, Edge)
- Internet connection for optimal performance
- No additional software installation required

Accessing the Application

1. Navigate to the application URL :

https://mubanga-nsofu.shinyapps.io/takealot_shopper_insights/

2. The dashboard will load automatically

3. Begin analysis using the intuitive interface

3.0 Features Overview

The application consists of three main sections accessible via the navigation tabs:

🎯 Customer Analysis

Individual customer behavior analysis and prediction

📊 Dataset Analytics

Bulk data processing and batch analysis

📥 Export Hub

Results download and reporting center

Using Customer Analysis

Step 1: Input Customer Data

Navigate to the Customer Analysis tab and locate the input panel on the left side. Enter the following customer session information:

Duration Metrics:

- ***Administrative Duration:*** Time spent on account pages, checkout processes (in seconds)

- ***Product Browsing Duration:*** Time spent viewing product pages (in seconds)

- ***Informational Duration:*** Time spent on help pages, company information (in seconds)

Engagement Metrics:

- *Bounce Rate:* Proportion of single-page sessions (0-1 scale)

- *Exit Rate:* Proportion of sessions ending on specific pages (0-1 scale)

- *Page Value:* Economic value of visited pages in Rand currency

- *Interaction Intensity:* Customer engagement score (0-1 scale)

Session Context:

- *Special Day Proximity:* Closeness to holidays or special events (0-1 scale)

- *Weekend Session:* Select whether the session occurred on weekend or weekday

- *Month:* Select the month when the session took place

- *Visitor Type:* Choose between New Visitor, Returning Visitor, or Other

- ***Traffic Source:*** Select how the customer arrived (Direct, Search Engine, Social Media, Email, Referral)

Step 2: Run Analysis

Click the **" 🔮 Analyze Customer"** button to initiate the machine learning analysis.

Step 3: Review Results

The system will display:

Customer Segmentation Card:

- High-Intent Shoppers: Customers likely to make purchases

- Casual Browsers: Customers in exploration mode

Purchase Intent Card:

- Purchase probability percentage

- Likelihood classification (Likely/Unlikely to Purchase)

AI Feature Analysis:

- SHAP (SHapley Additive exPlanations) values showing which factors influence the prediction

- Visual representation of feature importance

Behavior Visualization:

- Normalized behavior metrics displayed as progress bars

- Quick visual assessment of customer engagement patterns

AI-Powered Insights:

- Automated recommendations based on customer behavior

- Targeted marketing suggestions

- Personalized engagement strategies

4.0 Using Dataset Analytics

Step 1: Load Data

Upload the cleaned dataset

1. Click **"Upload CSV Dataset"**

2. Select the CSV file (supplied) containing customer data

3. Ensure the file includes required columns (see Column Requirements below)

Step 2: Configure Analysis Settings

- **Sample Size:** Specify how many records to analyze (0 = analyze all records)

- Larger datasets may require sampling for performance optimization

Step 3: Run Batch Analysis

Click "🚀 **Run Analysis"** to process the entire dataset.

The system displays:

- Total records analyzed

- Percentage of high-intent customers

- Overall purchase likelihood distribution

- Average purchase probability across the dataset

5.0 Column Requirements for Datasets

Your CSV file must contain the following columns with exact naming:

Essential Columns:

- Administrative, Administrative_Duration

- Informational, Informational_Duration

- ProductRelated, ProductRelated_Duration

- BounceRates, ExitRates, PageValues

- SpecialDay, Month, Weekend

- OperatingSystems, Browser, Region, TrafficType

- VisitorType_Other, VisitorType_Returning_Visitor

- Total_Duration, Interaction_Intensity

Please note that missing columns will prevent analysis from running properly.

6.0 Export and Reporting

Available Downloads

Single Predictions CSV:

- Individual customer analysis results

- Includes all input parameters and predictions

- Timestamped for tracking purposes

Batch Results CSV:

- Complete dataset analysis results

- Customer segments and purchase probabilities

- Suitable for further analysis in external tools

Full Analysis Report:

- Comprehensive text report

- Customer behavior profile

- Feature importance analysis

- Executive summary with insights

Download Process:

1. Navigate to the 📥 **Export Hub** tab

2. Review the analysis summary statistics

3. Select your preferred download format

4. Click the corresponding download button

5. Files will be saved with timestamp for organization

7.0 Understanding Results

Customer Segments

High-Intent Shoppers (Cluster 0):

- Customers showing strong purchase signals

- Recommended for targeted promotions and personalized offers

- Higher conversion probability

Casual Browsers (Cluster 1):

- Customers in exploration or research mode

- Recommended for brand awareness campaigns and educational content

- Focus on nurturing rather than immediate conversion

Purchase Intent Scores

- ***High Probability (>50%):*** Strong purchase likelihood, prioritize for sales engagement

- ***Medium Probability (20-50%):*** Moderate interest, suitable for retargeting campaigns

- ***Low Probability (<20%):*** Early-stage interest, focus on brand building

Feature Importance

SHAP values indicate which factors most strongly influence predictions:

- ***Positive values:*** Factors that increase purchase likelihood

- ***Negative values:*** Factors that decrease purchase likelihood

- ***Magnitude:*** Strength of the factor's influence

8.0 Best Practices

Data Quality

- Ensure accurate data entry for reliable predictions

- Verify that duration values are realistic (avoid extreme outliers)

- Use consistent units (seconds for duration, rates as decimals)

Interpretation

- Consider multiple factors rather than single metrics

- Use insights to inform strategy rather than replace human judgment

- Regularly validate predictions against actual outcomes

Privacy and Ethics

- Ensure customer data is handled according to privacy regulations

- Use insights to improve customer experience, not manipulate behavior

- Maintain transparency in automated decision-making processes

9.0 Troubleshooting

Common Issues

Model loading error:

- Refresh the page and try again

- Contact Mubanga Nsofu @ (MubangaNsofujr@gmail.com) the system administrator if issue persists

Analysis failed:

- Verify all required fields are completed

- Check that numeric values are within reasonable ranges

- Ensure uploaded dataset has correct column structure

No data to visualize:

- Complete the analysis by clicking "Analyze Customer" first

- Verify that the analysis completed successfully

Missing columns in dataset:

- Review the Column Requirements section

- Ensure your CSV file has all required columns with exact names

- Check for typos in column headers

Performance Optimization:

- Use sampling for large datasets (>10,000 records)

- Close unused browser tabs to free up memory

- For very large files, consider splitting into smaller batches

10.0 Technical Support

For technical assistance or questions about the application:

1. Check this user manual for guidance

2. Verify your data meets the specified requirements

3. Try refreshing the application if experiencing issues

4. Contact your system administrator for persistent problems

11.0 Version Information

This user manual corresponds to the latest version of the Takealot Analytics Hub featuring:

- Advanced glassmorphic user interface

- Real-time machine learning predictions

- Comprehensive export capabilities

- Mobile-responsive design