

Lab 08

Grupo P2G2

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Problema 8.1

#	Query	Rows	Cost	Pag. Reads	Time (ms)	Index used	Index Op.	Index Creation SQL
1	SELECT * FROM Production.WorkOrder	72591	0.473	570	438	WorkOrderID	Clustered Index Scan	N/A
2	SELECT * FROM Production.WorkOrder WHERE WorkOrderID=1234	1	0.003	16	38	WorkOrderID	Clustered Index Seek	N/A
3.1	SELECT * FROM Production.WorkOrder WHERE WorkOrderID between 10000 and 10010	11	0.003	16	48	WorkOrderID	Clustered Index Seek	N/A
3.2	SELECT * FROM Production.WorkOrder WHERE WorkOrderID between 1 and 72591	72591	0.474	580	1302	WorkOrderID	Index Seek (Non Clustered)	CREATE NONCLUSTERED INDEX [index] ON [Production]. [WorkOrder] ([WorkOrderID]) INCLUDE ([ProductID], [OrderQty], [StockedQty], [ScrappedQty], [StartDate], [EndDate], [DueDate], [ScrapReasonID], [ModifiedDate])

#	Query	Rows	Cost	Pag. Reads	Time (ms)	Index used	Index Op.	Index Creation SQL
4	SELECT * FROM Production.WorkOrder WHERE StartDate = '2007-06-25'	55	0.003	46	99	StartDate	Index Seek (Non Clustered)	CREATE NONCLUSTERED INDEX [index] ON [Production]. [WorkOrder] ([StartDate]) INCLUDE ([WorkOrderID], [ProductID], [OrderQty], [StockedQty], [ScrappedQty], [EndDate], [DueDate], [ScrapReasonID], [ModifiedDate])
5	SELECT * FROM Production.WorkOrder WHERE ProductID = 757	9	0.003	72	34	ProductID	Index Seek (Non Clustered)	N/A
6.1	SELECT WorkOrderID, StartDate FROM Production.WorkOrder WHERE ProductID = 757	9	0.003	220	42	ProductID Covered (StartDate)	Index Seek (Non Clustered)	N/A
6.2	SELECT WorkOrderID, StartDate FROM Production.WorkOrder WHERE ProductID = 945	1105	0.005	18	17	ProductID	Index Seek (Non Clustered)	CREATE NONCLUSTERED INDEX [index] ON [Production]. [WorkOrder] ([ProductID]) INCLUDE ([WorkOrderID], [StartDate])
6.3	SELECT WorkOrderID FROM Production.WorkOrder WHERE ProductID = 945 AND StartDate = '2006-01-04'	1	0.003	46	2	ProductID, StartDate	Index Seek (Non Clustered)	CREATE NONCLUSTERED INDEX [index] ON [Production]. [WorkOrder] ([ProductID], [StartDate]) INCLUDE ([WorkOrderID])

#	Query	Rows	Cost	Pag. Reads	Time (ms)	Index used	Index Op.	Index Creation SQL
7	SELECT WorkOrderID, StartDate FROM Production.WorkOrder WHERE ProductID = 945 AND StartDate = '2006-01-04'	1	0.003	212	33	ProductID, StartDate	Index Seek (Non Clustered)	CREATE NONCLUSTERED INDEX [index] ON [Production]. [WorkOrder] ([ProductID], [StartDate]) INCLUDE ([WorkOrderID])
8	SELECT WorkOrderID, StartDate FROM Production.WorkOrder WHERE ProductID = 945 AND StartDate = '2006-01-04'	1	0.003	46	9	ProductID, StartDate	Index Seek (Non Clustered)	CREATE NONCLUSTERED INDEX [index] ON [Production]. [WorkOrder] ([ProductID], [StartDate]) INCLUDE ([WorkOrderID])

Problema 8.2

a)

```
CREATE TABLE mytemp (
    rid BIGINT /*IDENTITY (1, 1)*/ NOT NULL,
    at1 INT NULL,
    at2 INT NULL,
    at3 INT NULL,
    lixo VARCHAR(100) NULL,
    PRIMARY KEY CLUSTERED (rid)
);
```

b)

Fillfactor	Milliseconds	Page fulness	Total Fragmentation
65	31397	70.03%	98.90%

c)

```
CREATE TABLE mytemp (  
    rid BIGINT /*IDENTITY (1, 1)*/ NOT NULL,  
    at1 INT NULL,  
    at2 INT NULL,  
    at3 INT NULL,  
    lixo VARCHAR(100) NULL,  
    PRIMARY KEY CLUSTERED (rid) WITH (FILLFACTOR=65/*80 ... 90*/, PAD_INDEX=ON /*OFF*/)  
);
```

Fillfactor	Milliseconds	Pad Index
65	62427	ON
65	61020	OFF
80	60103	ON
80	61594	OFF
90	68460	ON
90	65793	OFF

d)

```
CREATE TABLE mytemp (  
    rid BIGINT IDENTITY (1, 1) NOT NULL,  
    at1 INT NULL,  
    at2 INT NULL,  
    at3 INT NULL,  
    lixo VARCHAR(100) NULL,  
    PRIMARY KEY CLUSTERED (rid) WITH (FILLFACTOR=65/*80 ... 90*/, PAD_INDEX=ON /*OFF*/)  
);
```

Fillfactor	Milliseconds	Pad Index
65	54150	ON
65	55264	OFF
80	54930	ON
80	54810	OFF
90	53867	ON
90	54274	OFF

e)

```
create index at1 on mytemp(at1);
create index at2 on mytemp(at2);
create index at3 on mytemp(at3);
create index lixo on mytemp(lixo);
```

Fillfactor	Milliseconds
65	75764
80	75164
90	72764

Problema 8.3

i)

Uma vez que **Ssn** é *chave primária* de **EMPLOYEE**, é conveniente usarmos um **Cluster Index** com a especialização **Unique**.

```
CREATE UNIQUE CLUSTERED INDEX IxSsn ON EMPLOYEE(Ssn);
```

ii)

Como que queremos utilizar **mais que um** atributo para selecionar, teremos de usar a especialização **Composite** no nosso **Cluster Index**.

```
CREATE COMPOSITE CLUSTERED INDEX IxNames ON EMPLOYEE(Fname, Lname, );
```

iii)

Como cada funcionário já possui um atributo que identifica o departamento a que está associado (**Dno**), mas este pode ser repetido, não podemos utilizar nenhuma especialização.

```
CREATE CLUSTERED INDEX IxDno ON EMPLOYEE(Dno);
```

iv)

Como na tabela **WORKS_ON** temos uma associação de **Ssn** com **Pno**, podemos especializar com um **COMPOSITE** um **Cluster Index** de forma a selecionar estes dois atributos nesta tabela.

```
CREATE COMPOSITE CLUSTERED INDEX IxSsnPno ON WORKS_ON(Essn, Pno, );
```