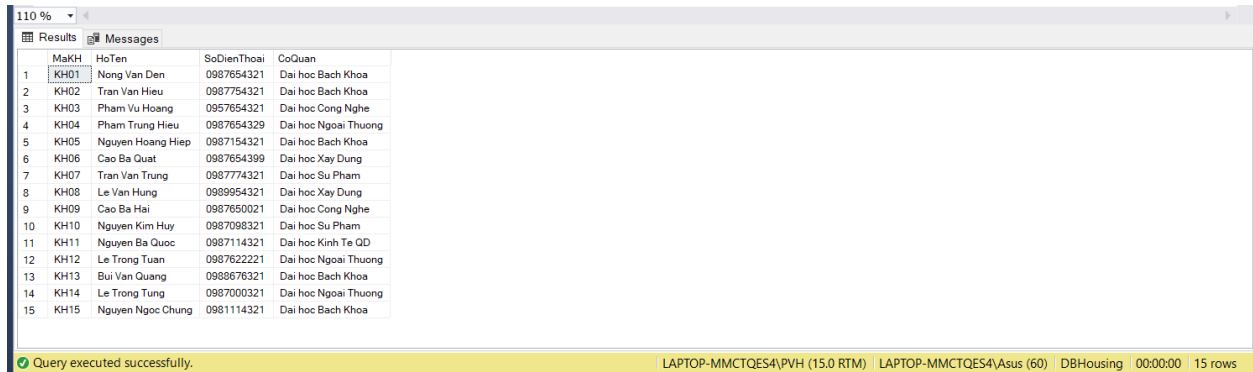


Ý A,

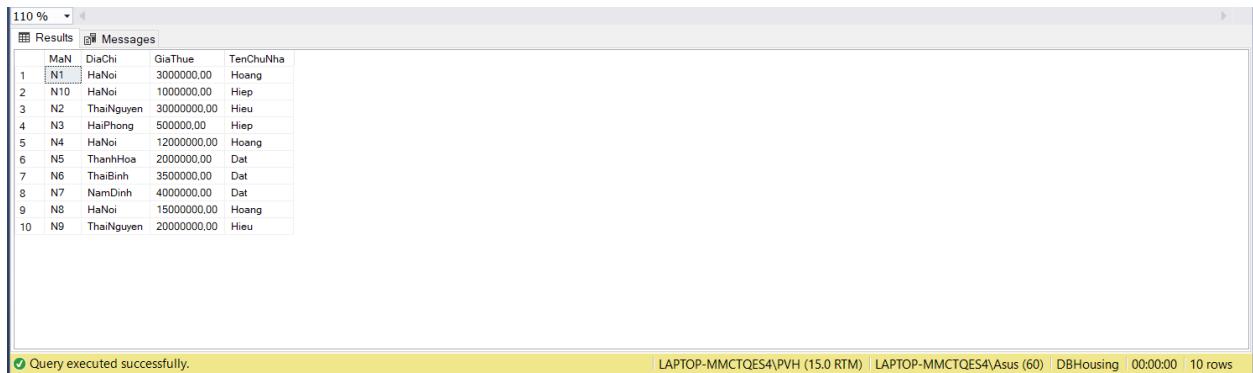
## KhachHang table



	MaKH	HoTen	SoDienThoai	CoQuan
1	KH01	Nong Van Dien	0987654321	Dai hoc Bach Khoa
2	KH02	Tran Van Hieu	09877654321	Dai hoc Bach Khoa
3	KH03	Pham Vu Hoang	0957654321	Dai hoc Cong Nghe
4	KH04	Pham Trung Hieu	0987654329	Dai hoc Ngoai Thuong
5	KH05	Nguyen Hoang Hiep	0987154321	Dai hoc Bach Khoa
6	KH06	Cao Ba Quat	0987654399	Dai hoc Xay Dung
7	KH07	Tran Van Trung	0987774321	Dai hoc Su Pham
8	KH08	Le Van Hung	0989954321	Dai hoc Xay Dung
9	KH09	Cao Ba Hai	0987650021	Dai hoc Cong Nghe
10	KH10	Nguyen Kim Huy	0987098321	Dai hoc Su Pham
11	KH11	Nguyen Ba Quoc	0987114321	Dai hoc Kinh Te QD
12	KH12	Le Trong Tuan	0987622221	Dai hoc Ngoai Thuong
13	KH13	Bui Van Quang	0988676321	Dai hoc Bach Khoa
14	KH14	Le Trong Tung	0987000321	Dai hoc Ngoai Thuong
15	KH15	Nguyen Ngoc Chung	0981114321	Dai hoc Bach Khoa

Query executed successfully. LAPTOP-MMCTQES4\PVH (15.0 RTM) LAPTOP-MMCTQES4\Asus (60) DBHousing 00:00:00 15 rows

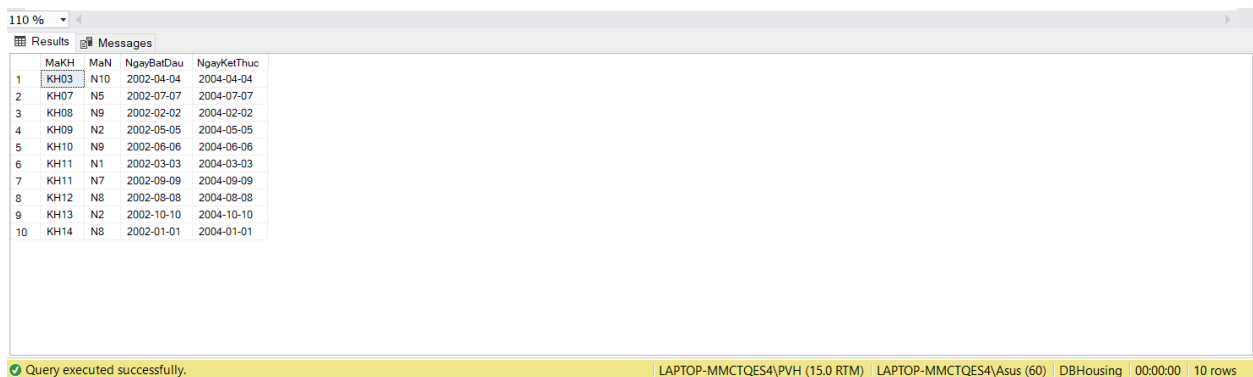
## NhaChoThue table



	MaN	DiaChi	GiaThue	TenChuNha
1	N1	HaNoi	3000000.00	Hoang
2	N10	HaNoi	1000000.00	Hiep
3	N2	ThaiNguyen	30000000.00	Hieu
4	N3	Haiphong	500000.00	Hiep
5	N4	HaNoi	12000000.00	Hoang
6	N5	ThanhHoa	2000000.00	Dat
7	N6	ThaiBinh	3500000.00	Dat
8	N7	NamDinh	4000000.00	Dat
9	N8	HaNoi	15000000.00	Hoang
10	N9	ThaiNguyen	20000000.00	Hieu

Query executed successfully. LAPTOP-MMCTQES4\PVH (15.0 RTM) LAPTOP-MMCTQES4\Asus (60) DBHousing 00:00:00 10 rows

## HopDong table



	MaKH	MaN	NgayBatDau	NgayKetThuc
1	KH03	N10	2002-04-04	2004-04-04
2	KH07	N5	2002-07-07	2004-07-07
3	KH08	N9	2002-02-02	2004-02-02
4	KH09	N2	2002-05-05	2004-05-05
5	KH10	N9	2002-06-06	2004-06-06
6	KH11	N1	2002-03-03	2004-03-03
7	KH11	N7	2002-09-09	2004-09-09
8	KH12	N8	2002-08-08	2004-08-08
9	KH13	N2	2002-10-10	2004-10-10
10	KH14	N8	2002-01-01	2004-01-01

Query executed successfully. LAPTOP-MMCTQES4\PVH (15.0 RTM) LAPTOP-MMCTQES4\Asus (60) DBHousing 00:00:00 10 rows

Ý B,

SQLQuery1.sql - L...MCTQES4\Asus (60)) \* X Lab8.sql - LAPTOP...MCTQES4\Asus (51))

```
SELECT DiaChi, TenChuNha
FROM NhaChoThue
WHERE GiaThue < 10000000;
```

110 %

Results Messages

	DiaChi	TenChuNha
1	HaNoi	Hoang
2	HaNoi	Hiep
3	HaiPhong	Hiep
4	ThanhHoa	Dat
5	ThaiBinh	Dat
6	NamDinh	Dat

Query executed successfully. | LAPTOP-MMCTQES4\PVH (15.0 RTM) | LAPTOP-MMCTQES4\Asus (60) | DBHousing | 00:00:00 | 6 rows

SQLQuery1.sql - L...MCTQES4\Asus (60)) \* X Lab8.sql - LAPTOP...MCTQES4\Asus (51))

```
SELECT KhachHang.MaKH, KhachHang.HoTen, KhachHang.CoQuan
FROM KhachHang, NhaChoThue, HopDong
WHERE KhachHang.MaKH = HopDong.MaKH AND NhaChoThue.MaN = HopDong.MaN AND NhaChoThue.TenChuNha = 'Hieu';
```

110 %

Results Messages Execution plan

	MaKH	HoTen	CoQuan
1	KH08	Le Van Hung	Dai hoc Xay Dung
2	KH09	Cao Ba Hai	Dai hoc Cong Nghe
3	KH10	Nguyen Kim Huy	Dai hoc Su Pham
4	KH13	Bui Van Quang	Dai hoc Bach Khoa

Query executed successfully. | LAPTOP-MMCTQES4\PVH (15.0 RTM) | LAPTOP-MMCTQES4\Asus (60) | DBHousing | 00:00:00 | 4 rows

SQLQuery1.sql - L:\MCTQES4\Asus (60)) \* x Lab8.sql - LAPTOP...MCTQES4\Asus (51))

```
SELECT *  
FROM NhaChoThue  
WHERE MaN NOT IN (SELECT MaN FROM HopDong);
```

110 %

Results Messages Execution plan

	MaN	DiaChi	GiaThue	TenChuNha
1	N3	HaiPhong	500000.00	Hiep
2	N4	HaNoi	12000000.00	Hoang
3	N6	ThaiBinh	3500000.00	Dat

Query executed successfully. | LAPTOP-MMCTQES4\PVH (15.0 RTM) | LAPTOP-MMCTQES4\Asus (60) | DBHousing | 00:00:00 | 3 rows

SQLQuery1.sql - L:\MCTQES4\Asus (60)) \* x Lab8.sql - LAPTOP...MCTQES4\Asus (51))

```
SELECT MAX(NhaChoThue.GiaThue) as GiaCaoNhat  
FROM NhaChoThue  
WHERE MaN IN (SELECT MaN FROM HopDong);
```

110 %

Results Messages Execution plan

	GiaCaoNhat
1	30000000.00

Query executed successfully. | LAPTOP-MMCTQES4\PVH (15.0 RTM) | LAPTOP-MMCTQES4\Asus (60) | DBHousing | 00:00:00 | 1 rows

Ý C,

```
CREATE INDEX index_CoQuan
ON KhachHang (CoQuan);

SELECT *
FROM KhachHang
WHERE CoQuan = 'Đại Học Bách Khoa';

CREATE INDEX index_TenChuNha
ON NhaChoThue (TenChuNha);

SELECT NhaChoThue.TenChuNha, COUNT(HopDong.MaN) as SoLuong
FROM NhaChoThue, HopDong
WHERE NhaChoThue.MaN=HopDong.MaN
GROUP BY NhaChoThue.TenChuNha;
```

## QUERY EXECUTION TIME

Khi chạy không có index

110 %

Results Messages Execution plan

SQL Server parse and compile time:  
CPU time = 0 ms, elapsed time = 0 ms.

SQL Server parse and compile time:  
CPU time = 0 ms, elapsed time = 0 ms.

SQL Server parse and compile time:  
CPU time = 0 ms, elapsed time = 3 ms.

SQL Server parse and compile time:  
CPU time = 0 ms, elapsed time = 0 ms.

(5 rows affected)

(1 row affected)

SQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

SQL Server parse and compile time:  
CPU time = 0 ms, elapsed time = 0 ms.

Completion time: 2022-06-09T22:05:55.0350300+07:00

110 %

Khi chạy có index

```
110 %
Results Messages Execution plan
SQL Server parse and compile time:
  CPU time = 0 ms, elapsed time = 1 ms.
SQL Server parse and compile time:
  CPU time = 0 ms, elapsed time = 0 ms.

(5 rows affected)

(1 row affected)

SQL Server Execution Times:
  CPU time = 0 ms, elapsed time = 0 ms.
SQL Server parse and compile time:
  CPU time = 0 ms, elapsed time = 0 ms.

Completion time: 2022-06-09T22:06:23.8035761+07:00
|

110 %
Query executed successfully. LAPTOP-MMCTQES4\PVH (15.0 RTM) LAPTOP-MMCTQ
```

QUERY COST và PAGE READS cần 1 số lượng lớn dữ liệu để có thể so sánh rõ ràng hơn. Nếu chỉ có ít dữ liệu thì gần như index và noindex là như nhau.

Ý D,

SQLQuery1.sql - L:\MCTQES4\Asus (60)) \* Lab8.sql - LAPTOP...MCTQES4\Asus (51))

```
CREATE PROCEDURE MyStoredProcedure @Gia int
AS
SELECT * FROM HopDong Where HopDong.MaN IN (SELECT MaN FROM NhaChoThue WHERE NhaChoThue.GiaThue > @Gia);
EXEC MyStoredProcedure @Gia = 10000000;
```

110 %

Results Messages Execution plan

	MaKH	MaN	NgayBatDau	NgayKetThuc
1	KH08	N9	2002-02-02	2004-02-02
2	KH09	N2	2002-05-05	2004-05-05
3	KH10	N9	2002-06-06	2004-06-06
4	KH12	N8	2002-08-08	2004-08-08
5	KH13	N2	2002-10-10	2004-10-10
6	KH14	N8	2002-01-01	2004-01-01

Query executed successfully. LAPTOP-MMCTQES4\PVH (15.0 RTM) LAPTOP-MMCTQES4\Asus (60) DBHousing 00:00:00 6 rows

SQLQuery1.sql - L:\MCTQES4\Asus (60)) \* Lab8.sql - LAPTOP...MCTQES4\Asus (51))

```
CREATE PROCEDURE KH @Gia int
AS
SELECT * FROM KhachHang Where KhachHang.MaKH IN (SELECT MaKH
FROM NhaChoThue, HopDong
WHERE NhaChoThue.MaN = HopDong.MaN
GROUP BY HopDong.MaKH
HAVING SUM(NhaChoThue.GiaThue) > @Gia);
EXEC KH @Gia = 10000000;
```

110 %

Results Messages Execution plan

	MaKH	HoTen	SoDienThoai	CoQuan
1	KH08	Le Van Hung	0989954321	Dai hoc Xay Dung
2	KH09	Cao Ba Hai	0987650021	Dai hoc Cong Nghe
3	KH10	Nguyen Kim Huy	0987098321	Dai hoc Su Pham
4	KH12	Le Trong Tuan	0987622221	Dai hoc Ngoai Thuong
5	KH13	Bui Van Quang	0988676321	Dai hoc Bach Khoa
6	KH14	Le Trong Tung	0987000321	Dai hoc Ngoai Thuong

Query executed successfully. LAPTOP-MMCTQES4\PVH (15.0 RTM) LAPTOP-MMCTQES4\Asus (60) DBHousing 00:00:00 6 rows