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**University of Windsor**

Lab 3

COMP 8157 | Advanced Database Topics – Summer 2025

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**Assignment**

1. Create an Orders table **(10 marks)**

OrderID: INT   
CustomerID: INT  
OrderDate: Date  
TotalAmount: Decimal (10,2)  
Status: VARCHAR(10) Random Values: {"Pending," "Shipped," "Delivered," }

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1. Build a stored procedure sp\_Insert\_Orders\_<Your\_First\_Name> to insert 1,000,000 rows in this table **(10 marks)**.

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1. Execute the below query and check the performance statistics for Time and IO. Make sure to note down the results. Observe and note the type of Operation in Execution Plan **(30 marks)**.

SELECT \* FROM Orders WHERE OrderID = 1

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1. Create a Clustered Index on the OrderID **(10 marks)**.

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1. Now observe and note the type of Operation in Execution Plan **(10 marks)**.

In the first scan we have the stats of

- Operation Type: Table Scan  
- Logical Reads: 6757  
- CPU Time: 188 ms  
- Elapsed Time: 222 ms

However when we rerun we get:

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- Operation Type: Index Seek  
- Logical Reads: Significantly reduced  
- CPU Time: 0 ms  
- Elapsed Time: 0 ms

Observation: Query performance improves. Expected to see an Index Seek in the execution plan. First the time was

1. Compare the performance results prior and post to creating index and discuss if there is any improvement **(30 marks)**.

Before indexing:  
- Operation: Table Scan  
- Higher logical reads and CPU time.  
  
After indexing:  
- Operation: Index Seek  
- Lower logical reads and faster response.  
  
Conclusion: Introducing a clustered index on the OrderID column transformed the performance of point queries. The table scan was replaced by an index seek, resulting in faster lookups and lower system resource consumption.

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