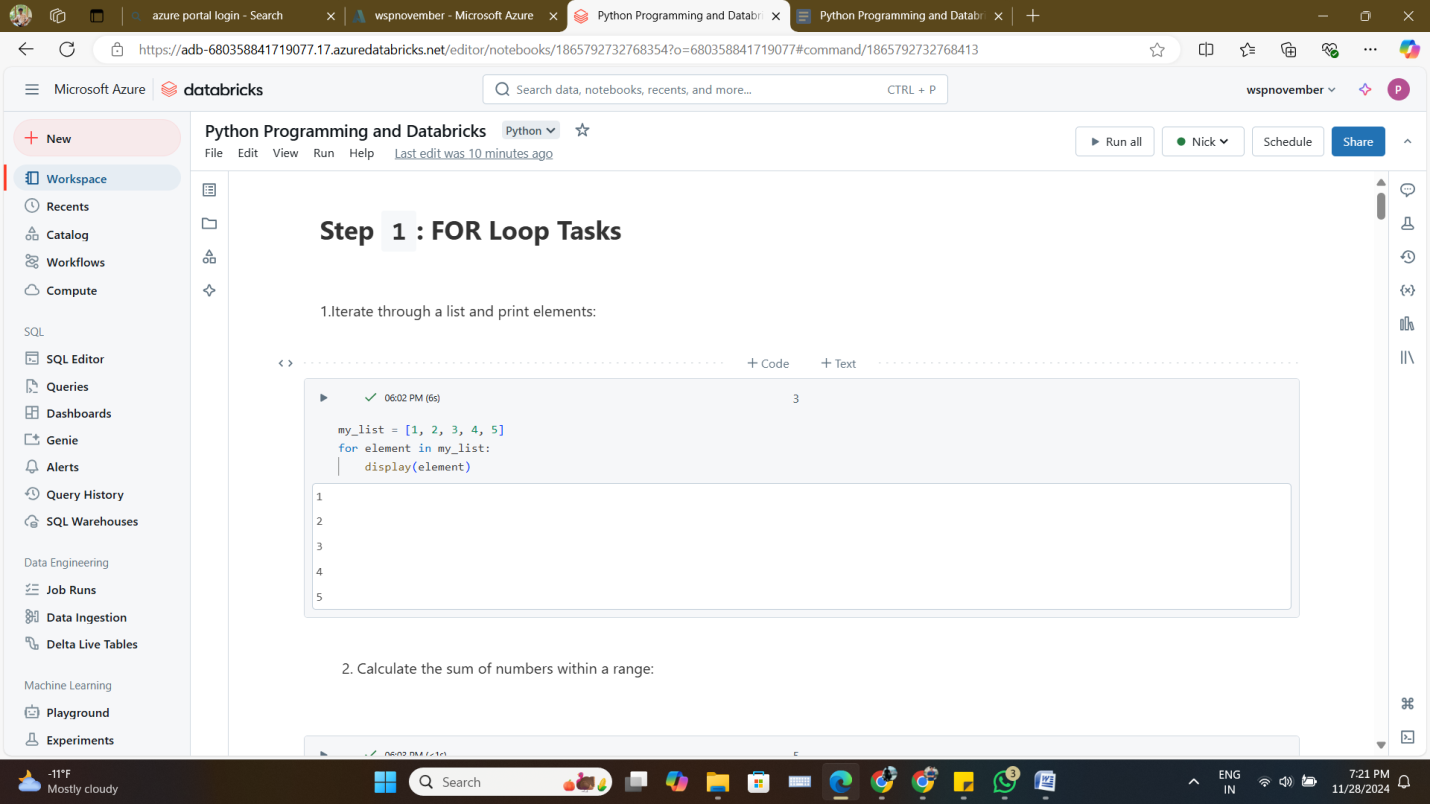
**Python Programming and Databricks  
  
Objective**

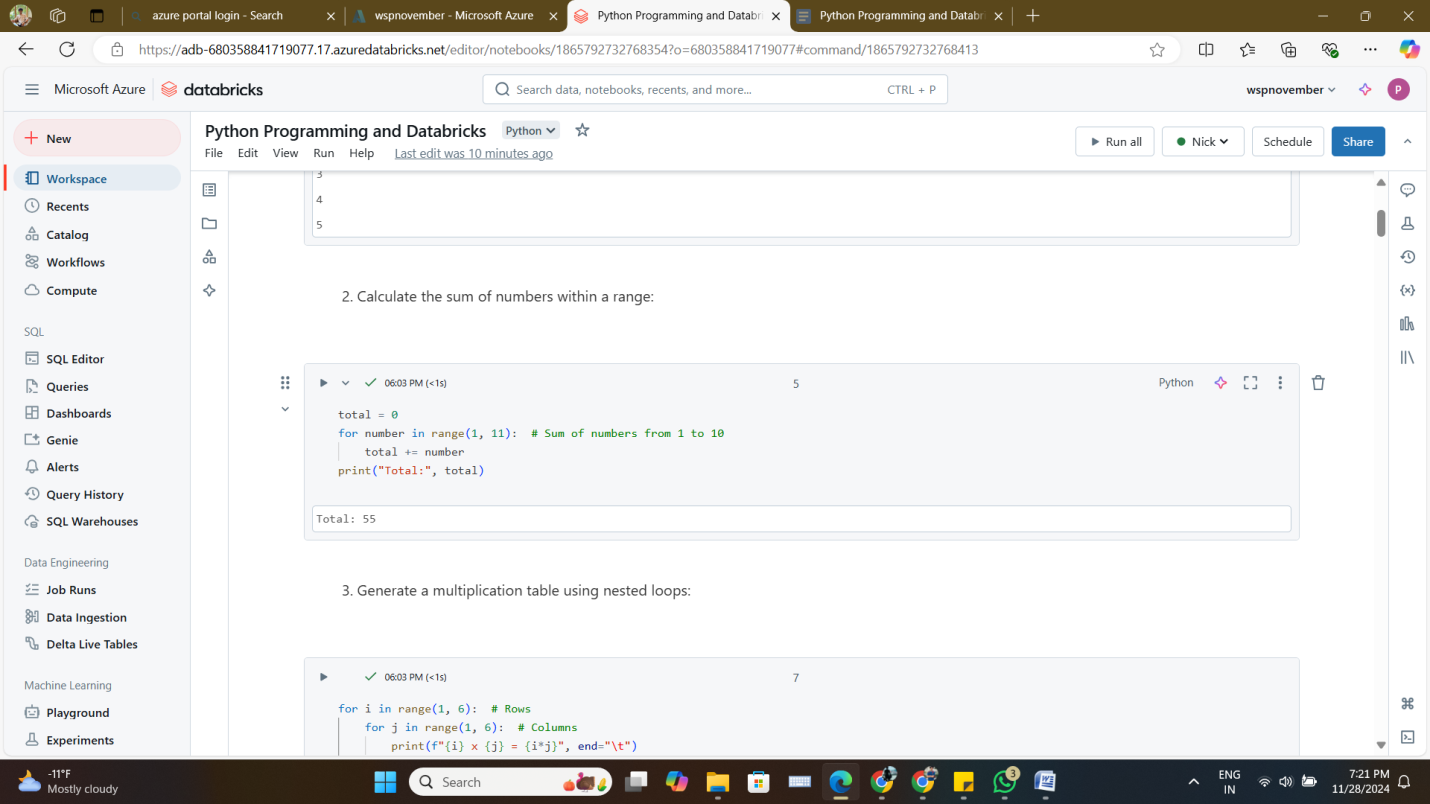
To explore and practice essential Python programming concepts and Databricks functionalities through hands-on exercises.

#### **Tasks**

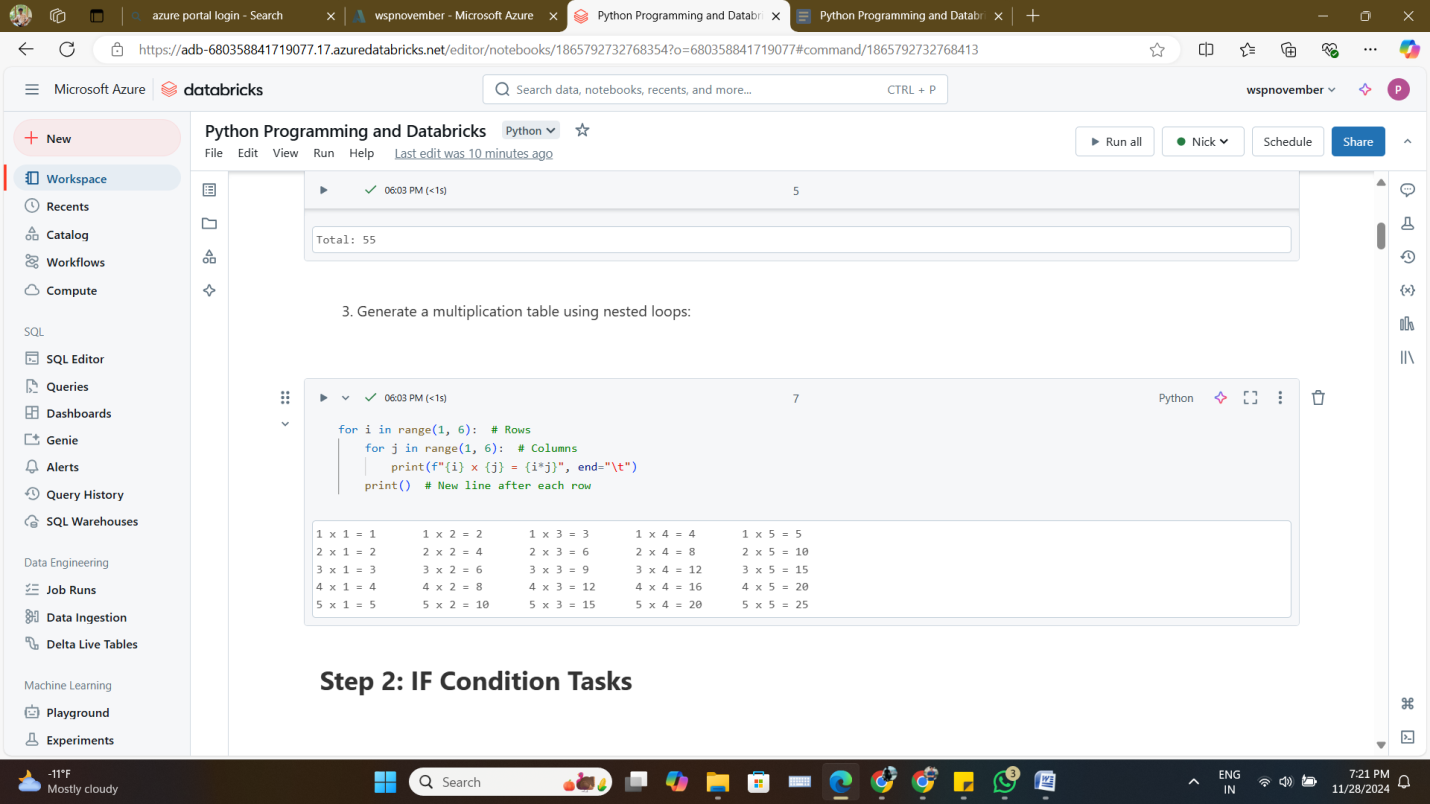
1. **FOR Loop**
   * Iterate through a list and print elements.



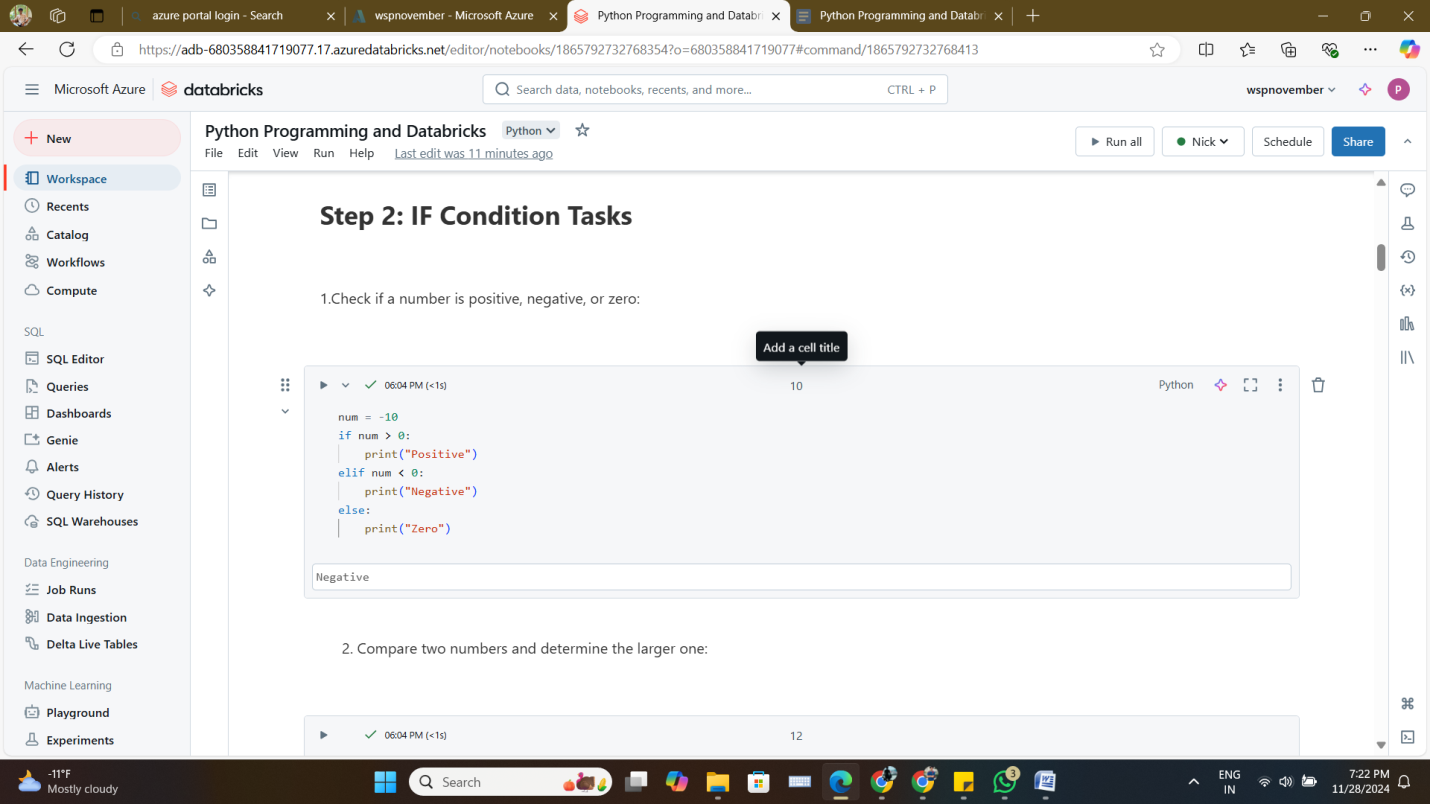
* + Calculate the sum of numbers within a range.



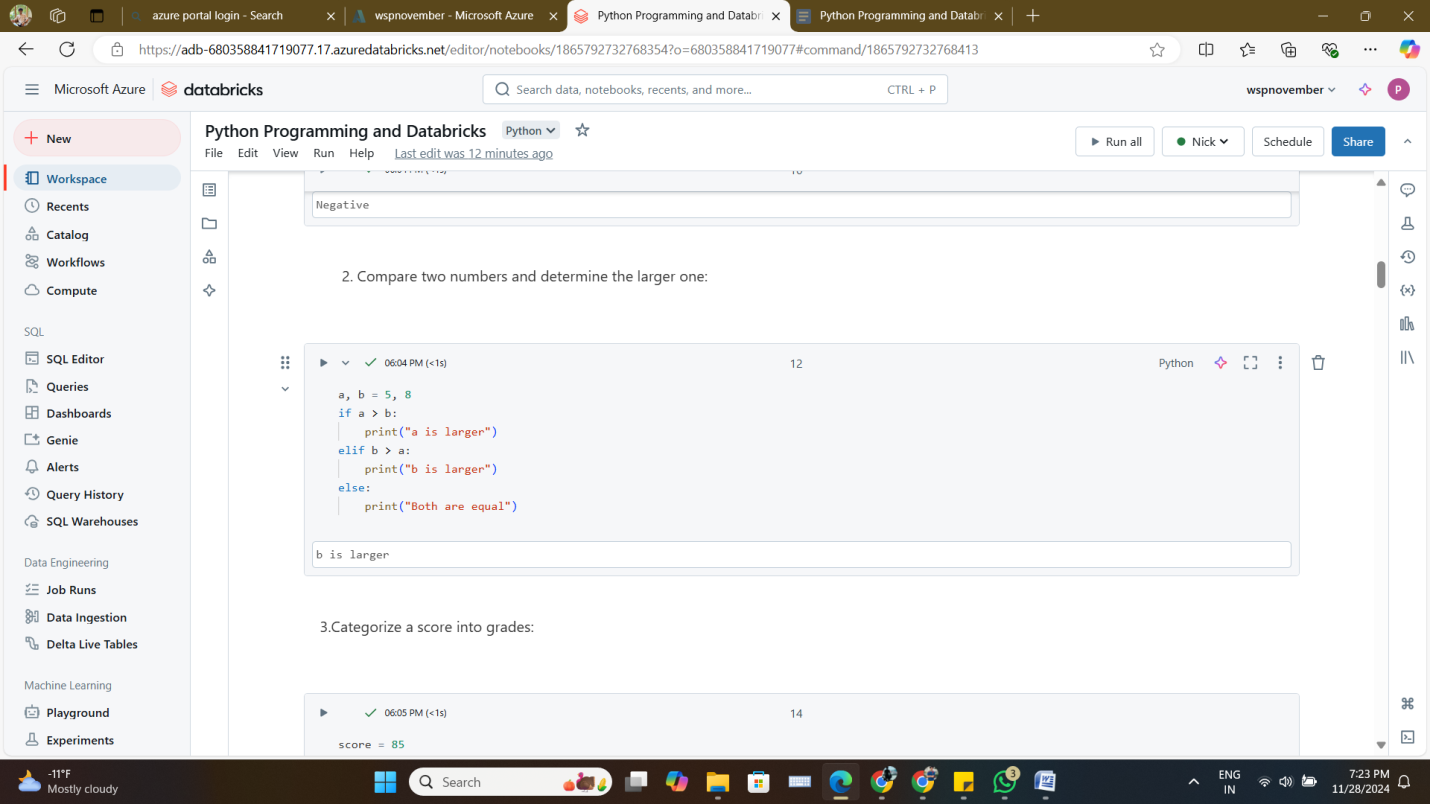
* + Generate a multiplication table using nested loops.



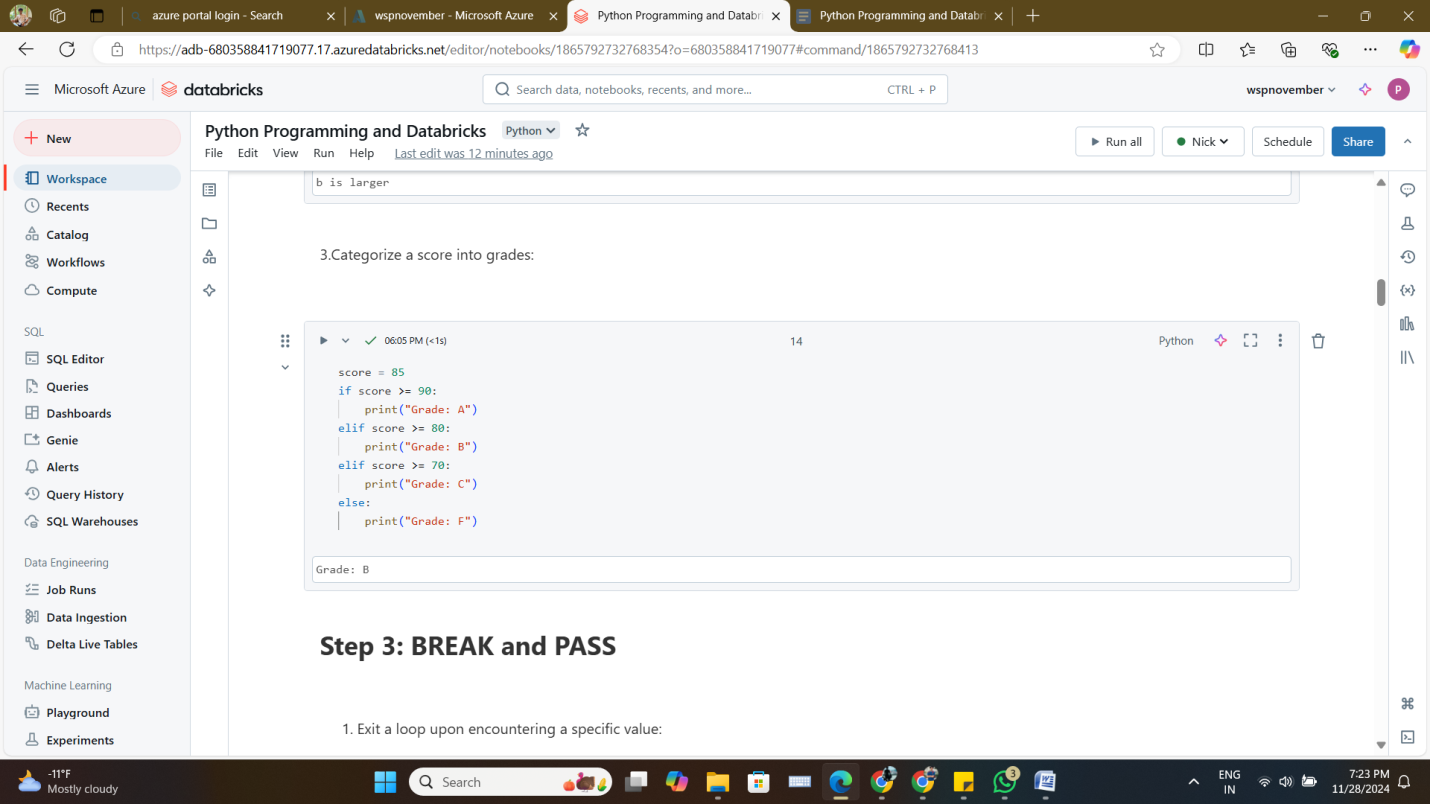
1. **IF Condition**
   * Check if a number is positive, negative, or zero.



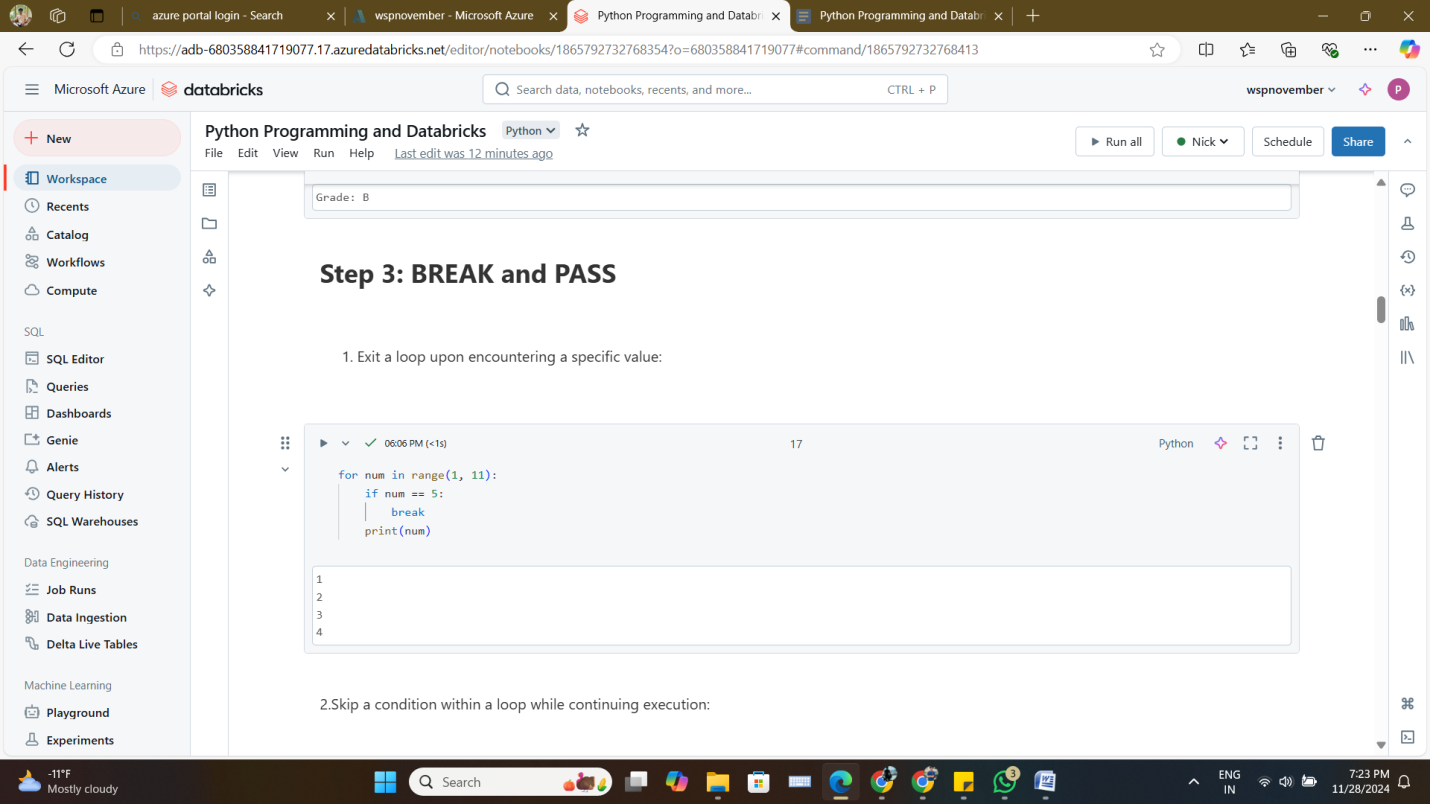
* + Compare two numbers and determine the larger one.



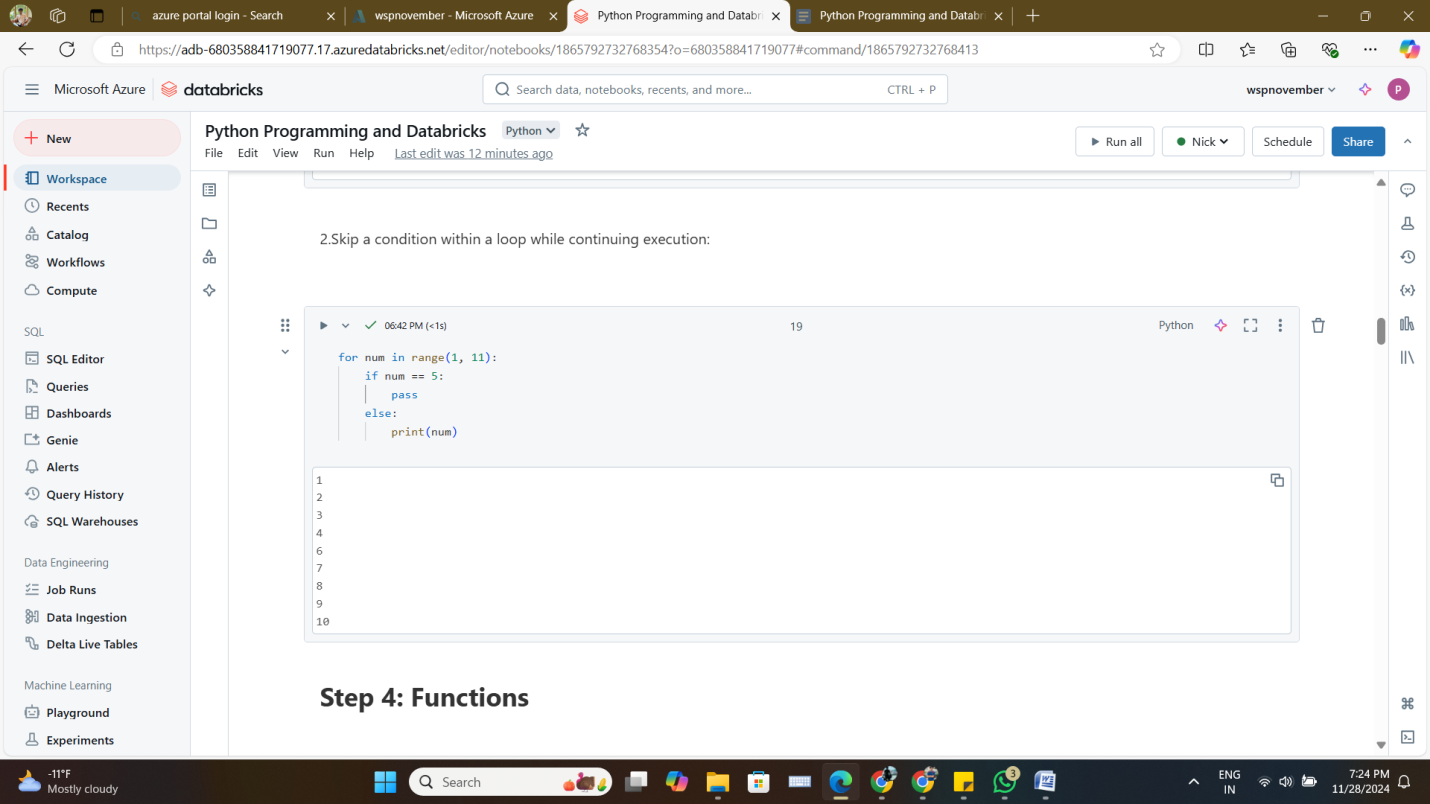
* + Categorize a score into grades using conditional statements.



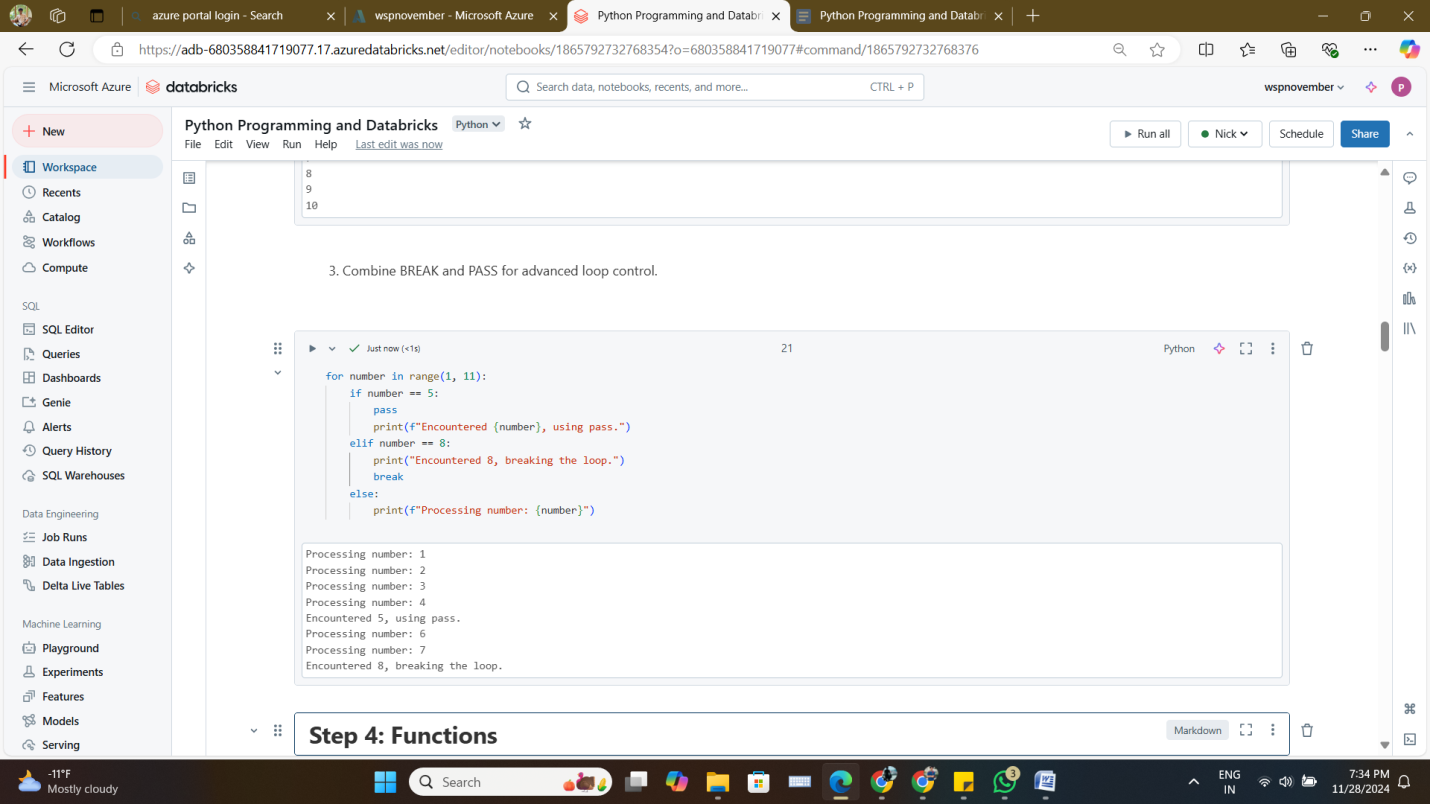
1. **BREAK and PASS**
   * Exit a loop upon encountering a specific value.



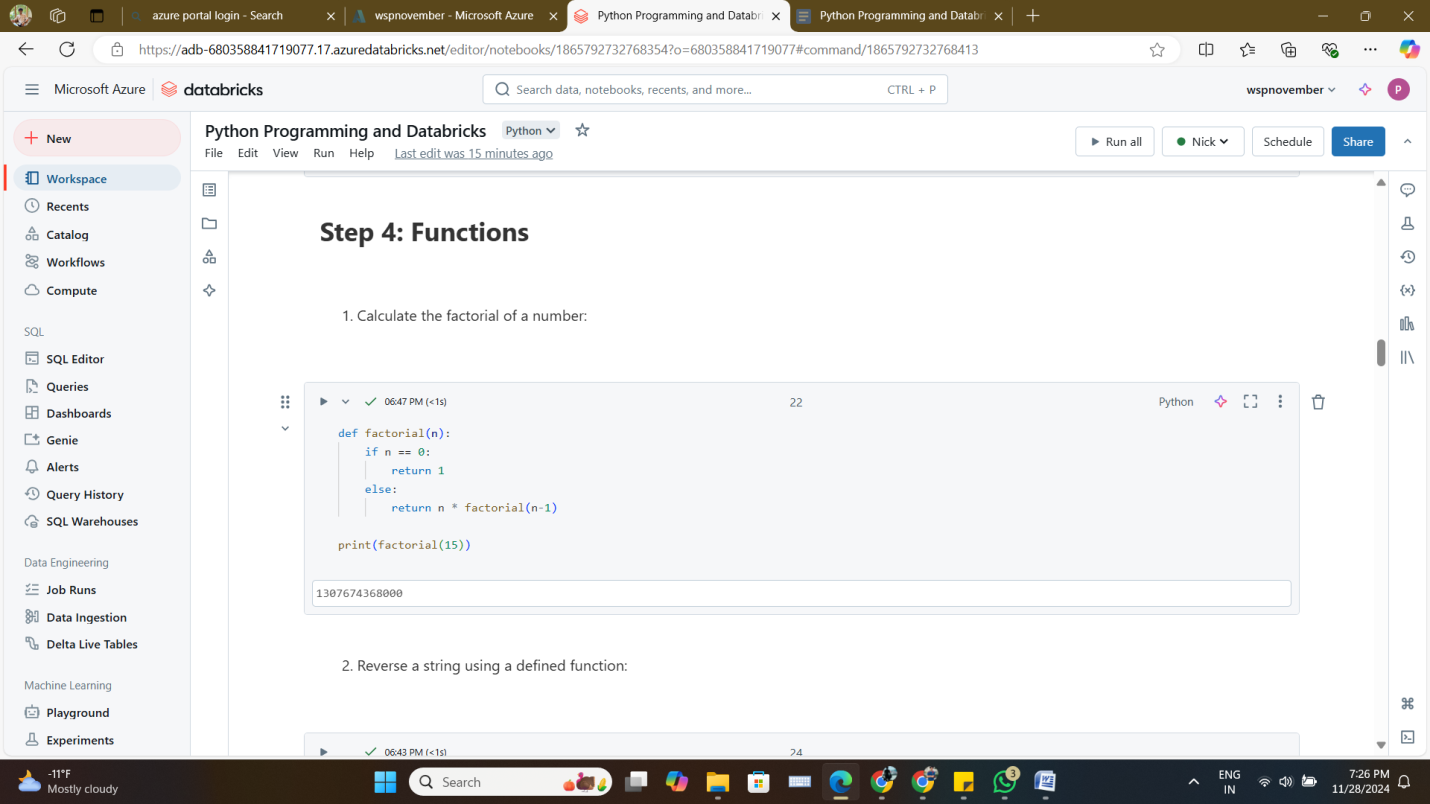
* + Skip a condition within a loop while continuing execution.



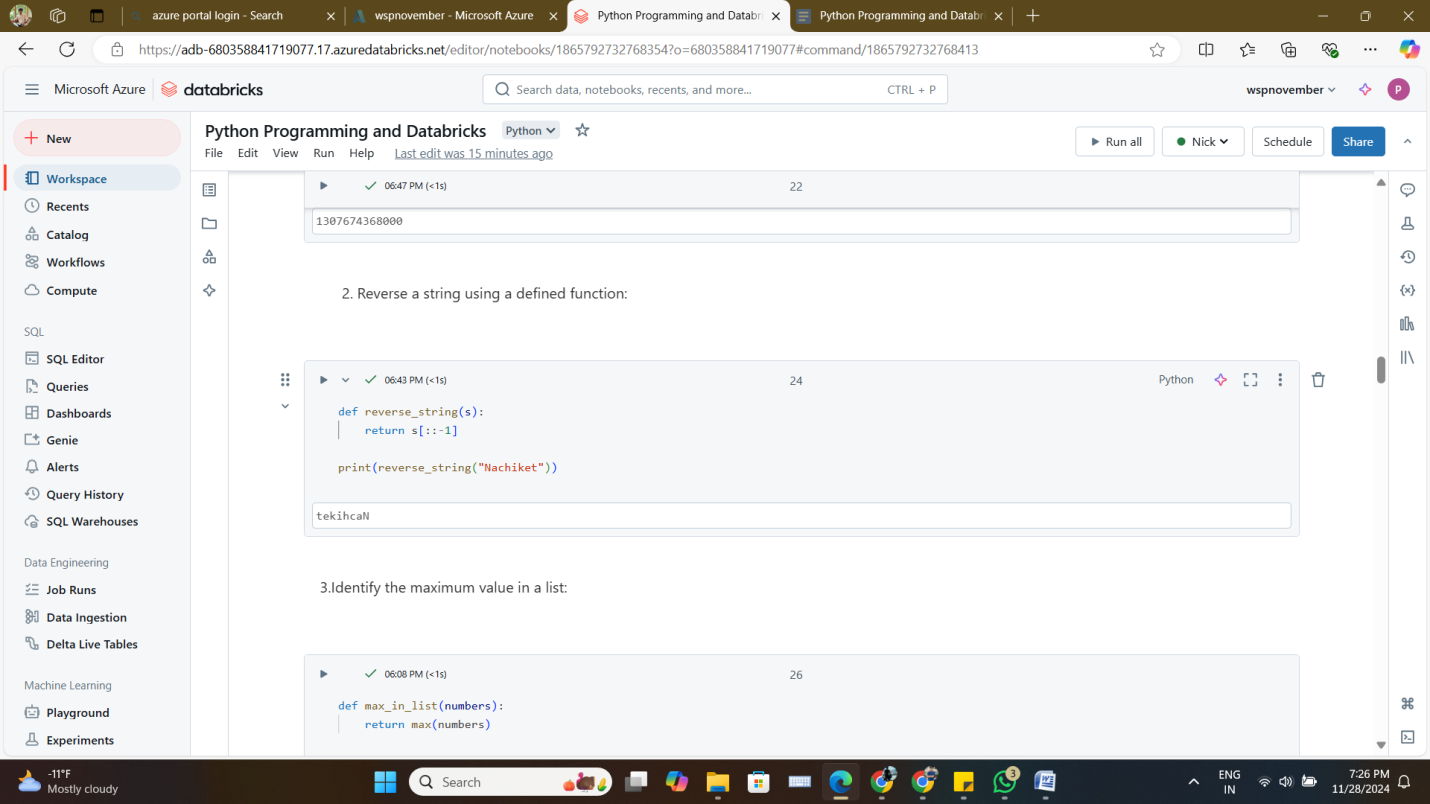
* + Combine BREAK and PASS for advanced loop control.

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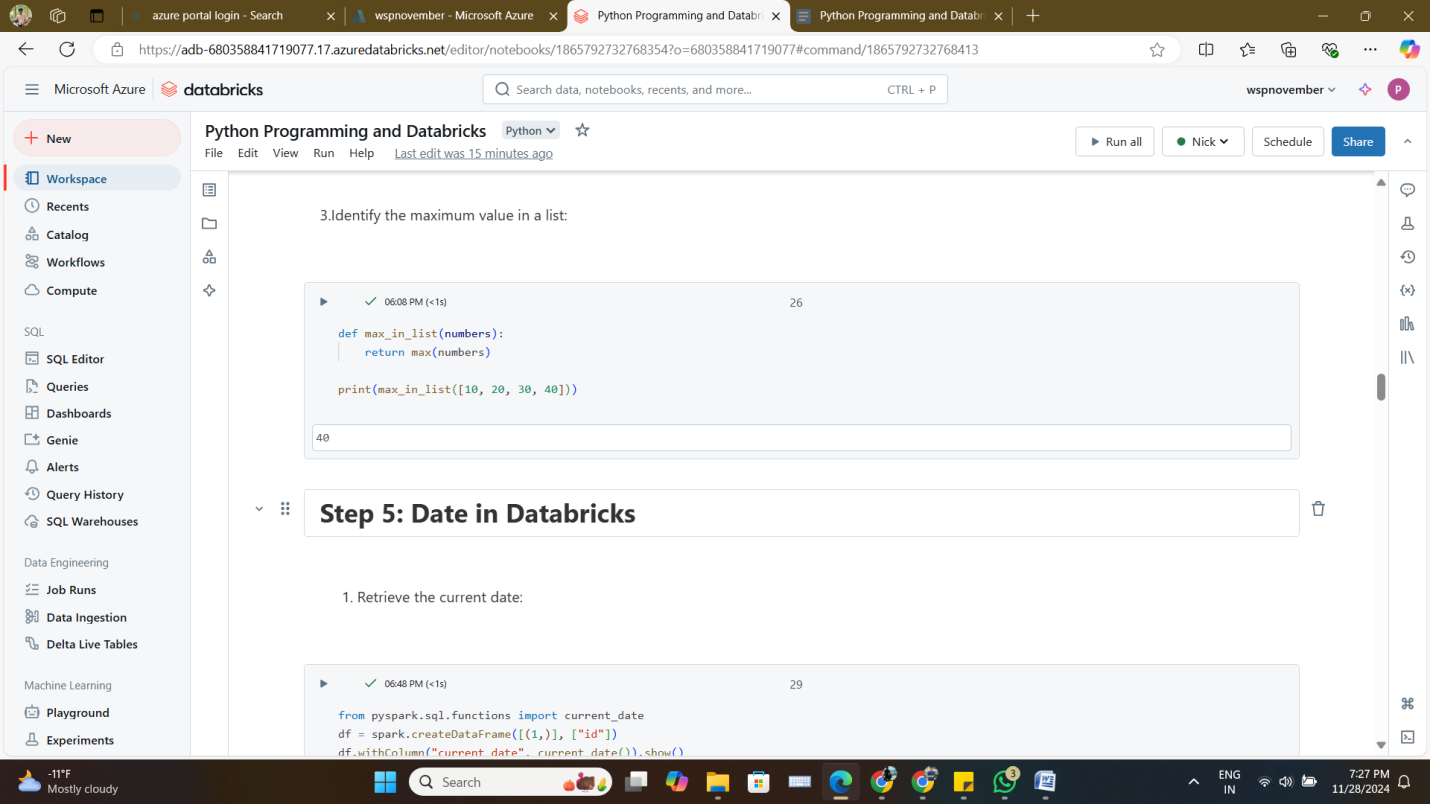
1. **Functions**
   * Write a function to calculate the factorial of a number.



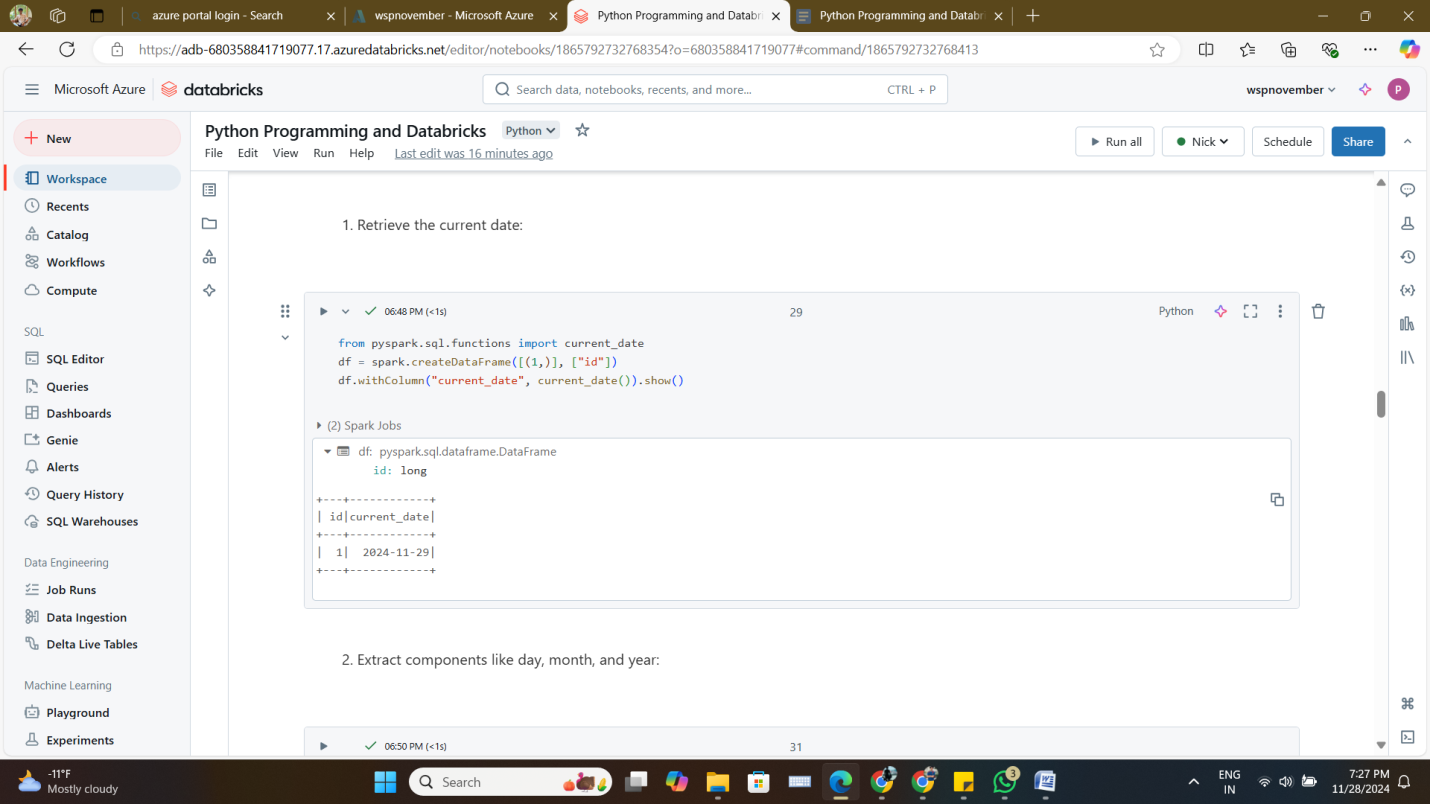
* + Reverse a string using a defined function.



* + Identify the maximum value in a list through a function.



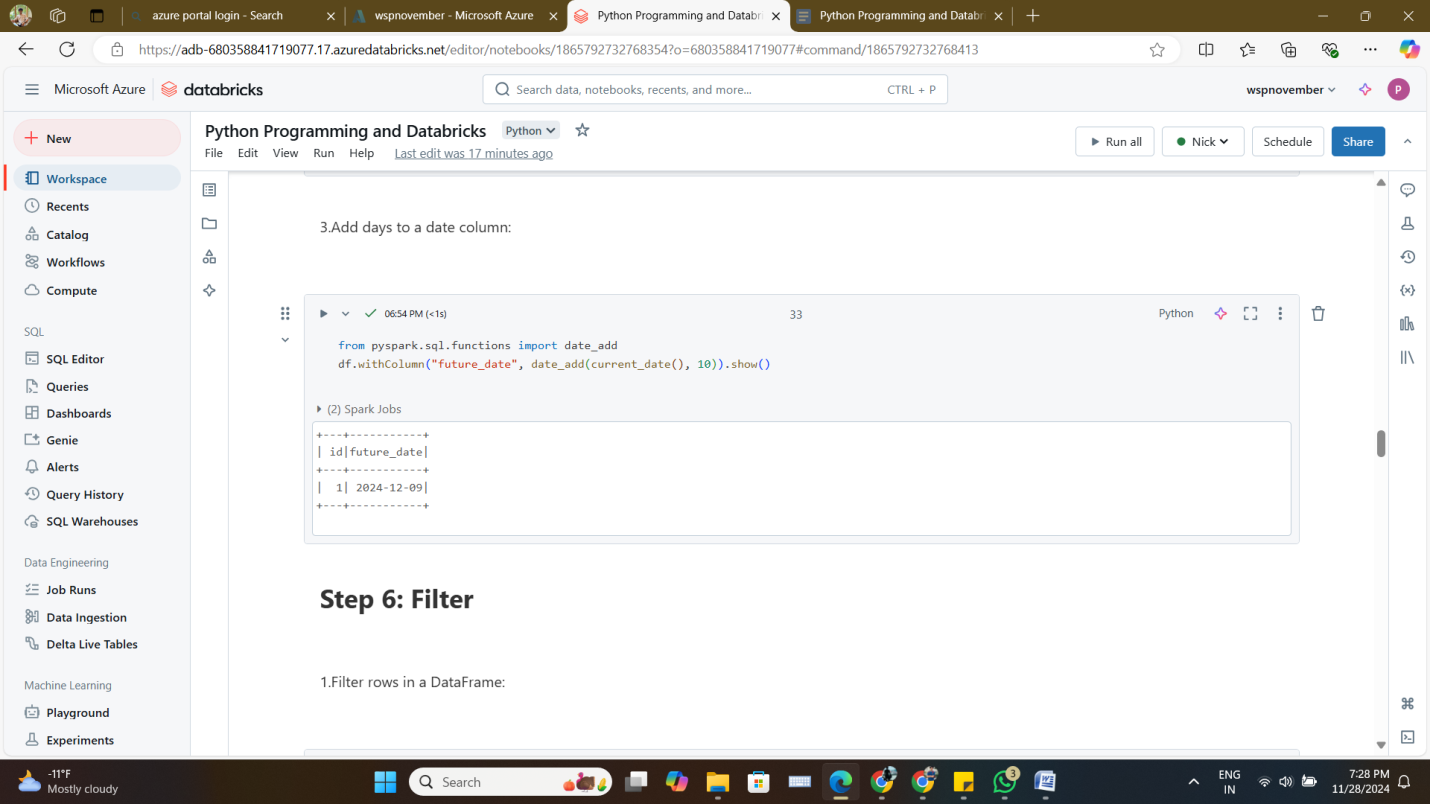
1. **Date in Databricks**
   * Retrieve the current date.



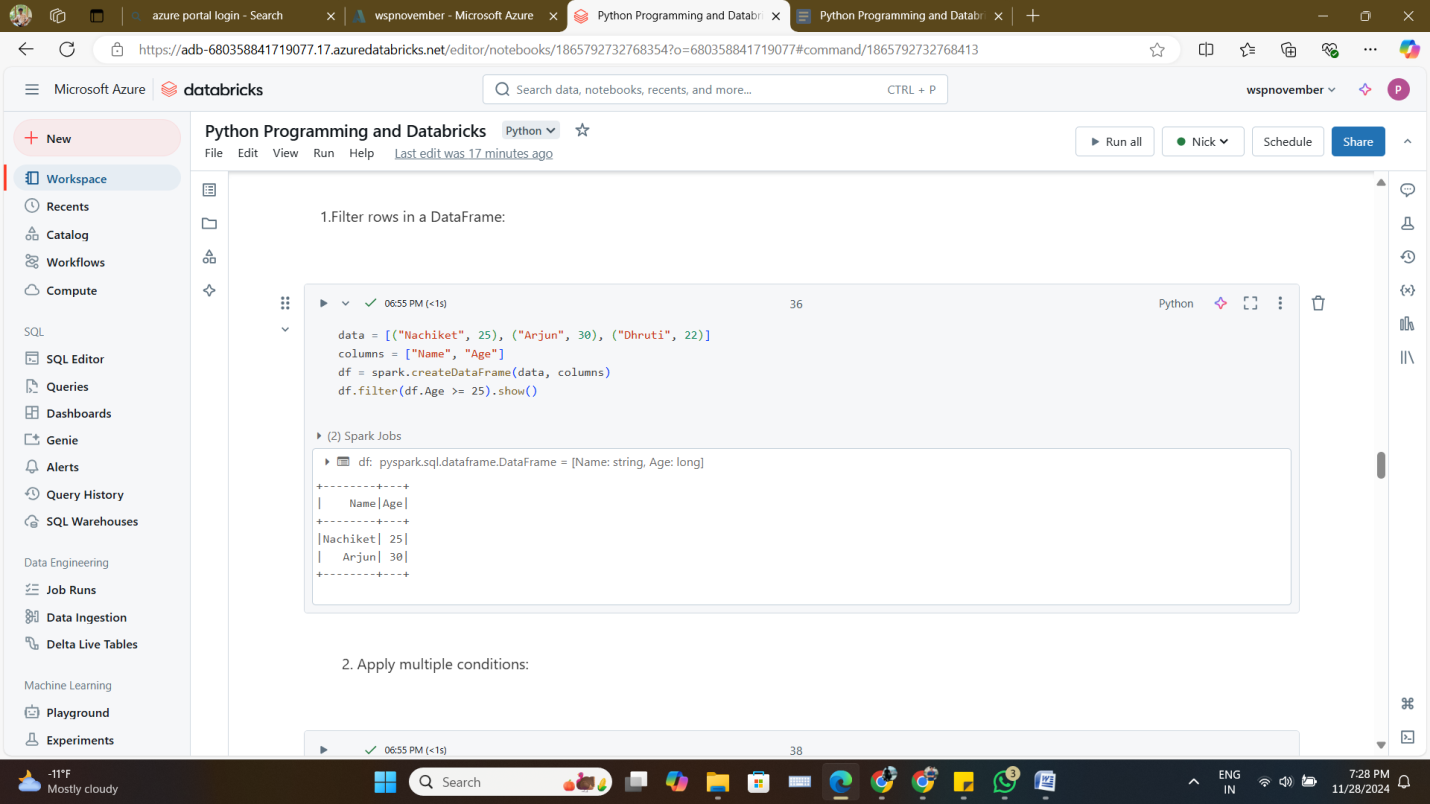
* + Extract components like day, month, and year from a date column.



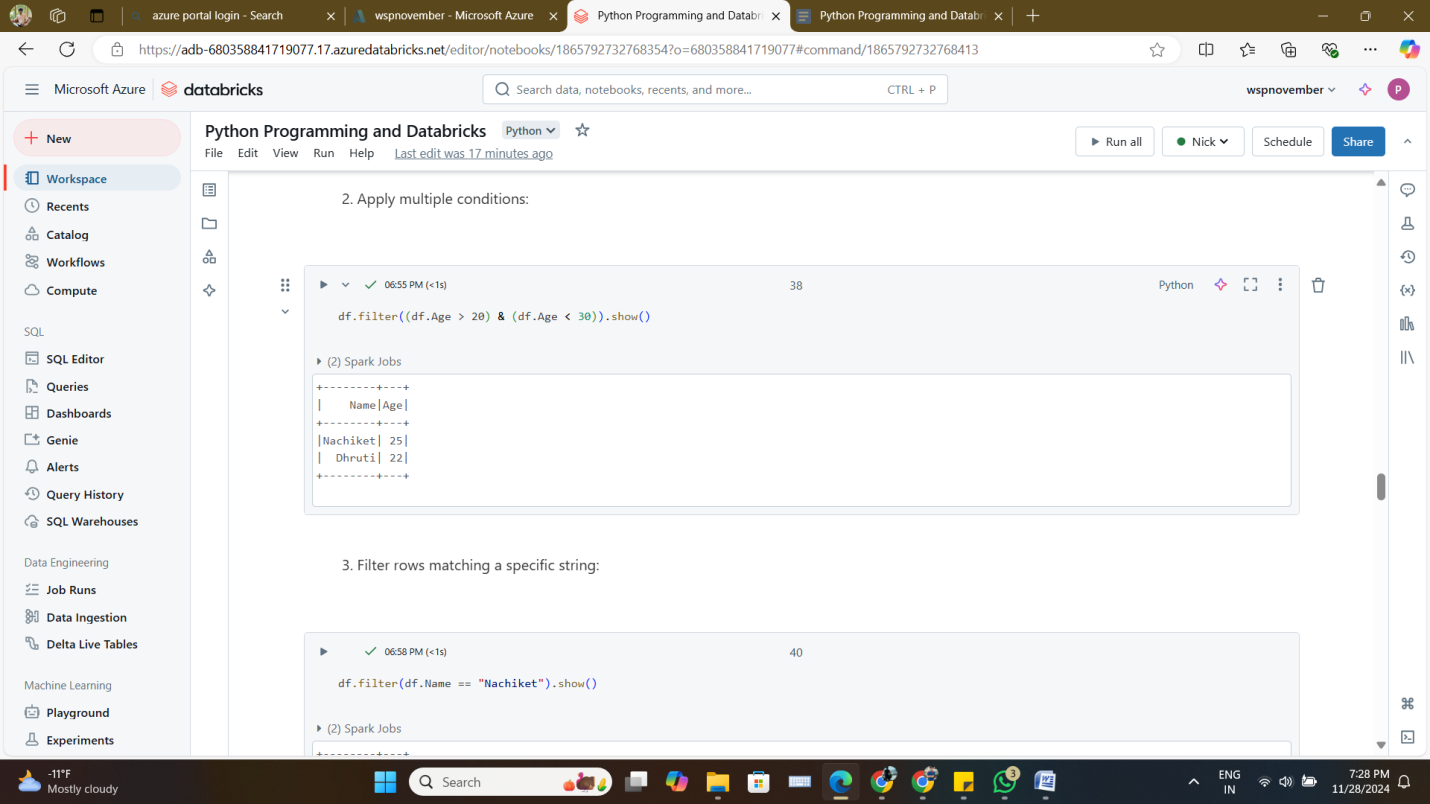
* + Add days to a date column and create a new column.



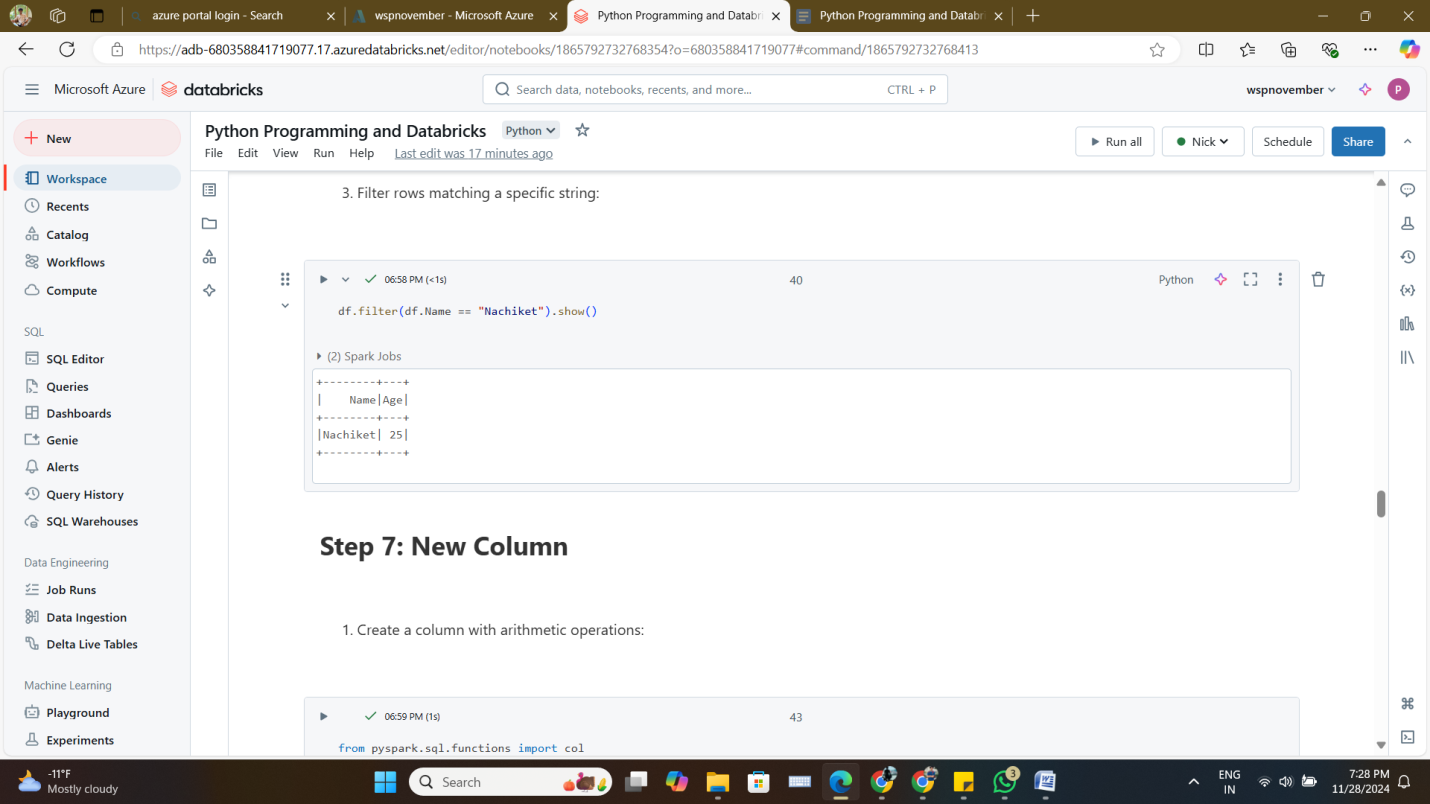
1. **Filter**
   * Filter rows in a DataFrame based on a single condition.



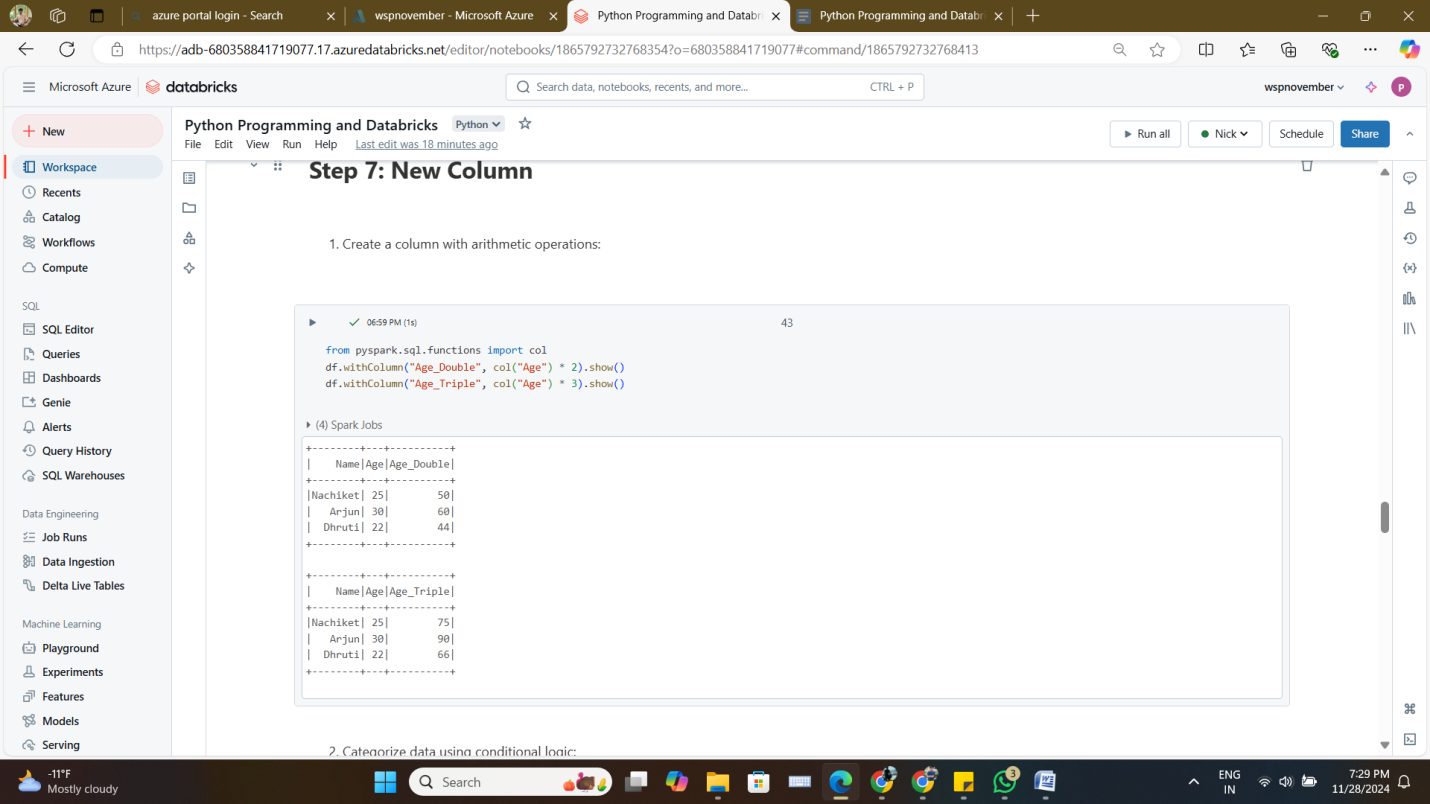
* + Apply multiple conditions to filter rows.



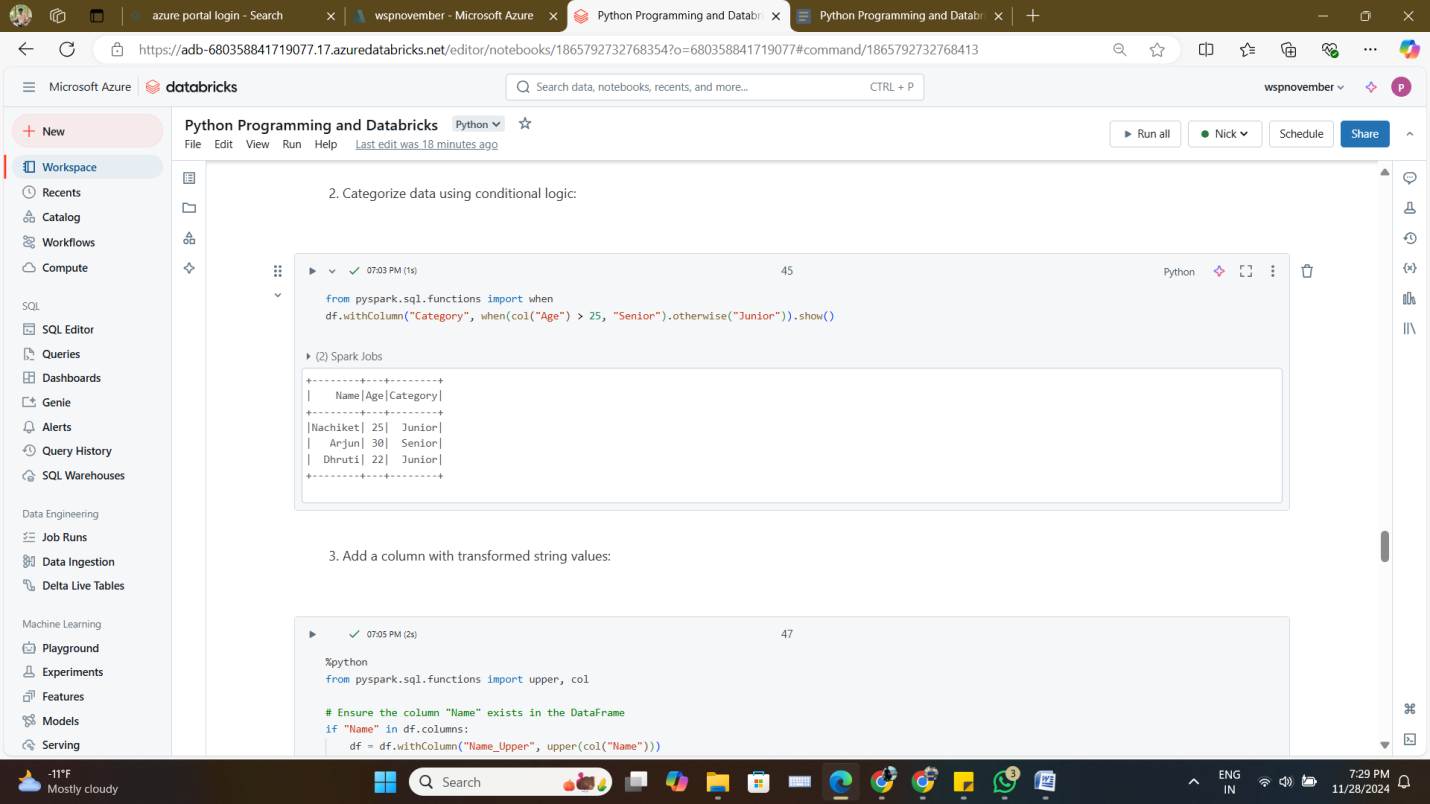
* + Filter rows matching a specific string value.



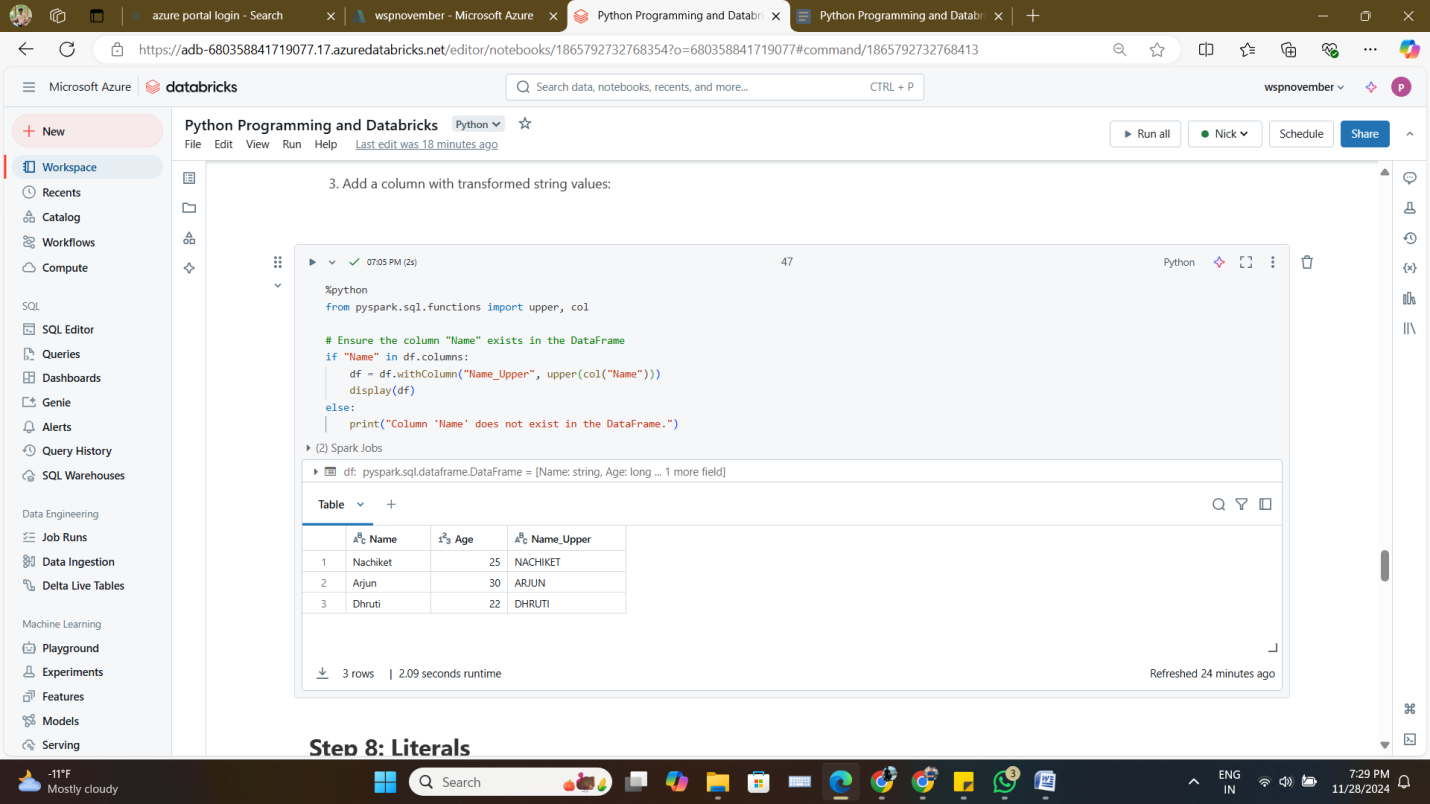
1. **New Column**
   * Create a column based on arithmetic operations.



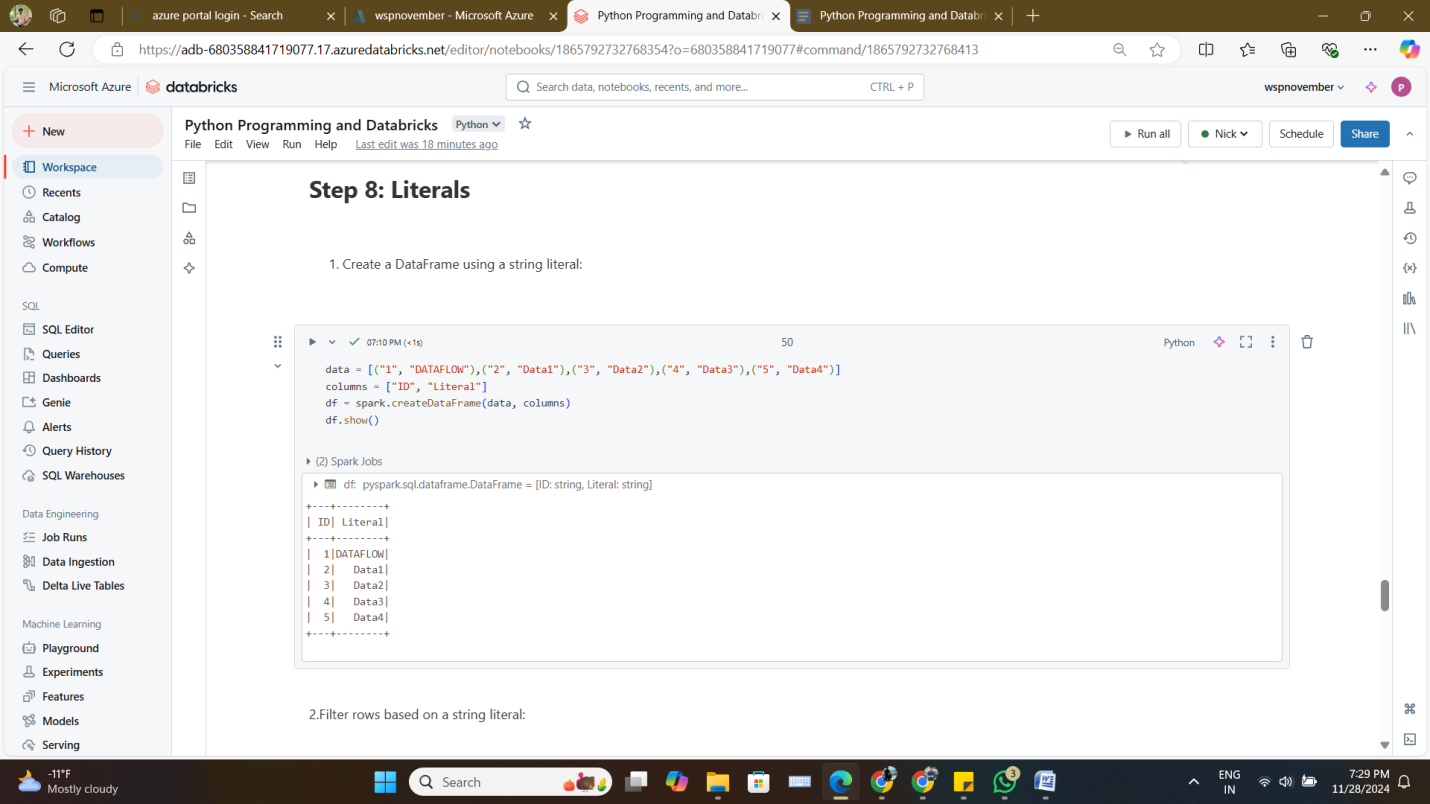
* + Categorize data into groups using conditional logic.



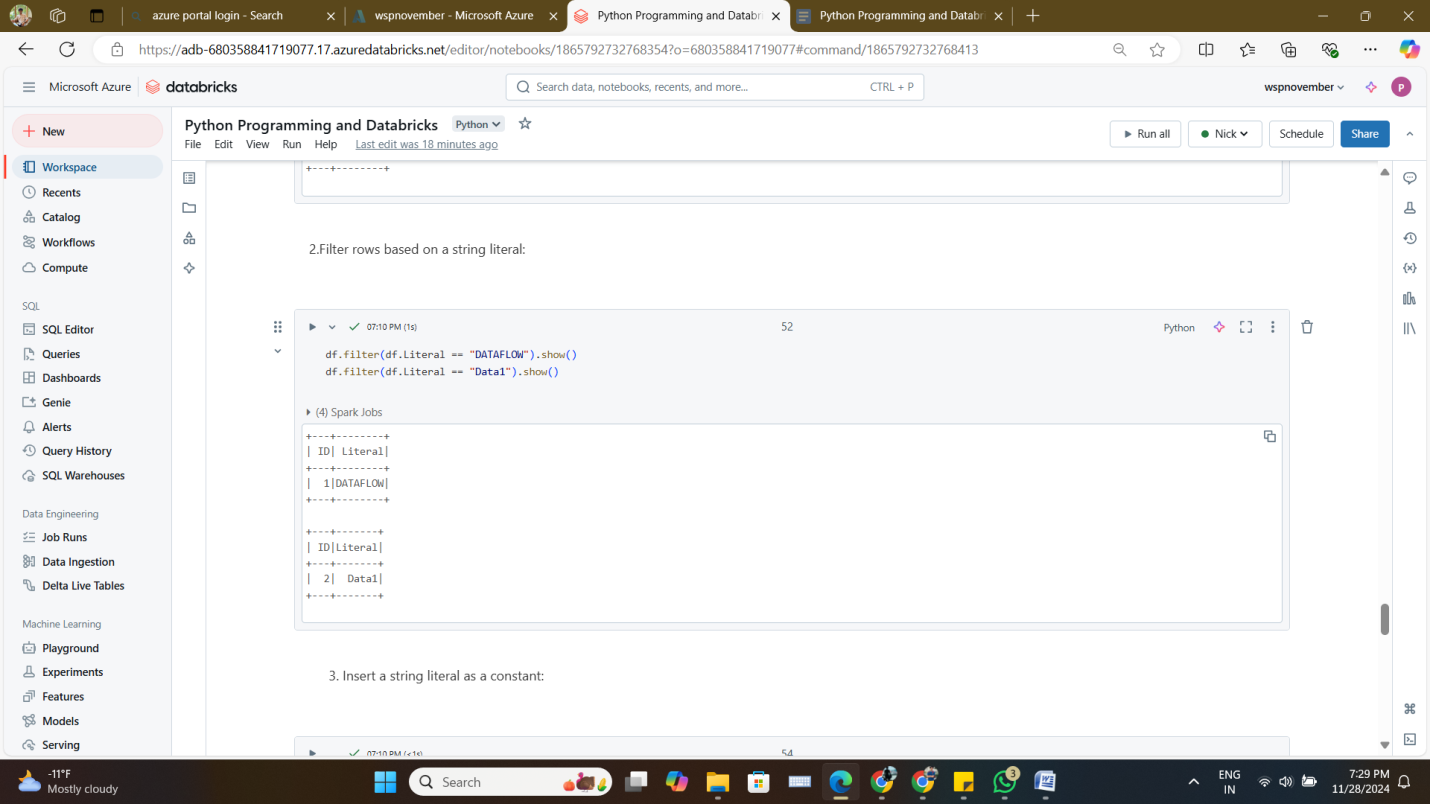
* + Add a column with transformed string values.



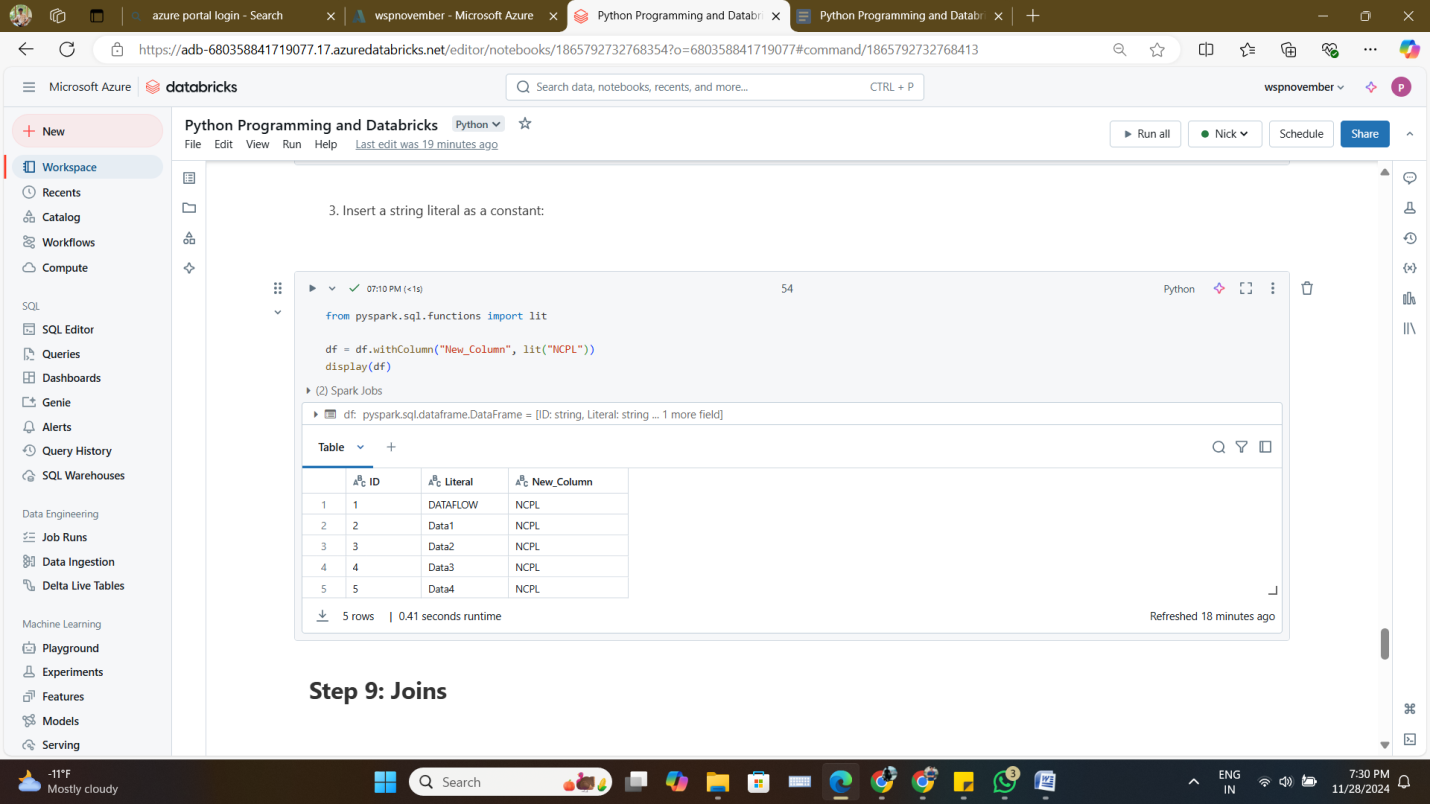
1. **Literals ('DATAFLOW')**
   * Create a DataFrame using a string literal.



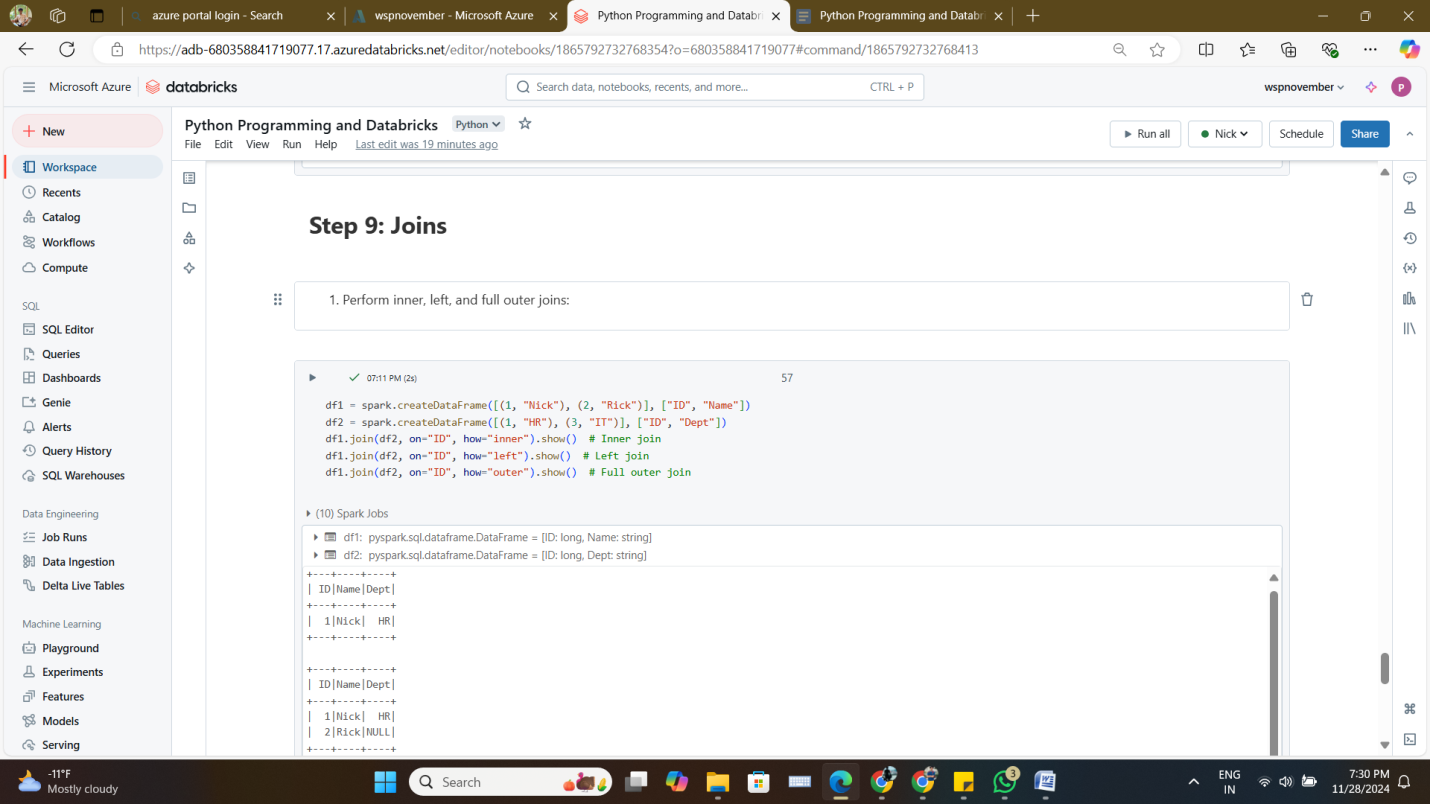
* + Filter rows based on a specific string literal.



* + Insert a string literal as a constant value in a new column.



1. **Joins**
   * Perform inner, left, and full outer joins on DataFrames.



* + Merge DataFrames while handling null values.

