LAB 1 – DBI202

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Roll Number: SE160185

Class: AI1602

**Exercise 1:**

**1NF:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| OID | O\_Date | CID | C\_Name | C\_State | PID | P\_Desc | P\_Price | Qty |
| 1006 | 10/24/09 | 2 | Apex | NC | 7 | Table | 800 | 1 |
| 1006 | 10/24/09 | 2 | Apex | NC | 5 | Desk | 325 | 1 |
| 1006 | 10/24/09 | 2 | Apex | NC | 4 | Chair | 200 | 5 |
| 1007 | 10/25/09 | 6 | Acme | GA | 11 | Dresser | 500 | 4 |
| 1007 | 10/25/09 | 6 | Acme | GA | 4 | Chair | 200 | 6 |

**2NF:**

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| Orders table (key = OID)   |  |  |  |  |  | | --- | --- | --- | --- | --- | | OID | O\_Date | CID | C\_Name | C\_State | | 1006 | 10/24/09 | 2 | Apex | NC | | 1007 | 10/25/09 | 6 | Acme | GA | | Products table (key = PID)  1   |  |  |  | | --- | --- | --- | | PID | P\_Desc | P\_Price | | 4 | Chair | 200 | | 5 | Desk | 325 | | 7 | Table | 800 | | 11 | Dresser | 500 | |

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| Btime |
| 4.5 |
| 3 |
| 7 |
| 8 |
| 9 |

Result table (key = OID + PID)

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| Btime |
| 4.5 |
| 3 |
| 7 |
| 8 |
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| OID | Qty | PID |
| 1006 | 1 | 7 |
| 1006 | 1 | 5 |
| 1006 | 5 | 4 |
| 1007 | 4 | 11 |
| 1007 | 6 | 4 |

**3NF:**

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| Orders table (key = OID)  ∞∞∞∞   |  | | --- | | Btime | | 4.5 | | 3 | | 7 | | 8 | | 9 |  |  |  |  | | --- | --- | --- | | OID | O\_Date | CID | | 1006 | 10/24/09 | 2 | | 1007 | 10/25/09 | 6 | | Products table (key = PID)  1   |  |  |  | | --- | --- | --- | | PID | P\_Desc | P\_Price | | 4 | Chair | 200 | | 5 | Desk | 325 | | 7 | Table | 800 | | 11 | Dresser | 500 | | Customers table (key = CID)  1   |  |  |  | | --- | --- | --- | | CID | C\_Name | C\_State | | 2 | Apex | NC | | 6 | Acme | GA | |

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| Btime |
| 4.5 |
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Result table (key = OID + PID)

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| Btime |
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| --- | --- | --- |
| OID | Qty | PID |
| 1006 | 1 | 7 |
| 1006 | 1 | 5 |
| 1006 | 5 | 4 |
| 1007 | 4 | 11 |
| 1007 | 6 | 4 |

**Exercise 2:**

**Functional Dependencies**:

|  |  |  |
| --- | --- | --- |
| DID 🡪 Dname | EID 🡪 Ename  EID 🡪 DID | PID 🡪 Pname  EID, PID 🡪 Btime |

**2NF:**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Employee Table (key = EID)  1   |  |  |  |  | | --- | --- | --- | --- | | DID | Dname | EID | Ename | | 10 | Finance | 1 | Huey | | 10 | Finance | 5 | Dewey | | 10 | Finance | 11 | Louie | | 14 | R&D | 2 | Jack | | 14 | R&D | 4  1 | Jill | | Project Table (key = PID)   |  |  | | --- | --- | | PID | Pname | | 21 | Hill | | 22 | Gamma | | 25 | Beta | | 26 | Pail | | 27 | Alpha | |  |
| Result Table (key = EID + PID)  ∞∞∞∞   |  | | --- | | Btime | | 4.5 | | 3 | | 7 | | 8 | | 9 |   ∞∞∞∞   |  | | --- | | Btime | | 4.5 | | 3 | | 7 | | 8 | | 9 |  |  |  |  | | --- | --- | --- | | EID | Btime | PID | | 1 | 4.5 | 27 | | 5 | 3 | 25 | | 11 | 7 | 22 | | 2 | 8 | 26 | | 4 | 9 | 21 | |  |  |

**3NF**:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Department Table (key = DID)   |  |  | | --- | --- | | DID | Dname | | 10 | Finance | | 14 | R&D |   1 | Employee Table (key = EID)  1   |  |  |  | | --- | --- | --- | | EID | Ename | DID | | 1 | Huey | 10 | | 2 | Jack | 14 | | 4 | Jill | 14 | | 5 | Dewey | 10 | | 11 | Louie | 10  ∞∞∞∞   |  | | --- | | Btime | | 4.5 | | 3 | | 7 | | 8 | | 9 | | | Project Table (key = PID)   |  |  | | --- | --- | | PID | Pname | | 21 | Hill | | 22 | Gamma | | 25 | Beta | | 26 | Pail | | 27 | Alpha | |

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| Btime |
| 4.5 |
| 3 |
| 7 |
| 8 |
| 9 |

Results table (key = EID + PID)

|  |  |  |
| --- | --- | --- |
| EID | PID | Btime |
| 1 | 27 | 4.5 |
| 5 | 25 | 3 |
| 11 | 22 | 7 |
| 2 | 26 | 8 |
| 4 | 21  ∞∞∞∞   |  | | --- | | Btime | | 4.5 | | 3 | | 7 | | 8 | | 9 | | 9 |