When choosing an analytic approach for a problem, the type of question you’re trying to answer greatly influences the methodology. Here are five common types of questions and corresponding analytic approaches:

**1. Descriptive Questions: “What is the current status?”**

**Approach: Descriptive Analytics**

**Question:** "What is the current status of our sales?"

**Techniques:**

* Data aggregation: Combining data from various sources into a unified view.
* Data mining: Extracting useful information from large datasets.
* Data visualization: Using visual tools to present data in an easily understandable format.

**Examples:**

* Summarizing sales data
* Creating dashboards
* Generating reports

**2. Diagnostic Questions: “Why did it happen?”**

**Approach: Diagnostic Analytics**

**Question:** "Why did our sales decline in the last quarter?"

**Techniques:**

* Drill-down: Exploring detailed data to find underlying causes.
* Data discovery: Identifying patterns and relationships in data.
* Correlation analysis: Assessing the relationship between different variables.

**Examples:**

* Identifying root causes of sales decline
* Analyzing customer complaints
* Understanding failure points in a process

**3. Predictive Questions: “What is likely to happen?”**

**Approach: Predictive Analytics**

**Question:** "What is our sales forecast for the next year?"

**Techniques:**

* Regression analysis: Predicting outcomes based on relationships between variables.
* Time series forecasting: Predicting future values based on past trends.
* Machine learning models: Using algorithms to predict future outcomes based on historical data.

**Examples:**

* Forecasting sales
* Predicting customer churn
* Estimating future demand

**4. Prescriptive Questions: “What should we do?”**

**Approach: Prescriptive Analytics**

**Question:** "What should we do to increase website traffic?"

**Techniques:**

* Optimization models: Finding the best solution from a set of alternatives.
* Simulation: Modeling scenarios to predict outcomes.
* Decision analysis: Evaluating and comparing different decisions.

**Examples:**

* Recommending inventory levels
* Optimizing marketing campaigns
* Determining pricing strategies

**5. Classification Questions: “Which category does this belong to?”**

**Approach: Classification (Supervised Learning)**

**Question:** "Which category does this data point belong to?"

**Techniques:**

* Logistic regression: Predicting the probability of a categorical outcome.
* Decision trees: Splitting data into branches to classify it.
* Support vector machines: Finding the best boundary to separate categories.
* Neural networks: Using interconnected nodes to classify data.

**Examples:**

* Email spam detection
* Image classification
* Disease diagnosis