**1NF**

* Is the given database in 1NF? If not, why and convert it into 1NF.

Yes

Transitive dependencies

Full Dependency

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **AID** | ALname | AFname | Alnst | **BNbr** | Bname | BPublish | PubCity | Bprice | AuthBRoyalty |

Partial dependencies

Partial dependencies

**2NF**

* Is the result from 1 above in 2NF? If not, why and convert it into 2NF. Give one example of insertion anomaly to explain why an existing dependency is undesirable.

No, it is not 2NF because there is 2 primary keys. For example, AID and BNbr.

|  |  |  |  |
| --- | --- | --- | --- |
| **AID** | ALname | AFname | Alnst |

Author

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BNbr** | Bname | BPublish | PubCity | Bprice |

Book

Transitive dependencies

|  |  |  |
| --- | --- | --- |
| **AID** | **BNbr** | AuthBRoyalty |

Publish Line

**3NF**

* Is the result from 1 above in 3NF? If not, why and convert it into 3NF. Give one example of update anomaly to explain why an existing dependency is undesirable.

No, it is not 3NF. Because there is transitive dependencies. For example, BPublish dependence on BNbr.

|  |  |  |  |
| --- | --- | --- | --- |
| **AID** | ALname | AFname | Alnst |

Author

|  |  |  |  |
| --- | --- | --- | --- |
| **BNbr** | Bname | Bprice | **BPublish** |

Book

|  |  |
| --- | --- |
| **BPublish** | PubCity |

Publisher

|  |  |  |
| --- | --- | --- |
| **AID** | **BNbr** | AuthBRoyalty |

Publish Line