Raquel Pinto – 92948, Alexandre Oliveira – 93282 (P2G9)

**Guião 9**

Problema 9.1:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Query** | **Rows** | **Cost** | **Pag. Reads** | **Time (ms)** | **Index used** | **Index op.** |
| 1 | select \* from Production.WorkOrder | 72591 | 0,47 | 552 | 1080 | WorkOrderID | Clustered Index Scan |
| 2 | select \* from Production.WorkOrder where WorkOrderID=1234 | 1 | 0,0032 | 26 | 48 | WorkOrderID | Clustered Index Scan |
| 3a | SELECT \* FROM Production.WorkOrder WHERE WorkOrderID between 10000 and 10010 | 11 | 0,0032 | 26 | 107 | WorkOrderID | Clustered Index Scan |
| 3b | SELECT \* FROM Production.WorkOrder WHERE WorkOrderID between 1 and 72591 | 72591 | 0,473 | 554 | 1033 | WorkOrderID | Clustered Index Scan |
| 4 | SELECT \* FROM Production.WorkOrder WHERE StartDate = '2007-06-25' | 55 | 0,473 | 1157 | 290 | WorkOrderID | Clustered Index Scan |
| 5 | SELECT \* FROM Production.WorkOrder WHERE ProductID = 757 | 9 | 0,032 | 44 | 104 | ProductID | Index Seek non Clustered |
| 6a | SELECT WorkOrderID, StartDate FROM Production.WorkOrder WHERE ProductID = 757 | 9 | 0,0032 | 26 | 8 | ProductID Covered | Index Seek non Clustered |
| 6b | SELECT WorkOrderID, StartDate FROM Production.WorkOrder WHERE ProductID = 945 | 1105 | 0,0059 | 30 | 78 | ProductID Covered | Index Seek non Clustered |
| 6c | SELECT WorkOrderID FROM Production.WorkOrder WHERE ProductID = 945 AND StartDate = '2006-01-04' | 1 | 0,0059 | 32 | 10 | ProductID Covered | Index Seek non Clustered |
| 7 | SELECT WorkOrderID, StartDate FROM Production.WorkOrder WHERE ProductID = 945 AND StartDate = '2006-01-04' | 1 | 0,0081 | 33 | 54 | ProductID and StartDate | Index Seek non Clustered |
| 8 | SELECT WorkOrderID, StartDate FROM Production.WorkOrder WHERE ProductID = 945 AND StartDate = '2006-01-04' | 1 | 0,0032 | 222 | 26 | Composite | Index Seek non Clustered |

Problema 9.2:

1. 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)

);

1. Inserted 50000 total records

Milliseconds used: 68376

Page fullness: 70,55 %

Total fragmentation: 99,26 %

i) fillFactor=65

Inserted 50000 total records

Milliseconds used: 72126

Page fullness: 69,61 %

Total fragmentation: 99,39 %

ii) fillFactor = 80

Inserted 50000 total records

Milliseconds used: 72566

Page fullness: 67,48 %

Total fragmentation: 98,71 %

iii) fillFactor = 90

Inserted 50000 total records

Milliseconds used: 71100

Page fullness: 68,86 %

Total fragmentation: 98,68 %

1. Inserted 50000 total record

Milliseconds used: 63016

1. Inserted 50000 total record

Milliseconds used: 92166

O uso de índices melhora o tempo de consulta, contudo aumenta o tempo de inserção. Por isso, o tempo na inserção com índices (alínea E -> 92166 ms) foi maior do que na inserção sem índices (alínea D -> 63016 ms).

Problema 9.3:

1. i)

|  |  |
| --- | --- |
| **Tabela** | **Índices** |
| EMPLOYEE | Ssn – unique clustered index |
| DEPARTMENT | Dnumber – unique clustered index |
| DEPT\_LOCATIONS | Dnumber,Dlocation – composite clustered index  Dlocation, Dnumber – composite non-clustered index |
| PROJECT | Pnumber – unique clustered index |
| WORKS\_ON | Pno, Essn – composite clustered index |
| DEPENDENT | Essn, Dependent\_name – composite clustered index |

ii)

|  |  |
| --- | --- |
| **Tabela** | **Índices** |
| EMPLOYEE | Fname,Lname – composite clustered index |
| DEPARTMENT | Dnumber – unique clustered index |
| DEPT\_LOCATIONS | Dnumber, Dlocation – composite clustered index  Dlocation, Dnumber – composite non-clustered index |
| PROJECT | Pnumber – unique clustered index |
| WORKS\_ON | Pno, Essn – composite clustered index |
| DEPENDENT | Essn, Dependent\_name – composite clustered index |

iii)

|  |  |
| --- | --- |
| **Tabela** | **Índices** |
| EMPLOYEE | Dno – clustered index |
| DEPARTEMENT | Dnumber – unique clustered index |
| DEPT\_LOCATIONS | Dnumber, Dlocation – composite clustered index  Dlocation, Dnumber – composite non-clustered index |
| PROJECT | Pnumber – unique clustered index |
| WORKS\_ON | Pno, Essn – composite clustered index |
| DEPENDENT | Essn, Dependent\_name – composite clustered index |

iv)

|  |  |
| --- | --- |
| **Tabela** | **Índices** |
| EMPLOYEE | Ssn – unique clustered index |
| DEPARTEMENT | Dnumber – unique clustered index |
| DEPT\_LOCATIONS | Dnumber, Dlocation – composite clustered index  Dlocation, Dnumber – composite non-clustered index |
| PROJECT | Pnumber – unique clustered index |
| WORKS\_ON | Pno, Essn – composite clustered index |
| DEPENDENT | Essn, Dependent\_name – composite clustered index |

v)

|  |  |
| --- | --- |
| **Tabela** | **Índices** |
| EMPLOYEE | Ssn – unique clustered index |
| DEPARTEMENT | Dnumber – unique clustered index |
| DEPT\_LOCATIONS | Dnumber, Dlocation – composite clustered index  Dlocation, Dnumber – composite non-clustered index |
| PROJECT | Pnumber – unique clustered index |
| WORKS\_ON | Pno, Essn – composite clustered index |
| DEPENDENT | Essn, Dependent\_name – composite clustered index |

vi)

|  |  |
| --- | --- |
| **Tabela** | **Índices** |
| EMPLOYEE | Ssn – unique clustered index |
| DEPARTEMENT | Dnumber – unique clustered index |
| DEPT\_LOCATIONS | Dnumber, Dlocation – composite clustered index  Dlocation, Dnumber – composite non-clustered index |
| PROJECT | Dnum – clustered index  Pnumber – unique non-clusteres index |
| WORKS\_ON | Pno, Essn – composite clustered index |
| DEPENDENT | Essn, Dependent\_name – composite clustered index |