## 나. 소트를 발생시키는 오퍼레이션

### 1) Sort Aggregate

전체 로우를 대상으로 집계를 수행할 때 나타남. 실제 소트가 발생하진 않는다.

• SQL Server 실행계획엔 'Stream Aggregate' 라고 표시됨.

selec	t su	ım(sal)	, max(sal	l), m:	in(sal	.) 1	From e	emp					
Id	0	perati	on		Name	F	Rows	E	Bytes	Cost	(%0	PU)	Time
0	5	ELECT	STATEMENT	1			1	Ī	4		3	(0)	00:00:01
1		SORT A	GGREGATE				1		4				
2		TABLE	ACCESS F	ULL	EMP		14		56		3	(0)	00:00:01

### 2) Sort Order By

• 정렬된 결과집합을 얻고자 할 때 나타남.

```
select * from emp order by sal desc
| Id | Operation | Name | Rows | Bytes | Cost (%CPU) | Time
| 0 | SELECT STATEMENT | 14 | 518 | 4 (25) | 00:00:01 | 1 | SORT ORDER BY | 14 | 518 | 4 (25) | 00:00:01 | 2 | TABLE ACCESS FULL | EMP | 14 | 518 | 3 (0) | 00:00:01 |
```

# 3) Sort Group By

Sort Group By of 'Hash Group By of Apple gottion' n/2 | Sett 32 |
Sort Group By (Sort Group By Aggregation)

(Sort Group By Aggregation)

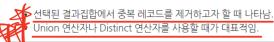
Sorting Buding Buding Coup by aggregation

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```
select deptno, job, sum(sal), max(sal), min(sal)
from emp
group by deptno, job
| Id | Operation | Name | Rows | Bytes | Cost (%CPU)| Time |
| 0 | SELECT STATEMENT | 11 | 165 | 4 (25) | 00:00:01 | 1 | HASH GROUP BY | 11 | 165 | 4 (25) | 00:00:01 | 2 | TABLE ACCESS FULL | EMP | 14 | 210 | 3 (0) | 00:00:01 |
```

### 4) Sort Unique



### 5) Sort Join

• Sort Merge Join을 수행할 때 나타남.

### 6) Window Sort

• 윈도우 함수를 수행할 때 나타남.