The analysis conducted for X Education aimed to identify strategies to attract more industry professionals to enroll in their courses. Here are the steps followed in the analysis:

1. **Understanding the Data and Data Quality Check**:
- Initial data exploration included checking data dimensions, info, and detecting duplicates and missing values.
- The 'Select' option was replaced with null values as it didn't provide useful information. Some null values were also replaced with 'not available' to retain data.

2. **Data Cleaning and Treatment**:
- Data was mostly clean, except for a few null values.
- Columns with over 45% missing values were dropped.
- Irrelevant and highly skewed categorical variables were excluded from the analysis.
- Some variables were combined to make data more comparable and suitable for accurate analysis.

3. **Exploratory Data Analysis (EDA):**
- EDA involved plotting conversion ratios against relevant variables.
- Outliers were handled, and numeric values were cleaned.

4. **Identifying Categorical Variables and Creating Dummy Variables:**
- Dummy variables were generated for categorical variables and original columns were dropped.
- Numeric values were scaled using MinMaxScaler.

5. **Train-Test Split**:
- Data was split into training (70%) and testing (30%) sets using the sklearn library.

6. **Rescaling Numerical Variables**

7. **Model Building:**
- Recursive Feature Elimination (RFE) was used to select the top 15 relevant variables.
- The remaining variables were manually removed based on VIF values and p-values (variables with VIF > 5 and p-value > 0.05 were eliminated).

8. **Model Evaluation**:
- A confusion matrix was generated.
- The optimum cut-off value (using the ROC curve) was used to calculate accuracy, sensitivity, and specificity, each approximately 90%.

9. **Prediction:**
- Predictions were made on the test data using an optimum cut-off value of 0.2, resulting in an accuracy, sensitivity, and specificity of 90%.
- The analysis revealed that the most influential variables in attracting potential buyers are (in descending order):
  1. Direct Traffic
  2. Welingak Website
  3. Last Activity - Email Bounced
  4. Last Activity - Olark Chat Conversation
  5. Tags – Busy
  6. Tags - Closed by Horizon
  7. Tags - Lost to EINS
  8. Tags - Not Specified
  9. Tags – Ringing
  10. Tags - Will revert after reading the mail
  11. Last Notable Activity - SMS Sent

12. By focusing on these key variables, X Education can significantly increase their chances of converting potential buyers and boosting their course enrollments.