**Universidade Federal do Rio Grande do Norte – UFRN**

**Centro de Ciências Exatas e da Terra – CCET**

**Departamento de Informática e Matemática Aplicada – DIMAp**

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**PROBLEMA DO CATÃO ELETRÔNICO**

1. ***Características:***

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| --- | --- |
| **ID** | **Característica** |
| c1 | 0 ≤ *saldo* ≤ 100 |
| c2 | *Tipo* |
| c3 | *operacao* |

1. ***Blocos:***

|  |  |
| --- | --- |
| **ID** | **Bloco** |
| c1.b1 | 0 ≤ *saldo* ≤ 100 |
| c1.b2 | ¬(0 ≤ *saldo* ≤ 100) |
| c2.b1 | *Livre (saldo = 0)* |
| c2.b2 | *estudante ()* |
| c2.b3 | *inteira* |
| c3.b1 | *adicionarCredito* |
| c3.b2 | *debitarCredito* |
| c3.b2 | *consultarSaldo* |

1. ***Requisitos de Teste:***
2. AllCombinations

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** |  |  |  |
| AC\_R1 | c1.b1 | c2.b1 | c3.b1 |
| AC\_R2 |  |  | c3.b2 |
| AC\_R3 |  |  | c3.b3 |
| AC\_R4 |  | c2.b2 | c3.b1 |
| AC\_R5 |  |  | c3.b2 |
| AC\_R6 |  |  | c3.b3 |
| AC\_R7 |  | c2.b3 | c3.b1 |
| AC\_R8 |  |  | c3.b2 |
| AC\_R9 |  |  | c3.b3 |
| AC\_R10 | c1.b2 | c2.b1 | c3.b1 |
| AC\_R11 |  |  | c3.b2 |
| AC\_R12 |  |  | c3.b3 |
| AC\_R13 |  | c2.b2 | c3.b1 |
| AC\_R14 |  |  | c3.b2 |
| AC\_R15 |  |  | c3.b3 |
| AC\_R16 |  | c2.b3 | c3.b1 |
| AC\_R17 |  |  | c3.b2 |
| AC\_R18 |  |  | c3.b3 |

b) Each-choice

|  |  |
| --- | --- |
| **ID** | **Requisito** |
| EC\_R1 | c1.b1 |
| EC\_R2 | c1.b2 |
| EC\_R3 | c2.b1 |
| EC\_R4 | c2.b2 |
| EC\_R5 | c2.b3 |
| EC\_R6 | c3.b1 |
| EC\_R7 | c3.b2 |
| EC\_R8 | c3.b3 |

c) Pairwise

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | c1.b1 | c1.b2 | c2.b1 | c2.b2 | c2.b3 | c3.b1 | c3.b2 | c3.b3 |
| c1.b1 |  |  | PW\_R1 | PW\_R2 | PW\_R3 | PW\_R4 | PW\_R5 | PW\_R6 |
| c1.b2 |  |  | PW\_R7 | PW\_R8 | PW\_R9 | PW\_R10 | PW\_R11 | PW\_R12 |
| c2.b1 |  |  |  |  |  | PW\_R13 | PW\_R14 | PW\_R15 |
| c2.b2 |  |  |  |  |  | PW\_R16 | PW\_R17 | PW\_R18 |
| c2.b3 |  |  |  |  |  | PW\_R19 | PW\_R20 | PW\_R21 |
| c3.b1 |  |  |  |  |  |  |  |  |
| c3.b2 |  |  |  |  |  |  |  |  |
| c3.b3 |  |  |  |  |  |  |  |  |

**4) Casos de teste:**

All-­combinations:

|  |  |  |  |
| --- | --- | --- | --- |
| **TC** | **Entrada** | **Saída** | **Requisito** |
| 1 | 0, livre, “adicionarcredito” | FALSE | AC\_R1 |
| 2 | 0, livre, “debitarcredito” | FALSE | AC\_R2 |
| 3 | 0, livre, “consultarSaldo” | TRUE | AC\_R3 |
| 4 | 0, estudante, “adicionarcredito” | TRUE | AC\_R4 |
| 5 | 0, estudante, “debitarcredito” | FALSE | AC\_R5 |
| 6 | 0, estudante, “consultarSaldo” | TRUE | AC\_R6 |
| 7 | 0, inteira, “adicionarcredito” | TRUE | AC\_R7 |
| 8 | 0, inteira, “debitarcredito” | FALSE | AC\_R8 |
| 9 | 0, inteira, “consultarSaldo” | TRUE | AC\_R9 |
| 10 | -1, livre, “adicionarcredito” | FALSE | AC\_R10 |
| 11 | -1, livre, “debitarcredito” | FALSE | AC\_R11 |
| 12 | -1, livre, “consultarSaldo” | FALSE | AC\_R12 |
| 13 | -1, estudante, “adicionarcredito” | FALSE | AC\_R13 |
| 14 | -1, estudante, “debitarcredito” | FALSE | AC\_R14 |
| 15 | -1, estudante, “consultarSaldo” | FALSE | AC\_R15 |
| 16 | -1, inteira, “adicionarcredito” | FALSE | AC\_R16 |
| 17 | -1, inteira, “debitarcredito” | FALSE | AC\_R17 |
| 18 | -1, inteira, “consultarSaldo” | FALSE | AC\_R18 |

Each-Choice

|  |  |  |  |
| --- | --- | --- | --- |
| **TC** | **Entrada** | **Saída** | **Requisito** |
| 1 | 0, livre, debitarCredito | FALSE | EC\_R1, EC\_R3, EC\_R7 |
| 2 | -1, estudante, adicionarCredito | FALSE | EC\_R2, EC\_R4, EC\_R6 |
| 3 | 0, inteira, consultarSaldo | FALSE | EC\_R1, EC\_R5, EC\_R8 |

**Pairwise:**

|  |  |  |  |
| --- | --- | --- | --- |
| **TC** | **Entrada** | **Saída** | **Requisito** |
| 1 | 0, livre, adicionarCredito  (c1.b1, c2.b1, c3.b1) | FALSE | PW\_R1, PW\_R4, PW\_R13 |
| 2 | 0, estudante, debitarCredito  (c1.b1, c2.b2, c3.b2) | FALSE | PW\_R2, PW\_R11, PW\_R17 |
| 3 | 0, inteira, consutarSaldo  (c1.b1, c2.b3, c3.b3) | TRUE | PW\_R3, PW\_R5, PW\_R20, PW\_R6 |
| 4 | -1, livre, adicionarCredito  (c1.b2, c2.b1, c3.b1) | FALSE | PW\_R7, PW\_R10, PW\_R13 |
| 5 | -1, estudante, debitarCredito  (c1.b2, c2.b2, c3.b2) | FALSE | PW\_R8, PW\_R11, PW\_R5, PW\_R14 |
| 6 | -1, inteira, consultarSaldo  (c1.b2, c2.b3, c3.b3) | FALSE | PW\_R9, PW\_R12, PW\_R21 |
| 7 | -1, estudante, adicionarCredito  (c1.b2, c2.b2, c3.b1) | FALSE | PW\_R8, PW\_R10, PW\_R16 |
| 8 | livre, adicionarCredito, 0  (c2.b1, c3.b1, c1.b1) | FALSE | PW\_R15, PW\_R15, PW\_R13, PW\_R10 |
| 9 | Estudante, consultarSaldo, -1  (c2.b2, c3.b3, c1.b2) | FALSE | PW\_R18, PW\_R21 |
| 10 | -1, inteira, adicionarCredito  (c1.b2, c2.b3, c3.b1) | FALSE | PW\_R9, PW\_R6, PW\_R10, PW\_R19 |
| 11 | Inteira, adicionarCredito, 0  (c2.b3, c3.b1, c1.b1) | FALSE | PW\_R19, PW\_R9, PW\_R16 |
| 12 | Inteira, debitarCredito, 0  (c2.b3, c3.b2, c1.b1) | FALSE | PW\_R20, PW\_R3, PW\_R11 |

|  |  |
| --- | --- |
| **ID** | **Bloco** |
| c1.b1 | 0 ≤ *saldo* ≤ 100 |
| c1.b2 | ¬(0 ≤ *saldo* ≤ 100) |
| c2.b1 | *Livre (saldo = 0)* |
| c2.b2 | *estudante* |
| c2.b3 | *inteira* |
| c3.b1 | *adicionarCredito* |
| c3.b2 | *debitarCredito* |
| c3.b3 | *consultarSaldo* |

**PROBLEMA DA COMPETIÇÃO**

1. ***Características:***

|  |  |
| --- | --- |
| **ID** | **Característica** |
| c1 | 1 ≤ *nCompetidores* ≤ 1000 |
| c2 | 1 ≤ *nFolhas* ≤ 1000 |
| c3 | 1 ≤ *nFolhasPorCompetidor* ≤ 1000 |

1. ***Blocos:***

|  |  |
| --- | --- |
| **ID** | **Bloco** |
| c1.b1 | 1 ≤ *nCompetidores* ≤ 1000 |
| c1.b2 | ¬(1 ≤ *nCompetidores* ≤ 1000) |
| c2.b1 | (1 ≤ *nFolhas* ≤ 1000) |
| c2.b2 | ¬(1 ≤ *nFolhas* ≤ 1000) |
| c3.b1 | (1 ≤ *nFolhasPorCompetidor* ≤ 1000) |
| c3.b2 | ¬(1 ≤ *nFolhasPorCompetidor* ≤ 1000) |

1. ***Requisitos de Teste:***
2. AllCombinations

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** |  |  |  |
| AC\_R1 | c1.b1 | c2.b1 | c3.b1 |
| AC\_R2 |  |  | c3.b2 |
| AC\_R3 |  | c2.b2 | c3.b1 |
| AC\_R4 |  |  | c3.b2 |
| AC\_R5 | c1.b2 | c2.b1 | c3.b1 |
| AC\_R6 |  |  | c3.b2 |
| AC\_R7 |  | c2.b2 | c3.b1 |
| AC\_R8 |  |  | c3.b2 |

b) Each-choice

|  |  |
| --- | --- |
| **ID** | **Requisito** |
| EC\_R1 | c1.b1 |
| EC\_R2 | c1.b2 |
| EC\_R3 | c2.b1 |
| EC\_R4 | c2.b2 |
| EC\_R5 | c3.b1 |
| EC\_R6 | c3.b2 |

c) Pairwise

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | c1.b1 | c1.b2 | c2.b1 | c2.b2 | c3.b1 | c3.b2 |
| c1.b1 |  |  | PW\_R1 | PW\_R2 | PW\_R3 | PW\_R4 |
| c1.b2 |  |  | PW\_R5 | PW\_R6 | PW\_R7 | PW\_R8 |
| c2.b1 |  |  |  |  | PW\_R9 | PW\_R10 |
| c2.b2 |  |  |  |  | PW\_R11 | PW\_R12 |
| c3.b1 |  |  |  |  |  |  |
| c3.b2 |  |  |  |  |  |  |

**4) Casos de teste:**

All-­combinations:

|  |  |  |  |
| --- | --- | --- | --- |
| **TC** | **Entrada** | **Saída** | **Requisito** |
| 1 | 1, 1, 1 | TRUE | AC\_R1 |
| 2 | 1, 1, 10001 | FALSE | AC\_R2 |
| 3 | 1, 0, 1 | FALSE | AC\_R3 |
| 4 | 1, 10001, 10001 | FALSE | AC\_R4 |
| 5 | -1, 1000, 1000 | FALSE | AC\_R5 |
| 6 | -1, 1000, 10001 | FALSE | AC\_R6 |
| 7 | -1, 10001, 1000 | FALSE | AC\_R7 |
| 8 | -1, 10001, 10001 | FALSE | AC\_R8 |

Each-Choice

|  |  |  |  |
| --- | --- | --- | --- |
| **TC** | **Entrada** | **Saída** | **Requisito** |
| 1 | 1, 1, 1 | TRUE | EC\_R1, EC\_R3, EC\_R5 |
| 2 | -1, 10001, 10001 | FALSER | EC\_R2, EC\_R4, EC\_R6 |

**Pairwise:**

|  |  |  |  |
| --- | --- | --- | --- |
| **TC** | **Entrada** | **Saída** | **Requisito** |
| 1 | 1, 1, 1  (c1.b1, c2.b1, c3.b1) | TRUE | PW\_R1, PW\_R3, PW\_R9 |
| 2 | 1, 0, 10001  (c1.b1, c2.b2, c3.b2) | FALSE | PW\_R2, PW\_R2, PW\_R11 |
| 3 | 0, 10, 10  (c1.b2, c2.b1, c3.b1) | FALSE | PW\_R5, PW\_R7 |
| 4 | 0, 0, 10001  (c1.b2, c2.b2, c3.b2) | FALSE | PW\_R6, PW\_R8, PW\_R12 |
| 5 | 0, 10, 10001  (c1.b2, c2.b1, c3.b2) | FALSE | PW\_R5, PW\_R8, PW\_R10 |

**PROBLEMA DO DNA**

1. ***Características:***

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| --- | --- |
| **ID** | **Característica** |
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1. ***Blocos:***

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| --- | --- |
| **ID** | **Bloco** |
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1. ***Requisitos de Teste:***
2. AllCombinations

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b) Each-choice

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| **ID** | **Requisito** |
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c) Pairwise

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**4) Casos de teste:**

All-­combinations:

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| **TC** | **Entrada** | **Saída** | **Requisito** |
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Each-Choice

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| **TC** | **Entrada** | **Saída** | **Requisito** |
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**Pairwise:**

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| **TC** | **Entrada** | **Saída** | **Requisito** |
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