**Assignment 6: Explanation of Analysis Tools**

The following analysis tools are used in data warehousing and business intelligence for extracting insights from large datasets.

**1. OLAP (Online Analytical Processing)**

* **Description**:
  + OLAP allows interactive analysis of multidimensional data.
  + It supports operations like **Drill Down, Roll Up, Drill Across, Slice, and Dice** for deeper insights.
  + Enables fast query processing and aggregation.
* **Use Cases**:
  + Financial reporting, sales forecasting, and performance analysis.

**2. Standard Reporting**

* **Description**:
  + Generates predefined reports with fixed structures.
  + Often used for regulatory compliance and routine business reports.
  + Uses SQL queries to fetch and format data.
* **Use Cases**:
  + Monthly sales reports, expense summaries, financial statements.

**3. Ad-hoc Reporting**

* **Description**:
  + Allows users to create reports dynamically without predefined templates.
  + Users can select data sources, apply filters, and customize reports.
  + Does not require deep technical knowledge.
* **Use Cases**:
  + Custom sales analysis, tracking performance metrics on demand.

**4. Data Mining**

* **Description**:
  + Uses statistical and machine learning techniques to uncover hidden patterns.
  + Techniques include **classification, clustering, association rules, and forecasting**.
  + Helps in predictive analytics and decision-making.
* **Use Cases**:
  + Customer segmentation, fraud detection, market basket analysis.
*  **OLAP & Data Mining** → High flexibility but require technical expertise.
*  **Standard Reporting** → Low flexibility and complexity.
*  **Ad-hoc Reporting** → A balance between flexibility and complexity.

