

Scenario: You work for an oil and gas company called "PetroCorp" that operates multiple drilling rigs across different regions. PetroCorp is interested in optimizing its drilling operations and monitoring the performance of its drilling rigs. To achieve this, they have collected data from various sensors and equipment on the drilling rigs and stored it in a SQL Server database. Your task is to create a T-SQL database script and provide business reporting solutions to help PetroCorp make data-driven decisions.

Problem Statement: PetroCorp wants to analyze drilling rig performance data to identify trends and anomalies, track the progress of ongoing drilling operations, and generate daily reports summarizing key metrics for each drilling rig.

Business Reporting Requirements:

- Daily Summary Report:** PetroCorp needs a daily summary report for each drilling rig, including the following information:
 - Rig Name**
 - Date**
 - Total Drilled Depth (in meters) for the day**
 - Average Drilling Speed (in meters per hour) for the day**
 - Total Operating Hours for the day**
 - Number of Drill Bit Changes for the day**
- Anomaly Detection:** PetroCorp wants to identify drilling rigs that have experienced an unusually high number of drill bit changes in the last week. They need a report listing the rig names and the number of drill bit changes for each rig over the last seven days.
- Progress Tracking:** PetroCorp wants to track the progress of an ongoing drilling operation. They need a report that shows the drilling depth achieved each day for a specific rig, starting from a given date.

Data Dictionary:

Table Name: DrillingRigs

Column Name	Data Type	Description
RigID	INT	Unique identifier for the drilling rig. (Primary Key)
RigName	NVARCHAR(50)	Name of the drilling rig. Must be unique and not null.

Table Name: DrillingData

Column Name	Data Type	Description
DataID	INT	Unique identifier for the drilling data record. (Primary Key)
RigID	INT	Foreign key linking to the DrillingRigs table, identifying the drilling rig to which the data belongs.
Date	DATE	The date when the drilling data was recorded. Not null.
DrilledDepth	DECIMAL(10, 2)	The depth drilled (in meters) at the given date. Not null.
DrillingSpeed	DECIMAL(10, 2)	The drilling speed (in meters per hour) at the given date. Not null.
OperatingHours	DECIMAL(10, 2)	The number of operating hours for the drilling rig at the given date. Not null.
DrillBitChanges	INT	The number of drill bit changes that occurred at the given date. Not null.