Questão 3 – Recovery System

3.a) Fase de análise

Ficheiro de Log:

|  |  |  |  |
| --- | --- | --- | --- |
| **LSN** | **Type** | **Transaction** | **Page** |
| 10 | Update | T1 | P1 |
| 20 | Update | T2 | P2 |
| 30 | Begin\_checkpoint | - | - |
| 40 | End\_checkpoint | - | - |
| 50 | Commit | T1 |  |
| 60 | Update | T3 | P3 |
| 70 | Commit | T2 | - |
| 80 | Update | T3 | P2 |
| 90 | Update | T3 | P5 |

Tabela das Transações Activas:

|  |  |
| --- | --- |
| **Transaction** | **LastLSN** |
| T1 | Commited |
| T2 | Commited |
| T3 | 90 |

DPT (Dirty Page Table):

|  |  |
| --- | --- |
| **Page ID** | **RecLSN** |
| P1 | 10 |
| P2 | 20 |
| P3 | 60 |
| P5 | 90 |

3.b) Fase de redo

Ficheiro de Log:

|  |  |  |  |
| --- | --- | --- | --- |
| **LSN** | **Type** | **Transaction** | **Page** |
| 10 | Update | T1 | P1 |
| 20 | Update | T2 | P2 |
| 30 | Begin\_checkpoint | - | - |
| 40 | End\_checkpoint | - | - |
| 50 | Commit | T1 |  |
| 60 | Update | T3 | P3 |
| 70 | Commit | T2 | - |
| 80 | Update | T3 | P2 |
| 90 | Update | T3 | P5 |

Tabela das Transações Activas:

|  |  |
| --- | --- |
| **Transaction** | **LastLSN** |
| T1 | Commited |
| T2 | Commited |
| T3 | 90 |

DPT (Dirty Page Table):

|  |  |
| --- | --- |
| **Page ID** | **RecLSN** |
| P1 | 10 |
| P2 | 80 |
| P3 | 60 |
| P5 | 90 |

3.c) Fase de undo

Ficheiro de log:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **LSN** | **Type** | **Transaction** | **Page** | **undoNextLSN** |
| 10 | Update | T1 | P1 |  |
| 20 | Update | T2 | P2 |  |
| 30 | Begin\_checkpoint | - | - |  |
| 40 | End\_checkpoint | - | - |  |
| 50 | Commit | T1 |  |  |
| 60 | Update | T3 | P3 |  |
| 70 | Commit | T2 | - |  |
| 80 | Update | T3 | P2 |  |
| 90 | Update | T3 | P5 |  |
|  |  |  |  |  |
| 100 | CLR | T3 | P5 | 90 |
| 110 | CLR | T3 | P2 | 80 |
| 120 | CLR | T3 | P3 | null |
| 130 | END | T3 |  |  |